Course code: Course Title	Course Structure			Pre-Requisite
SE103: Computer Workshop -I	L	T	P	NIL
	0	0	4	

Course Objective: Students of Software Engineering are to work with various hardware and software not only in academia but also in the company. Thus, students should get familiar with various hardware, software, operating systems, and networking. This course will provide students a much-needed knowledge of computer hardware and networking, enabling them to identify and rectify onboard computer hardware, software, and network-related problems. With the help of this course, the student will be able to understand the hardware specifications that are required to run an operating system and various application programs.

S. No	Course Outcomes (CO)
CO1	Describe the procedure for installation of software on different systems and identify the various components of hardware systems.
CO2	Identify and demonstrate components of computer and operating system and their troubleshooting.
CO3	Describe the basics of Internet and web design.
CO4	Perform the process of software installation.

S. No	Contents
UNIT 1	Assembly/Disassembly of Computers: Hardware peripherals like RAM, ROM, input devices, output devices, processors, etc. Processors and processor core counts and frequency etc. motherboards, internal and external connectors. Types of data cables. LAN, Audio, and Video. The physical set-up of Printers- Scanner set-up, Webcam, Bluetooth device, Memory card reader, etc. Working of SMPS. Connection of different types of devices to the ports (CPU), Single board computer: Raspberry Pi. Assembly/Dis-assembly of Laptop: Mounting of processor. Fixing of the motherboard in the tower case. Connection to the power supply. Installation of drivers. Connection of cables. Mount the memory modules. Install the internal cards. Connection of the external devices and power.

UNIT 2	Computer Network Setup: Networking components, devices, and tools; Preparing the network cables, network setup, configuration and management commands, Installation and configuration of network interface card and identification of MAC address,. Sharing of resources. Software Installations: Installation of Windows Operating System, Types of software and their installations, some useful software (MS office, Adobe Acrobat, Google Chrome, VLC Media Player, LibreOffice, Win Rar).
UNIT 3	PC Maintenance: POST (Power on Self-Test), identifying problems by Beep codes errors, checking power supply using Multi-meter, Replacement of components etc. Introduction to MS office: Introduction to MS office - MS Word, MS PPT, MS Excel, Working with MS Word.
UNIT 4	Tools for Online Teaching and Meetings: Setting & troubleshooting of online meetings and video conferencing like google meet, zoom, Microsoft teams, Webex etc; use of google classroom and google forms for teaching, feedback, and evaluation. Internet and Basic Webpage Design: Searching the Internet, checking the speed of Internet connection, usage of E-Commerce, creating webpage using HTML, CSS with static text, images, tables, audio, video etc and dynamic contents, animation usage and tools for webpages.
UNIT 5	AI & ML Applications: Case studies using module (Blackbox based) integration for AI & ML and its applications.

REFERENCES

S.No.	Name of Books/Authors/Publishers	Year of Publication / Reprint
1	Assembling and Repairing Personal Computers; Dan L. Beeson, Prentice Hall Certification.	1999
2	Practical Computers Network: Server Configuration Based on Windows; B. K. Kothari, M. Singh, V. Katariya, LAP LAMBERT Academic Publishing.	2017
3	PC Repair & Troubleshooting Guide Paperback; M. E. Soper, BPB Publications.	2017

4	Introduction to Microsoft Windows for Engineering and Technology; James L. Antonakos, Kenneth C. Mansfield Jr., Pearson.	2000
5	Introduction to Artificial Intelligence; Charniak, D. McDermott, Pearson Educaion India.	2002

Course code: Course Title	**Course Structure**			**Pre-Requisite**
SEC106: Computer Workshop-II	**L**	**T**	**P**	**NIL**
	0	**0**	**4**	

Course Objective: Students of Software Engineering require to develop software or product for solving real world problems in academia, and industry. Thus, this course will teach the process of developing a software with feasible solution. Students will gain knowledge about storing the data in a system, using diagrammatic representation and establishing relationship among different attributes of a data. This course will help them in understanding diagrammatically the flow of data among different modules. With the help of this course, students will be able to understand the importance of analyzing problem and it's solution from developer and customer perspective.

S. No	**Course Outcomes (CO)**
CO1	Demonstrate the modelling of data stored in a database.
CO2	Demonstrate the way information is flowing through the system.
CO3	Describe the procedure for designing data flow diagram and context diagram.
CO4	Describe the process of interaction among external entities with an internal software system.
CO5	Demonstrate the process of collecting requirements form the user for software development.

S. No	**Contents**

UNIT 1	Software Requirement: Development of Software Requirement Specification, Software Requirements Analysing tools, Validation of Requirements, Case study based on Requirement Specification Engineering.
UNIT 2	Data Flow Diagrams: Symbols used for constructing DFD, Synchronous and Asynchronous Operations, Data Dictionary, DFD model of a system consisting of hierarchy of DFDs, construction of context diagram, construction of level1 diagram, construction of lower-level diagrams, construction of level 2 diagrams, data dictionary for the DFD model.
UNIT 3	Structure Chart: Extension of DFD technique for designing real-time systems, Structured design, transformation of a DFD Model into structure chart, transform analysis, transaction analysis, and detailed design.
UNIT 4	Microsoft Excel: Manage workbook options and settings, apply custom data formats and layouts, create tables, perform operations with formulas and functions, create charts and objects, manage workbook options and settings, apply advanced conditional formatting and filtering, prepare a workbook for internationalization, create advanced formula, perform data analysis, troubleshoot problems, create, and manage pivot tables, create, and manage pivot charts. Introduction to Structured Query Language: SQL Data Types, SQL Operators, SQL Expressions, SQM Comments, Data Definition Language, Data Manipulation Language, Data Control Language, SQL Functions, SQL Queries and Sub Queries, Case study based on SQL Queries.
UNIT 5	Microsoft PowerPoint: Introduction, windows features, presentation slides, create slide presentation, editing techniques, slide master, format slide, transitions and animation, slide illustration and shapes, slide show, print presentation.

REFERENCES

S.No.	Name of Books/Authors/Publishers	Year of Publication / Reprint

1	Software Requirements and Specifications: A Lexicon of Practice, Principles and Prejudices (ACM Press); M. Jackson, Addison-Wesley Professional.	1995
2	Data Flow Diagrams - Simply Put!: Process Modeling Techniques for Requirements Elicitation and Workflow Analysis: 5; T. Hathaway, A. Hathaway, Createspace Independent Pub.	2016
3	Excel 2021: Everything you need to know about Excel to go from Beginner to Expert; Nora E Wright.	2021
4	Microsoft PowerPoint Guide for Success: Learn in a Guided Way to Create, Edit & Format Your Presentations Documents to Visual Explain Your Projects & Colleagues Big Four Consulting Firms Method;K. Pitch, Top Notch International.	2022