Course Code	Course Title	L	T	P	S	J	C
CSEN1041	COMPUTER ENGINEERING WORKSHOP	0	0	2	0	0	1
Course Owner	Department of CSE	Syllabus version				1.0	
Course Pre-requisite(s)		Contact hours				15 Weeks	
Course Co-requisite(s)		Approved on:					
Alternate Exposure							

This course will provide student a much-needed knowledge of computer hardware and networking, enabling them to identify and rectify the onboard computer hardware, software and network related problems. With the help of this course the student will be able to understand the hardware specifications and installation of System Software MS-Windows, Linux and the required device drivers. In addition, hardware and software level troubleshooting process, tips and tricks would be covered. Usage of web browsers, e-mails, news groups and discussion forums would be covered. In addition, awareness of Ms Office- Word, Excel and PowerPoint and other Cloud based productivity enhancement and collaboration tools would be introduced.

Course Objectives
1. To get familiar with hardware components of a computer, I/O Devices, ports etc.
2. To understand basic command of Linux.
3. Learn how to use Internet for productivity and self-paced lifelong learning.
4. Understand the concepts of Compression, Multimedia and Antivirus tools.
5. Study Office Tools such as Word processors, Spreadsheets and PowerPoint etc.

Module I: PC Hardware and Software   LTP   006

Task 1: Identification of peripherals of a PC, Laptop, Server and Smart Phones: Prepare a report containing the block diagram along with the configuration of each component and its functionality, Input/ Output devices, I/O ports and interfaces, main memory, cache memory and secondary storage technologies, digital storage basics, networking components and speeds.

Task 2: Introduction to operating system. Installation of Windows and Linux operating systems.

Windows: -Evolution of operating system. Introduction to software. Types of software (MS office, VLC media player, Win rar), open office, web browser, etc.)

Task 3: This task covers basic commands and system administration in Linux, including basic Linux commands in bash, ping, ssh, ifconfig, scp, netstat, ipstat, nslookup, traceroute, telnet, host, ftp, arp, wget,route.

Task 4: Every student should individually set up and configuring a new Virtual Machine and Exporting and packaging an existing Virtual Machine into a portable format.

Learning Outcomes:

After completion of this unit, the student will be able to

- Assemble and disassemble components of a PC.   L2

- identify the names, distinguishing features, and units for measuring different kinds of   L1
  Components and storage devices

- Construct a fully functional virtual machine.   L3
- install system software's like windows and Linux   L3
- perform various Linux operating system commands.   L3

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Module II: Internet and World Wide Web   LTP   006
Task 5: Internet: Introduction and evolution of internet. Study of various internet-based services like email, social network, chat, etc. Introduction to cyber security and cyber laws.

Task 6: Internet Services: Web Browser usage and advanced settings like LAN, proxy, content, privacy, security, cookies, extensions/ plugins.

Task 7: Server: Introduction to server. Difference between server and normal desktop. Evolution of servers. Study of various servers like email, data, domain, etc.

Learning Outcomes:

After completion of this unit, the student will be able to

- Integrate the PCs into local area network and re-install operating system and various application programs. — L1
- Manage data backup and restore operations on computer and update application software. — L2
- resolve physical and/or logical problems and issues within computing hardware — L3
- Perform the process of scanning, identifying, diagnosing and resolving problems, errors and bugs in software — L3
- resolve the issues due to incorrect installation or restoring software after corruption or file deletion caused by a virus — L3

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Module III: Word & PowerPoint   LTP   006

Task 8: MS Word: Importance of MS office - -Formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option in Word.

Task 9: Creating a Newsletter: Features to be covered: - Table of Content, Newspaper columns, Images from files and clipart, Drawing toolbar and Word Art, Formatting Images, Textboxes, Paragraphs and Mail Merge in word.

Task 10: MS PowerPoint: Basic power point utilities and tools which help ful to create basic power point presentation. Topic covered during this includes PPT Orientation, Slide Layouts, Inserting Text, Word Art, Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows.

Task 11: Introduction to HTML & Basic syntax of html Attributes, elements, lists, and basic programs.

Learning Outcomes:

After completion of this unit, the student will be able to

- Create Word document that include formatting Options. — L3
- Inserting Header and Footer, Using Date and Time option in Word. — L1
- Create slide presentations that include text, graphics, animation, and transitions. — L3
- Use design layouts and templates for presentations. — L3
- Use Basic syntax of html Attributes. — L3

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Module IV: Excel   LTP   006

Task 12: Excel Orientation: The importance of MS office 2007/10 tool Excel as a Spreadsheet tool, Accessing, overview of toolbars, saving excel files, Using help and resources. Creating a Scheduler - Features to be covered: - Gridlines, Format Cells, Summation, auto fill, Formatting Text.

Task 13: Calculating GPA -. Features to be covered: - Cell Referencing, Formulae in excel – average, std. deviation, Charts, Renaming and Inserting worksheets, Hyper linking, Count function, LOOKUP/VLOOKUP, Sorting, Conditional formatting.

Learning Outcomes:

After completion of this unit, the student will be able to

- Identify the names and functions of the Excel interface components. — L1
- Enter and edit data, Format data and cells. — L1
- Use formulas, including the use of built-in functions, and relative and absolute references. — L3
- Create and modify charts. — L3
- Preview and print worksheets. — L2

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Module V: Cloud based productivity enhancement and collaboration tools   LTP   006

Task 14: Store, sync, and share files with ease in the cloud using Google Drive

Document creation and editing text documents in your web browser using Google docs

Handle task lists, create project plans, analyze data with charts and filters using Google Sheets

Create pitch decks, project presentations, training modules using Google Slides.

Task 15: Manage event registrations, create quizzes, analyze responses using Google Forms

o Build public sites, internal project hubs using Google Sites

o Online collaboration through cross-platform support using Jam board

o Keep track of important events, sharing one's schedule, and create multiple calendars using Google Calendar.

Learning Outcomes:

After completion of this unit, the student will be able to

1.	Use Cloud based productivity enhancement and collaboration tools	L3
2.	Create document, editing text documents in your web browser using Google docs	L3
3.	Handle task lists, create project plans, analyze data with charts and filters using Google Sheets	L2
4.	Build public sites, internal project hubs using Google Sites	L3
5.	create quizzes, analyze responses using Google Forms	L3

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Textbook(s):

1. Computer Fundamentals, Anita Goel, Pearson Education, 2017
2. PC Hardware Trouble Shooting Made Easy, TMH

Additional Reading

Reference Book(s):

1. Essential Computer and IT Fundamentals for Engineering and Science Students, Dr.N.B.Vekateswarlu, S.Chand

Coursera Courses:

1. https://www.coursera.org/learn/technical-support-fundamentals

Journal(s):

1.

Website(s):

1) https://explorersposts.grc.nasa.gov/post631/2006-2007/computer_basics/ComputerPorts.doc

2) https://explorersposts.grc.nasa.gov/post631/2006-2007/bitsnbyte/Digital_Storage_Basics.doc

3) https://www.thegeekstuff.com/2009/07/linux-ls-command-examples

4) https://www.pcsuggest.com/basic-linux-commands/

5) https://www.vmware.com/pdf/VMwarePlayerManual10.pdf

6) https://geek-university.com/vmware-player/manually-install-a-guest-operating-system/

7) https://gsuite.google.com/learning-center/products/#!/

Course Outcomes: After successful completion of the course the student will be able to:

1. Disassemble and assemble the computer system.
2. Install any system software and application software.
3. Perform hardware and software trouble shooting by checking solutions from web
4. Record any activities in a document. Prepare Graphs, perform computations using formulas etc.
5. Prepare presentations using different useful features.

	Programme Outcomes (POs)												PSOs		
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**
CO1	2		1		2				2			1	1	2	1
CO2	2		1		2				2			1	1	2	1
CO3	2	1	2		2				2			1	1	2	1
CO4	2		1		2				2			1	1	2	1
CO5	2	1	1		2				2			1	1	2	1

1-Low, 2- Medium and 3- High Correlation