

First Year B.Voc Software Development 2025-26

SEMESTER – I

Sr. No.	Category	Course Code	Course Name	Teaching Scheme					Evaluation Scheme			
				L	T	P	Hrs./Week	Cr	Components	Max	Min for Passing	
1	PCC	25BVS1101	Basics of Computing	3	--	--	3	3	CA1	10		40
									MSE	30		
									CA2	10		
									ESE	50	20	
2	PCC	25BVS1102	Cyber Culture & Digital Citizenship	3	--	--	3	3	CA1	10		40
									MSE	30		
									CA2	10		
									ESE	50	20	
3	PCC	25BVS1103	Programming in C	3	--	--	3	3	CA1	10		40
									MSE	30		
									CA2	10		
									ESE	50	20	
4	PCC	25BVS1104	Operating System	3	--	--	3	3	CA1	10		40
									MSE	30		
									CA2	10		
									ESE	50	20	
5	IKS	25BVS1105	Constitution of India	2	--	--	2	2	CA1	25		20
									MSE	--		
									CA2	25		
									ESE	--	--	
6	AEC	25BVS1106	Communication Skills	2	--	--	2	2	CA1	25		20
									MSE	--		
									CA2	25		
									ESE	--	--	
7	PCC	25BVS1101 L	Basics of Computing Laboratory	--	--	2	2	1	CA1	25		40
									CA2	25		
									POE	50	20	
8	PCC	25BVS1107 L	Office Automation Laboratory	--	--	2	2	1	CA1	25		40
									CA2	25		
									POE	50	20	
9	PCC	25BVS1103 L	Programming in C Laboratory	--	--	2	2	1	CA1	25		40
									CA2	25		
									POE	50	20	
10	AEC	25BVS1106 L	Communication Skills Laboratory	--	--	2	2	1	CA1	25		40
									CA2	25		
									POE	50	20	
11	OJT	25BVS1108	SSC/Q0508 Junior Software Developer (SSC/Q1301)	--	--	--	--	12	CA1	50		80
									CA2	50		
									OE	100	40	
			Total	16	--	08	24	32		1100		
Total Contact Hours – 24 Total Credits - 32												

First Year B.Voc Software Development 2025-25
SEMESTER – II

Sr. No.	Category	Course Code	Course Name	Teaching Scheme					Evaluation Scheme			
				L	T	P	Hrs /W week	Cr	Components	Max	Min for Passing	
1	PCC	25BVS1201	Web Designing	3	--	--	3	3	CA1	10	20	40
									MSE	30		
									CA2	10		
									ESE	50		
2	PCC	25BVS1202	Computer Network	3	--	--	3	3	CA1	10	20	40
									MSE	30		
									CA2	10		
									ESE	50		
3	PCC	25BVS1203	Object Oriented Programming Using C ++	3	--	--	3	3	CA1	10	20	40
									MSE	30		
									CA2	10		
									ESE	50		
4	PCC	25BVS1204	Linux Operating System	3	--	--	3	3	CA1	10	20	40
									MSE	20		
									CA2	10		
									ESE	50		
5	AEC	25BVS1205	Development of Life Skills	2	--	--	2	2	CA1	25	--	20
									MSE	--		
									CA2	25		
									ESE	--		
6	PCC	25BVS1201L	Web Designing Laboratory	--	--	2	2	1	CA1	25	20	40
									CA2	25		
									POE	50		
7	PCC	25BVS1203L	Object Oriented Programming Using C ++ Laboratory	--	--	2	2	1	CA1	25	20	40
									CA2	25		
									POE	50		
8	PCC	25BVS1204L	Linux Operating System Laboratory	--	--	2	2	1	CA1	25	20	40
									CA2	25		
									POE	50		
10	AEC	25BVS1205L	Development of Life Skills Laboratory	--	--	2	2	1	CA1	25	--	20
									CA2	25		
									POE	--		
11	OJT	25BVS1206	HAR/SD-1/CCHPI Hardware Peripheral and Installation Assistant	--	--	--	--	12	CA1	50	40	80
									CA2	50		
									OE	100		
			Total	14		08	22	30		1000		
Total Contact Hours – 32 Total Credits - 30												

Title of the Course: Basics of Computing Course Code: 25BVS1101	L	T	P	Credit
	3	--	--	3

Course Prerequisite: NIL

Course Description:

"Basics of Computing" is an introductory engineering course designed to provide students with a foundational understanding of computer systems and their applications. The course covers fundamental concepts in hardware, software, preparing students for more advanced studies in computer science and technology. In this course students will learn various software and hardware components of computer.

Course Objectives:

By the end of this course, students will be able to:

1. The Knowledge regarding the basic components of computer.
2. The various number system used in digital electronics.
3. The different types of memory used in computer.
4. The knowledge regarding the various peripheral's devices.

Course Outcomes:

CO	After the completion of the course the student should be able to:
CO1	Explain various components of computer.
CO2	Convert the given number in various number system.
CO3	Classify types of computer memory.
CO4	Draw interconnections between various hardware components of computers
CO5	List applications of various types of software.

CO-PO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3			3							
CO2	3	3	3	2	3						
CO3	2	3		3							3
CO4	3	1	3	1					2		
CO5	3		3					3			1

Assessment Scheme:

Two components of 'In Semester Evaluation' (ISE), One 'Mid Semester Examination' (MSE) and one End Semester Examination (ESE) having 20%, 30% and 50% weightage respectively.

Assessment Component	Marks
CA1	10
MSE	30
CA2	10
ESE	50

CA1 and **CA2** are based on Assignment/Declared test/Quiz/ Seminar/Group discussions/ presentation, etc.

MSE is based on 50% of course content (first three units).

ESE is based on 100% course content with 60-80% weightage for course content (last three units) covered after MSE.

Course Contents:

Unit No.	Unit Name and Contents	Hours
1	Basics of Computer Computer: definition, characteristics, advantages and disadvantages Generations of computer, Block diagram of computer Types of computers: Based on technology: analog, digital and hybrid, Based on physical size: micro, mini, mainframe and super computer	08
2	Numbering System Number Systems Introduction and types - Decimal, Binary, Octal and Hexadecimal, Conversion of Number Systems: Decimal to Binary, Decimal to Octal and Decimal to Hexadecimal; Concept of Bit, Byte, Kilobyte, Megabyte, Gigabyte and Terabyte, ASCII, EBCDIC and Unicode	08
3	Memory Overview of Memory Types of Memory a. Primary Memory: RAM and ROM b. Secondary Memory: Hard disk, CD, DVD, USB flash memory & Solid-state memory	08
4	Hardware Concept of hardware, components of computer: motherboard, SMPS, ports and graphics card, Input devices - keyboard, mouse, scanner, Output devices - monitor: CRT, flat panel & touch screen, printer: dot matrix, ink-jet & laser and plotter	08
5	Software Concept of software, types: system software and application software Application software: word processing, spreadsheet and presentation program Relationship between hardware and software.	08

Learning Resources			
Sr. No.	Title of Book	Name of Author	Publisher
1	Computers And Commonsense	R. Hunt and Shell Y.	BPB Publications
2	Computer Fundamentals	V. Rajaraman	PHI Learning
3	Computer Fundamentals and Applications	Ashok Arora	Vikas Publishing House
4	Foundations of Computing	Pradeep Sinha & Priti Sinha	BPB Publications
5	Computer Fundamentals	Anita Goel	Pearson Education

Useful Links:
1. https://artoftesting.com/computer-fundamentals-tutorial
2. https://www.javatpoint.com/computer-fundamentals-tutorial
3. https://www.tutorialspoint.com/computer_fundamentals/index.htm
4. https://www.nios.ac.in/media/documents/sec229new/Lesson1.pdf

Assessment Scheme:

Two components of 'In Semester Evaluation' (ISE), One 'Mid Semester Examination' (MSE) and one End Semester Examination (ESE) having 20%, 30% and 50% weightage respectively.

Assessment Component	Marks
CA1	10
MSE	30
CA2	10
ESE	50

CA1 and CA2 are based on Assignment/Declared test/Quiz/ Seminar/Group discussions/ presentation, etc.

MSE is based on 50% of course content (first three units).

ESE is based on 100% course content with 60-80% weightage for course content (last three units) covered after MSE.

Course Contents:

Unit No.	Unit Name and Contents	Hours
1	Introduction to Digital Communication Basic terms: Cyber, cyberspace and cyber media, Characteristics of Cyber Media, Cyber media types: blogs, micro-blogs, instant messaging, wikis, podcasts, widgets, Discussion Forums, News Aggregators, photo-sharing sites, video sharing sites, Live stream platforms, virtual worlds, and social networking sites, Need Cyber of Media, Impact of cyber media on education, youth, society, politics, business, and Consumer Behavior, Emerging Cyber Media Trends: Short-form video content, Influencer culture and content monetization, AI-generated media, AI assistants, Augmented Reality (AR) & Virtual Reality (VR).	08
2	Introduction to Social Media What is social media? What is Traditional Media?, Social media vs traditional media, Risks and Concerns of social media: privacy concerns, cyberbullying and trolling, misinformation and fake news, overuse and addiction, social comparison and mental health and scams, phishing, and fraud	08
3	Introduction to Digital Footprints What is information explosion? Causes of information explosion Digital Footprints: meaning, types of digital footprints (active and passive) and examples, Importance and Implications of Digital Footprints for privacy and security, social media and footprint generation, tracking through cookies and analytics, Managing Your Digital Footprints (Tips for controlling online presence).	08
4	Digital Ownership What are digital assets? Intellectual Property Rights: Meaning, Purpose, Types - copyright, patent, trademark, Industrial Designs, Geographical Indications and Trade Secrets	08

	What is plagiarism? How to give proper credit online, Tips to protect photos, documents and creative work, Use of Watermarks, privacy settings, backups	
5	Digital citizen Digital Citizenship: Meaning, importance and Rights and responsibilities of digital citizens, Net Etiquette (Netiquette) - Basic manners in email and chat communication, avoiding spam, unnecessary forwards, and chain messages, Respectful commenting and replying and Using emojis and CAPS LOCK correctly and Respecting others' privacy, Social Media Etiquette - Thinking before posting, giving credit when sharing someone else's content, Handling disagreements respectfully and Avoiding trolling and sharing false information and Not participating in cancel culture or online shaming	08

Learning Resources			
Sr. No.	Title of Book	Name of Author	Publisher
1	The Social Media Age	Zoet Anya Sujon	SAGE Publications, 2001
2	Your Digital Footprint and Password Protection Requirements	Ronald Hudkins	Hudkins Publishing, 2014
3	Smart Online Communication	Mary Lindeen	Lerner Publishing Group
4	Intellectual Property Rights	Neeraj Pandey, Khush deep Dharni	PHI Learning, 2014

Useful Links:
1. https://egyankosh.ac.in/bitstream/123456789/75403/1/Unit-4.pdf
2. https://intellipaat.com/blog/what-is-cyber-media/
3. https://www.kaspersky.com/resource-center/definitions/what-is-a-digital-footprint

Title of the Course: Programming in C Course Code: 25BVS1103	L	T	P	Credit
	3	--	--	3

Course Prerequisite: The prerequisites for learning C programming is:

1. Logical Thinking and Problem-Solving Skills

Course Description:

This course is designed to introduce students about the fundamentals of programming, c programming as a platform. Students learn to design, develop, and test structured programs using C.

Course Objectives:

By the end of this course, students will be able to:

1. The basic concepts of programming.
2. The importance of variables, data types, operators.
3. The use of control structures.
4. The implementation of Arrays and Pointers in C.
5. Structure and file management.

Course Outcomes:

CO	After the completion of the course the student should be able to:
CO1	Write and execute simple c program.
CO2	Use various operators in C to perform arithmetic, relational, logical, and assignment operations
CO3	Use decision making constructs (if, if-else, nested if-else, switch, etc.) to control the flow of a program
CO4	Use two-dimensional arrays to represent matrices and tables, and use of functions in c.
CO5	Understand the concept of file management in C.

CO-PO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2	3		2							
CO2	3	1		3							
CO3	1	3	1	1							
CO4	2		2	2	1						
CO5			2		2						

Assessment Scheme:

Two components of 'In Semester Evaluation' (ISE), One 'Mid Semester Examination' (MSE) and one End Semester Examination (ESE) having 20%, 30% and 50% weightage respectively.

Assessment Component	Marks
CA1	10
MSE	30
CA2	10
ESE	50

CA1 and **CA2** are based on Assignment/Declared test/Quiz/ Seminar/Group discussions/ presentation, etc.

MSE is based on 50% of course content (first three units).

ESE is based on 100% course content with 60-80% weightage for course content (last three units) covered after MSE.

Course Contents:

Unit No.	Unit Name and Contents	Hours
1	Fundamental of the Computer and Computing Concepts Software: Instruction, Program, software, interpreter, compiler. Process of programming: Editing, Compiling, Error Checking, executing, testing and debugging of programs. Flowcharts and Algorithms for various program logics.	08
2	Types, Operators and Expressions Features of C language. C Tokens, Data types, sizes, initialization and declarations Arithmetic operators, relational and logical operators, increment and decrement operators, bitwise operators, assignment operators, Expressions, conditional expressions precedence and order of evaluation, type conversions.	08
3	Control Flow Statements and Blocks: If-else, if-else ladder, nested if-else, switch-case, Loops: while, for, do while, break, continue, go to and Labels. Functions and Program Structure: Basic of functions, in build functions, user defined functions, function returning various data types, external variables scope rules.	08
4	Arrays and Pointers in C Initializing arrays, initializing character arrays, multidimensional arrays. Pointer: Definition and uses of pointers, Pointers to integers, characters, floats, arrays	08
5	Structures in C and File Management: Union in C , Basics of structures, structures and functions arrays of structures, Pointers in structures. Introduction to File Management: Defining and Opening File, Closing File, Input/output Operations on File. Variance & Standard Deviation, Theorems on Variance and Standardized Random Variables.	08

Learning Resources			
Sr. No.	Title of Book	Name of Author	Publisher
1	How to Solve it by Computer	R G Dromey	Pearson Education.
2	Let Us C	Yashwant Kanitkar	PHI

Useful Links:	
1.	http://www.cprogramming.com/tutorial/c-tutorial.html
2.	http://nptel.ac.in/courses/106104128/
3.	http://nptel.ac.in/courses/106105085/1

Title of the Course: Operating System Course Code: 25BVS1104	L	T	P	Credit
	3	--	--	3

Course Prerequisite: Prerequisite for an operating system course typically including foundation knowledge in computer science.

Course Description:

This course covers the fundamental concepts and principles of operating systems, including process management, memory management, file systems, and input/output management. Students learn about the design, implementation, and management of operating systems.

Course Objectives:

By the end of this course, students will be able to:

1. The student understands the difference between process and threads
2. The student should know about CPU Scheduling and Algorithms
3. The able to understand various memory management techniques.
4. The student should understand file management system.

Course Outcomes:

CO	After the completion of the course the student should be able to:
CO1	Explain the concept, history, and functions of operating systems
CO2	Describe process states and the process control block (PCB).
CO3	Describe the different types of scheduling algorithms and their characteristics
CO4	Use various memory management techniques.
CO5	Summarize file management system

CO-PO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2							2			
CO2	2	3		2	1						
CO3	1	2	3	1				3			
CO4	2	1		2	2						2
CO5	1	2	2					2			

Assessment Scheme:

Two components of ‘In Semester Evaluation’ (ISE), One ‘Mid Semester Examination’ (MSE) and one End Semester Examination (ESE) having 20%, 30% and 50% weightage respectively.

Assessment Component	Marks
CA1	10
MSE	30
CA2	10
ESE	50

CA1 and CA2 are based on Assignment/Declared test/Quiz/ Seminar/Group discussions/ presentation, etc. **MSE** is based on 50% of course content (first three units).

ESE is based on 100% course content with 60-80% weightage for course content (last three units) covered after MSE.

Course Contents:

Unit No.	Unit Name and Contents	Hours
1	Operating System Operating System: Concept, History, Functions of OS: Memory Management, Process Management, File Management, Device/Resource Management, I/O Management, Networking and Security, Advantages and Disadvantages of operating system, Views of OS: User view and System View, Types of Operating Systems- Batch Operating System, Multiprogramming Operating System, Time Sharing Operating System, Multiprocessing Operating System, Distributed Operating System, Network Operating System, Real Time Operating System and Mobile OS (Android & iOS), Command line-based OS - DOS and UNIX, GUI based OS - WINDOWS and LINUX	08
2	Process Management Process:- process states, Process Control Block (PCB), Process Scheduling - Scheduling Queues, Schedulers, Context switch, Inter-process communication (IPC): Introduction, shared memory system and message passing system, Threads – Benefits, users and kernel threads, Multithreading Models – Many to One, One to One, Many to Many	08
3	CPU Scheduling and Algorithms Scheduling types – scheduling Objectives, CPU and I/O burst cycles, Pre-empties, Non- Pre-emptive Scheduling, Scheduling criteria, Types of Scheduling algorithms – First come first served (FCFS), Shortest Job First (SJF), Shortest Remaining Time (SRTN), Round Robin (RR), Priority scheduling, Deadlock – System Models, Necessary Conditions leading to Deadlocks, Deadlock Handling – Preventions, avoidance	08
4	Memory Management Basic Memory Management: Partitioning, Fixed and variable partition, Free space management Techniques – Bitmap and linked List	08

	Virtual Memory – Introduction to paging, segmentation, fragmentation and Page fault, Page replacement algorithm – FIFO, LRU and Optimal	
5	File Management System File – Concepts, Attributes, Operations, types and File System Structure Access Methods – Sequential, Direct, Swapping, File Allocation Methods- Contiguous, Linked, Indexed, Directory structure Single level, two levels, tree- structured directory, Disk Organization and disk Structure-Physical structure, Logical structure, Raid structure of disk, raid level 0 to 6	08

Learning Resources			
Sr. No.	Title of Book	Name of Author	Publisher
1	Operating System, 2nd Edition	Khurana Rohit	Vikas Publishing House
2	Operating Systems	Dr. R.C. Joshi	Dream tech Press
3	Foundation of Operating Systems	D P Sharma	Excel Books
4	Operating System Concepts and Techniques	M. Naghibzadeh	iUniverse
5	Operating System	Rajiv Chopra	American Mathematical Soc

Useful Links:	
1.	https://boonsuen.com/process-scheduling-solver
2.	http://cpuburst.com/ganttcharts.html
3.	https://codepen.io/faso/pen/zqWGQW
4.	https://www.studytonight.com/operating-system/

Assessment Scheme:

Two components of 'In Semester Evaluation' (ISE), One 'Mid Semester Examination' (MSE) and one End Semester Examination (ESE) having 20%, 30% and 50% weightage respectively.

Assessment Component	Marks
CA1	25
MSE	--
CA2	25
ESE	--

CA1 and CA2 are based on Assignment/Declared test/Quiz/ Seminar/Group discussions/ presentation, etc.

Course Contents:

Unit No.	Unit Name and Contents	Hours
1	The Constitution – Introduction The History of the Making of the Indian Constitution, Preamble and the Basic Structure, and its interpretation, Fundamental Rights and Duties and their interpretation, State Policy Principles, Citizenship	06
2	Union Government Structure of the Indian Union, President – Role and Power	06
3	Central Government Prime Minister and Council of Ministers, Lok Sabha and Rajya Sabha	06
4	State Government Governor – Role and Power, Chief Minister and Council of Ministers	06
5	Local Administration District Administration, Municipal Corporation	06

Learning Resources			
Sr. No.	Title of Book	Name of Author	Publisher
1	Ethics and Politics of the Indian Constitution	Rajeev Bhargava	Oxford University Press, New Delhi, 2008
2	The Constitution of India	B.L. Fadia Sahitya Bhawan	New edition (2017)
3	Introduction to the Constitution of India	D.D. Basu	Lexis Nexis; Twenty-Third, 2018 edition
4	Ethics and Politics of the Indian Constitution	Rajeev Bhargava	Oxford University Press, New Delhi, 2008

Useful Links:
1. https://www.constitution.org/cons/india/const.html
2. http://www.legislative.gov.in/constitution-of-india

Title of the Course: Communication Skills	L	T	P	Credit
Course Code: 25BVS1106	2	--	--	2

Course Prerequisite: English subject at HSC.

Course Description:

The course intends to make learners understand and develop various communication skills required in day-to-day life as well as in professional contexts. As domain knowledge and skills have become equally important in today's technology-driven world, the current course and the one being offered in the Third Year will provide the learners a great opportunity to strengthen their English communication and soft skills. Keeping in mind the current competence of the learners, the course aims to provide them with revision and ample practice in the skills essential for their professional life. It includes four modules that cover basic concepts and theory of communication, business communication, verbal aptitude (English grammar), language learning skills, letter writing, and comprehension. In addition to Listening, Speaking, Reading, and Writing (LSRW) the course sees Thinking as an essential language learning skill.

Course Objectives:

By the end of this course, students will be able to:

1. To understand the fundamentals of communication theory and its relevance in a professional context.
2. To apply the listening and reading comprehension skills.
3. To summarize the techniques to improve spoken English and to provide the students with a platform for practicing these skills.
4. To prepare the students to write correct and effective business letters, official letters, and covering letters with resume, and to participate in Group Discussion (GD) and face the interviews.

Course Outcomes:

CO	After the completion of the course the student should be able to:
CO1	Demonstrate the communication process, methods of communication, and flow of Communication in a business context
CO2	Apply acquired LSRW skills in real-life situations and in a professional context
CO3	Compose effective business and cover letters using standard language, style, and structure
CO4	Apply the techniques for effective participation in GD and tips to face interviews successfully.

CO-PO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1							1		3		1
CO2							3		3		2
CO3									3		1
CO4							2		3		2

Assessment Scheme:

Two components of 'In Semester Evaluation' (ISE), One 'Mid Semester Examination' (MSE) and one End Semester Examination (ESE) having 20%, 30% and 50% weightage respectively.

Assessment Component	Marks
CA1	25
MSE	--
CA2	25
ESE	--

CA1 and CA2 are based on Assignment/Declared test/Quiz/ Seminar/Group discussions/ presentation, etc.

Course Contents:

Unit No.	Unit Name and Contents	Hours
1	Communication Theory Communication basics: Importance, process, levels, forms, methods: verbal and non-verbal, Barriers and solutions, Flow/channels of business, communication (Internal, External, Vertical, Horizontal, Diagonal, Grapevine), Problems and Solutions	07
2	Enhancing Language Learning Skills (LSRW) Effective listening: Process and advantages of listening, poor listening habits, types of listening, strategies for effective listening, listening barriers Effective speaking: Importance of telephonic conversation, various oral business contexts/situations, group communication, Preparing effective public communications, Effective reading: Importance, types, overcoming common obstacles, tips and strategies, Effective Writing: Mastering English Essentials and Fundamentals, paragraph and essay writing techniques, diary/blog writing Art of précis writing, Techniques to comprehend and summarize a given technical, scientific, or industry-oriented text, Thinking is intricately with the LSRW skills	07
3	Formal Business Correspondence Principles, structure (elements), Layout (complete block, modified block, semi-block), Types (enquiry and replies, claim and adjustment)	07
4	Employability Skills Covering letter and resume, Group Discussion, Interviews (Online / Offline) Introduction to soft skills (Etiquettes, Team Work, Empathy, Problem Solving etc.)	07

Learning Resources			
Sr. No.	Title of Book	Name of Author	Publisher
1	Developing Communication Skills	Krishna Mohan Meera Banerji	Macmillan Publishers India Ltd.
2	Communication Skills for Engineers and Scientists	Sangeeta Sharma Binod Mishra	PHI Learning Private Limited.
3	Professional Communication Skills	Er. A.K.Jain Dr.Pravin S.R. Bhatia Dr. A.M.Shaikh	S.Chand
4	Personality Development and Soft skills	Barun K.Mitra	Oxford University Press

Useful Links:
1. https://www.bbc.co.uk/learningenglish
2. https://www.grammarly.com/blog/handbook/
3. https://learnenglish.britishcouncil.org/grammar

Title of the Course: Basics of Computing Laboratory Course Code: 25BVS1101L	L	T	P	Credit
	--	--	2	1

Course Prerequisite: Nil.

Course Description:

"Basics of Computing" is an introductory engineering course designed to provide students with a foundational understanding of computer systems and their applications. The course covers fundamental concepts in hardware, software, preparing students for more advanced studies in computer science and technology. In this course students will learn various software and hardware components of computer.

Course Objectives:

By the end of this course, students will be able to:

1. The Knowledge regarding the basic components of computer.
2. The various number system used in digital electronics.
3. The different types of memory used in computer.
4. The knowledge regarding the various peripherals devices.
5. The understanding of various types of software.

Course Outcomes:

CO	After the completion of the course the student should be able to:
CO1	Identify various components and peripherals of computer.
CO2	handle hardware and software of computer.
CO3	Demonstrate various processes like start, restart, sleep, hibernate and shutdown.
CO4	perform installation of various software.
CO5	Perform remote desktop software such as Quick Assist or Any Desk or TeamViewer.

CO-PO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2		3					3			
CO2	3		3	2							
CO3	3			2			2				
CO4	2			3							
CO5	3		2					2			

Assessment Scheme:

Two components of In- Semester Evaluation (ISE), CA1 and CA2 having weightage of 25% each, Practical Examination at the end of semester will carry 50% weightage.

Assessment Component	Marks
CA1	25
MSE	--
CA2	25
OE	50

CA1 and **CA2** are based on Assignment/Declared test/Quiz/ Seminar/Group discussions/ presentation, etc. **OE** is based on the practical examination carried out at the end of the semester.

Course Contents:

Unit No.	Unit Name and Contents	Hours
1	Identification and understanding working of external components of computer system - keyboard, mouse, monitor, printer, scanner, projector, CD, DVD, DVD-ROM, pen drive, webcam, graphics tablet, light pen, microphone, speaker, headphone, and headset.	02
2	Identification and understanding working of Internal components of computer system - SMPS, motherboard, CPU, hard disk, RAM, ROM, CMOS, NIC, graphics card and ports.	02
3	Acquirement of computer hardware.	02
4	Acquirement of computer software.	02
5	Installation of computer peripherals like mouse, keyboard and monitor.	02
6	Learn computer start, restart, sleep, hibernate and shutdown processes.	02
7	Learn files and folder management (create, cut, copy, paste, delete, etc) in windows environment.	02
8	Installation of application software – MS Office or OpenOffice.	02
9	Installation the IDE / Editors / Compilers for VS Code for C and C++, JDK and Python on the computer.	02
10	Learn remote desktop software such as Quick Assist or Any Desk or TeamViewer.	02

Learning Resources			
Sr. No.	Title of Book	Name of Author	Publisher
1	Computers And Commonsense	R. Hunt and Shell Y.	BPB Publications
2	Computer Fundamentals and Applications	Ashok Arora	Vikas Publishing House
3	Computer Fundamentals	Anita Goel	Pearson Education
4	Computers And Commonsense	R. Hunt and Shell Y.	BPB Publications

Useful Links:
1. https://artoftesting.com/computer-fundamentals-tutorial
2. https://www.javatpoint.com/computer-fundamentals-tutorial
3. https://www.tutorialspoint.com/computer_fundamentals/index.htm

Title of the Course: Office Automation Laboratory Course Code: 25BVS1107L	L	T	P	Credit
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Course Prerequisite: Basic Computer Knowledge.

Course Description:

The B.Voc subject Office Automation equips students with the skills and knowledge to efficiently manage office operations using technology. It covers the use of software applications such as word processing, spreadsheets, presentations, and database management to automate tasks, enhance productivity, and improve office workflow. Students learn to create documents, reports, and presentations, manage data, and perform various office tasks using automation tools, preparing them for roles in office administration and management.

Course Objectives:

By the end of this course, students will be able to:

1. To equip students with skills in using office automation software and tools.
2. To familiarize students with various office automation applications
3. To improve accuracy, speed, and quality of office work through automation.
4. To enable students to adapt to new office automation technologies and software.

Course Outcomes:

CO	After the completion of the course the student should be able to:
CO1	Perform Basic operations in office suite software.
CO2	Use various features in word processing software.
CO3	Perform various data operation in Spreadsheets.
CO4	Use various formulae and table in spreadsheet software.
CO5	Demonstrate presentation using office automation tools.

CO-PO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	1				3				1		
CO2	1				3				2		
CO3	2	1			3						
CO4	2	2	1	1	3						
CO5					3		1		2	1	

Assessment Scheme:

Two components of In- Semester Evaluation (ISE), CA1 and CA2 having weightage of 25% each, Practical Examination at the end of semester will carry 50% weightage.

Assessment Component	Marks
CA1	25
MSE	--
CA2	25
OE	50

CA1 and **CA2** are based on Assignment/Declared test/Quiz/ Seminar/Group discussions/ presentation, etc. **OE** is based on the practical examination carried out at the end of the semester.

Course Contents:

Unit No.	Unit Name and Contents	Hours
1	Basic operations in office suite software	02
2	Editing and formatting a document by using word processing software	02
3	Inserting illustrations, header, footer and page numbering in the document by using word processing software	02
4	Performing the table operations in the document by using word processing software	02
5	Insert, arrange and edit the data in spreadsheet software	02
6	Format the data, sort & filter the data and prepare the charts in spreadsheet software	02
7	Use various formulae in spreadsheet software	02
8	Use of pivot table in spreadsheet software	02
9	Design the slide and insert the data by using presentation program	02
10	Apply the animations to slide by using presentation program	02

Learning Resources			
Sr. No.	Title of Book	Name of Author	Publisher
1	Basic Statistics	B. L. Agarwal	New Age International
2	Statistical Methods	S. P. Gupta	Sultan Chand & sons
3	Fundamentals of Mathematical Statistics	S. C. Gupta and V. K. Kapoor	Sultan Chand & sons
4	Statistics for Business and Marketing Research	Kishore K. Das, Dibyoyoti Bhattacharjee	PHI Learning

Useful Links:
1. https://www.youtube.com/watch?v=xxpc-HPKN28
2. https://www.statology.org/tutorials/
3. https://www.tutorialspoint.com/statistics/index.htm
4. https://www.khanacademy.org/math/statistics-probability
5. https://w3schools.com/statistics/

Title of the Course: Programming in C Laboratory Course Code: 25BVS1103L	L	T	P	Credit
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Course Prerequisite: The prerequisites for an engineering subject C Programming Lab typically include:

1. Basic computer.
2. Literacy Mathematical.
3. Maturity Basic problem-solving ability.

Course Description:

This course introduces students to the fundamentals of programming using the C programming language. Students learn to design and develop structured programs using C.

Course Objectives:

By the end of this course, students will be able to:

1. The basic concepts of programming.
2. The importance of variables, data types, operators.
3. The use of control structures.
4. The implementation of Arrays and Pointers in C.
5. Structure and file management.

Course Outcomes:

CO	After the completion of the course the student should be able to:
CO1	Draw flow chart and algorithm for given problem
CO2	Use variables and data types
CO3	Implements controls structures
CO4	Work with arrays and pointers
CO5	Demonstrate file handling

CO-PO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	2	2		2							
CO2	1	3		2				1			
CO3	2	2	1	1				2			
CO4	2	2	2	2							
CO5	1	1	1	1				1			

Assessment Scheme:

Two components of In- Semester Evaluation (ISE), CA1 and CA2 having weightage of 25% each, Practical Examination at the end of semester will carry 50% weightage.

Assessment Component	Marks
CA1	25
MSE	--
CA2	25
OE	50

CA1 and **CA2** are based on Assignment/Declared test/Quiz/ Seminar/Group discussions/ presentation, etc. **OE** is based on the practical examination carried out at the end of the semester.

Course Contents:

Unit No.	Unit Name and Contents	Hours
1	Preparation of flow chart and algorithm for given program (e. g, program to find maximum of three numbers, program to from table of given number etc)	02
2	Implement arithmetic, relational, and logical operations in C programs and display the results.	02
3	Write a C program to implement various control flow statements such as if-else, and loops, to solve a given problem.	02
4	Write a C program to implement switch case statements	02
5	Develop a C program to print the Fibonacci series using a loop	02
6	Implement a program to find the largest and smallest elements in an array.	02
7	Create a C program to transpose a matrix using a two-dimensional array.	02
8	Define a structure to represent a student record with attributes like name, roll number, and marks, and write a program to display the student details.	02
9	Develop a C program to swap two numbers using pointers.	02
10	Implement file handling operations in C to copy the contents of one file to another.	02

Learning Resources			
Sr. No.	Title of Book	Name of Author	Publisher
1	Let us C	Yashavant Kanetkar	PHI
2	How to Solve it by Computer	R G Dromey	Pearson Education

Useful Links:	
1.	https://open.umn.edu/opentextbooks/textbooks/programming-fundamentals-a-modular-structured-approach-using-c
2.	https://open.umn.edu/opentextbooks/textbooks/how-to-think-like-a-computer-scientist-c-version
3.	http://nptel.ac.in/courses/106/105/106105225
4.	https://www.programiz.com/cpp-programming
5.	https://www.tpointtech.com/cpp-tutorial

Title of the Course: Communication Skills Laboratory	L	T	P	Credit
Course Code: 25BVS11105L	--	--	2	1

Course Prerequisite: English subject at HSC, Communication Skills Theory.

Course Description:

This is a practice-oriented course, laying importance on application of various skills being learnt in the Communication Skills theory course such as grammar, techniques and strategies for improving English sub-skills and vocabulary, etc. In addition, this course focuses on English speaking, reading, writing skills, effective presentation and build confidence.

Course Objectives:

By the end of this course, students will be able to:

1. To exhibit confident and effective communication skills in presentations, group discussions, and role-plays.
2. To design clear, concise, and persuasive messages in written and oral formats, applying principles of effective communication.
3. To analyze the students' own communication strengths and weaknesses, identifying areas for improvement.
4. To deliver engaging presentations, incorporating visual aids and effective delivery techniques.
5. To assess the effectiveness of communication strategies, providing constructive feedback and suggestions for improvement.

Course Outcomes:

CO	After the completion of the course the student should be able to:
CO1	Demonstrate confidence in public speaking, group discussions, and other communication settings.
CO2	Create engaging and informative content for presentations, reports, and other written assignments.
CO3	Use nonverbal communication effectively, including body language, tone of voice, and facial expressions.
CO4	Practice active listening skills, including paraphrasing, summarizing, and asking clarifying questions.
CO5	Adapt their communication style to different audiences, purposes, and contexts, demonstrating flexibility and effectiveness.

CO-PO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1							3		3		
CO2									3		
CO3									3		
CO4							2		3		
CO5							2		3		

Assessment Scheme:

Two components of In- Semester Evaluation (ISE), CA1 and CA2 having weightage of 25% each, Practical Examination at the end of semester will carry 50% weightage.

Assessment Component	Marks
CA1	25
MSE	--
CA2	25
OE	50

CA1 and **CA2** are based on Assignment/Declared test/Quiz/ Seminar/Group discussions/ presentation, etc. **OE** is based on the practical examination carried out at the end of the semester.

Course Contents:

Unit No.	Unit Name and Contents	Hours
1	Icebreaking: Introducing yourself and others Adjectives, phrases, and clauses to describe yourself and others Introducing yourself and others demonstration	02
2	Introduction to English Building Blocks -1 Grammar fundamentals: parts of speech, tenses, prepositions, articles, modals, Vocabulary building: synonyms, antonyms, prefixes/suffixes, idioms, phrases	02
3	Verbal Aptitude1(Discussion on applications of grammar) Using proper tenses, correct use of articles, conjunctions and prepositions	02
4	Verbal Aptitude 2(Watching videos and solving grammar exercises) Using proper tenses, correct use of articles, conjunctions and prepositions	02
5	Listening practice Listening comprehension, Strategies for effective listening with audio/video samples	02
6	Speaking practice-1 Video samples of effective and ineffective public speeches, Extempore (JAM), prepared speeches	02
7	Speaking practice-2 Prepared speeches	02
8	Group Discussion-1 Group discussion tips, Dos and Don'ts, video samples Mock GD-1, analysis and comments on individual performances	02
9	Group Discussion-2 Final GD participation	02

10	Interview 1 Discussing interview FAQs in detail, video samples Mock interviews (prepared and formal)	02
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Learning Resources			
Sr. No.	Title of Book	Name of Author	Publisher
1	Better English Pronunciation	J.D. O'Connor	Nira Konar
2	A Practical Course in Spoken English	J.K. Gangaj	PHI Learning Pvt. Ltd
3	A Practical Course in Spoken English	Nira Konar	PHI Learning

Useful Links:
1. https://www.bbc.co.uk/learningenglish
2. https://www.grammarly.com/blog/handbook/
3. https://learnenglish.britishcouncil.org/grammar
4. https://www.bbc.co.uk/learningenglish
5. https://www.youtube.com/user/TEDxTalks
6. https://www.geeksforgeeks.org/group-discussion/

Title of the Course: SSC/Q0508 Junior Software Developer	L	T	P	Credit
Course Code: 25BVS1108	--	--	--	12

Course Prerequisite: 1) Basic I.T. Skills
2) Communication skills.

Course Description:

Junior Software Developer course offers students, the opportunity to explore and develop their careers through professional practice. The structured plan of education impacts student work readiness through several professional development skill-building activities, including goal setting; analysis and reflection; feedback from employer; informational interviewing and briefing their experience.

Course Objectives:

By the end of this course, students will be able to:

1. To provide practical exposure to the students.
2. To bridge the gap between theory and practical.
3. To foster professional development.
4. To provides hands-on experience and practices.
5. To prepare students for employability.

Course Outcomes:

CO	After the completion of the course the student should be able to:
CO1	Apply theoretical knowledge while working practically
CO2	Acquire industry-specific skills
CO3	Enhance problem-solving and critical thinking skill
CO4	Develop a deeper understanding of the industry
CO5	Gain industry insights and networking opportunities

CO-PO Mapping:

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
CO1	3		3	2							
CO2			3		3			3			3
CO3		3	3	3							
CO4	3		3			3		3			
CO5							3		3		3

Assessment Scheme:

Two components of In- Semester Evaluation (ISE), CA1 and CA2 having weightage of 25% each, Practical Examination at the end of semester will carry 50% weightage.

Assessment Component	Marks
CA1	50
MSE	--
CA2	50
OE	100

CA1 and **CA2** are based on Assignment/Declared test/Quiz/ Seminar/Group discussions/ presentation, etc.
OE is based on the practical examination carried out at the end of the semester.

Useful Links:

1 <https://www.sscnasscom.com/qp-qpservices>