



GUJARAT TECHNOLOGICAL UNIVERSITY

Program Name: Engineering

Level: Diploma

Branch: Metallurgy Engineering

Course / Subject Code: DI03021011

Course / Subject Name: Basics of Computer Application

w. e. f. Academic Year:	2024-25
Semester:	3 rd
Category of the Course:	ESC

Prerequisite:	Diploma metallurgy engineers must have a few foundational skills and knowledge. A basic understanding of English is important, as most computer applications use English terminology. Familiarity with fundamental mathematics and logical thinking also supports better comprehension of how computer systems work. Additionally, having basic typing skills and general awareness of technology such as using a smartphone or digital device can make learning easier. Though not mandatory, these prerequisites help learners to grasp key concepts more efficiently and navigate various computer applications with confidence.
Rationale:	Diploma metallurgy engineers must be aware about the fundamentals of computer application. The objective of this course is to make the students understand the functioning of MS-Office. It will also help the students to have hands on experience on various application software's used for office automation like MS-Word, MS-Excel and MS-PowerPoint, day-to-day problem solving, in particular for creating business documents, data analysis and graphical representations.

Course Outcome:

After Completion of the Course, Student will able to:

No	Course Outcomes	RBT Level
01	Identify computer hardware, software, and basic functions of the Windows operating system.	A
02	Use MS Office software for word-processing, data analysis and preparing presentation.	A
03	Use computer networks, internet services, and data sharing tools securely and effectively.	A

**Revised Bloom's Taxonomy (RBT)*



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Teaching and Examination Scheme:

Teaching Scheme (in Hours)			Total Credits L+T+ (PR/2)	Assessment Pattern and Marks				Total Marks
L	T	PR	C	Theory		Tutorial / Practical		
				ESE (E)	PA(M)	PA(I)	ESE (V)	
0	0	6	3	00	00	50	50	100

Course Content:

Unit No.	Content
1.	Basics of Computer System 1.1 Concept of Hardware and Software 1.2 Computer Block Diagram 1.3 Input Devices: a) Keyboard, b) Point and draw device: mouse, joystick, track ball, light pen c) Data Scanning devices: image scanner, OCR, OMR, MICR, bar code reader, card reader d) Voice Recognition Device e) Digitizers 1.4 Output Devices: a) Monitor b) Printers: Dot matrix, Laser, Inkjet, c) Plotters d) Scanners 1.5 System Software and Application Software 1.6 Operating System Concepts, Purpose and Functions 1.7 Operations of Windows OS 1.8 Creating and Naming of Files and Folders 1.9 Copying File, Renaming and Deleting of Files and Folders 1.10 Searching Files and Folders, Installation Application, Creating Shortcut of Application On Desktop 1.11 Overview of Control Panel, Taskbar
2.	Documentations Using Text Processing (MS Office) 2.1 Basics of Font type, size, colour, Effects and other text formatting features 2.2 Page settings and margins including header and footer in word document.



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	<p>2.3 Spelling and Grammatical checks</p> <p>2.4 Table and its options, inserting rows or columns, merging and splitting cells, Arithmetic Calculations in a Table.</p> <p>2.5 Working with pictures, Drawings and WordArt</p> <p>2.6 Mail merge</p> <p>Using Spreadsheet (MS Office)</p> <p>2.7 Introduction to data, Cell address, Excel Data Types, formatting, number, text and date Concept of hyperlink in Worksheet</p> <p>2.8 Understanding formulas, Operators and Common spreadsheet functions</p> <p>2.9 Types of graphics: Word art, auto shapes, Images, charts</p> <p>2.10 Concept of print area, margins, header, footer and other page setup options</p> <p>2.11 Overview of Spreadsheets and how to create Spreadsheets</p> <p>Using Professional Presentation (MS Office)</p> <p>2.12 Creating new Slides, Working with text boxes, fonts, tables, Layouts, themes, effects, background and Colours</p> <p>2.13 Selecting, deleting, moving, copying, resizing and arranging objects.</p> <p>2.14 Working with drawing tools, applying shape or picture styles, applying object borders, object fill, object effects, clip art collection and modifying clip art</p> <p>2.15 Embed a video, Link to a video, Size a video, Video playback options.</p> <p>2.16 Configuring a sound playback, assigning sound to an object, Adding a digital music sound track, Transition effects and timings</p> <p>Using Gujarati IME</p> <p>2.17 Installation of Gujarati IME Software</p> <p>2.18 How to change language English to Gujarati</p> <p>2.19 Introduction about the Gujarati keyboards</p> <p>2.20 Introduction about the Gujarati</p>
3.	<p>Computer Networks and Data Sharing</p> <p>3.1 Basics of Computer Networks</p> <ul style="list-style-type: none">3.1.1 Needs3.1.2 Types3.1.3 Topologies3.1.4 Components <p>3.2 Network Cables and Connectors</p>



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	<p>3.3 Overview of Network Devices</p> <p>3.4 IP Addresses Basics</p> <p>3.5 Computer and Peripheral sharing in LAN</p> <p>3.6 Remote Login</p> <p> 3.6.1 Remote Desktop</p> <p> 3.6.2 Telnet</p> <p> 3.6.3 FTP</p> <p>3.7 Data Transfer or sharing</p> <p> 3.7.1 Using LAN</p> <p> 3.7.2 Bluetooth</p> <p> 3.7.3 Wi-Fi</p> <p> 3.7.3 Modems</p>
4.	<p>Internet Services</p> <p>4.1 Internet</p> <p>4.2 Web Browser and Browsing Websites</p> <p>4.3 Search engines</p> <p>4.4 WWW and URL</p> <p>4.5 E-mail</p> <p>4.6 Video-Conferencing/online Meet</p> <p>4.7 Online Games</p> <p>4.8 E-Commerce</p> <p>4.9 Forums</p> <p>4.10 Online Data Management</p> <p> 4.10.1 Online Quiz</p> <p> 4.10.2 Online Forms</p> <p> 4.10.3 Online Assignment</p> <p>4.11 Cyber security</p> <p> 4.11.1 Threats in Internet: Virus, Malware</p> <p> 4.11.2 Preventing Tools: Antivirus, Firewall</p>



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Suggested Specification Table with Marks (Theory): Not Applicable

References/Suggested Learning Resources:

(A) Books:

Sr. No.	Author	Title of Book	Publication
1.	R. Taxali	Computer Course	Tata McGraw Hills, New Delhi.
2.	Wallace Wang	MS-Office for Dummies	Wiley India, New Delhi
3.	Dr. Shailendra Singh, Pawan Thakur, Anurag Jain	Basic Computer Engineering	Satya Prakashan, New Delhi, India.
4.	Steven Hozner	HTML: Black Book	Dreamtech Press India
5.	V. Raja Raman (3 rd Edition)	Fundamentals of Computer	PHI
6.	Cistems	Internet An Introduction	TMH
7.	Sagman	Microsoft Office For 8Windows ('O' LEVEL DOEACC)	Pearson Education ISBN 81-7808-341-8
8.	C. Xavier	World Wide Web Design With HTML	TMH
9.	Courter	Mastering MS-Office 2000 Professional	TEC media
10.	David D. Buch	PageMaker 6.5/7	BPB Publication

(B) Open Source Software and Website:

- Office Suite Bundles
 1. **LibreOffice**: Complete open-source office suite (Writer, Calc, Impress, Draw, Math)
 2. **OnlyOffice**: Clean and modern alternative to LibreOffice, supports collaboration
- Typing & Coding Basics
 1. **Tux Typing / Klavaro**: Typing tutors with games and speed tracking.
 2. **Scratch**: Block-based coding environment for beginners.
 3. **Notepad++**: Advanced text editor with syntax highlighting (great for HTML basics)
- File Management & Utilities
 1. **FileZilla**: For learning FTP (File Transfer Protocol), useful for web basics.
 2. **7-Zip**: File archiver and compressor (alternative to WinRAR/WinZip).



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3. **PDFsam**: PDF splitter and merger—basic editing of PDF files.

• Internet & Communication

1. **Mozilla Firefox**: Secure, customizable web browser

2. **Thunderbird**: Email client for managing multiple email accounts

3. **Brave Browser**: Privacy-focused browser, suitable for teaching internet safety

Website	Focus Areas	Free / Paid	Link
GCFGlobal	MS Word, Excel, PowerPoint, Email, Internet basics	✓ Free	gcflearnfree.org
Alison	Digital literacy, Microsoft Office, typing	✓ Free (cert. is paid)	alison.com
Coursera	Computer basics, Excel, Google Workspace	△ □ Free & Paid	coursera.org
Khan Academy	Internet safety, computer science basics	✓ Free	khanacademy.org
Microsoft Learn	MS Office tutorials and productivity tools	✓ Free	learn.microsoft.com
Digital Learn	Email, internet, device basics	✓ Free	digitallearn.org
LinkedIn Learning	Office tools, cloud apps, productivity	✗ Paid (Free trial)	linkedin.com/learning
Google Applied Digital Skills	Google Docs, Sheets, Drive, digital safety	✓ Free	g.co/applieddigitalskills
TypingClub	Typing and keyboard basics	✓ Free	typingclub.com
TechBoomers	Internet use, apps, social media for beginners	✓ Free	techboomers.com



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Suggested Course Practical List:

SR. No.	Unit No.	Practical Exercises/Experiments	No. of hours.
1.	1	Identify hardware components, use input/output devices, and learn the basic functions of Windows OS.	06
2.	1	Install printer, scanner, web cam, projector with the computer system.	06
3.	2	Create a text document incorporating different formatting features, inserting images and tables as per given sample.	08
4.	2	Set up a text document with page layout features, including adjusting margins, headers, footers, backgrounds, and inserting shapes and SmartArt according to the given sample.	08
5.	2	Use the Mail Merge feature to send personalized invitation letters for an expert lecture to 10 different industries.	08
6.	2	Create a spreadsheet, analyze data using formulas and functions, and present it visually using charts, graphics, and auto shapes.	08
7.	2	Create Pay bills/ Pay slips/ Electricity bills/student mark sheets using spreadsheet and take a print out.	06
8.	2	Create a project or lecture presentation by inserting slides, applying master slide layout, and various formatting features, inserting media and action buttons.	08
9.	2	Install Gujarati typing software, change the language settings from English to Gujarati, and type letter using the Gujarati keyboard layout.	06
10.	3	Prepare & test Ethernet LAN Cable for connecting computers & peripherals using PING command.	04
11.	3	Connect two Computers/laptops and transfer/share data using Bluetooth/Wifi/cable	04
12.	3	Connect a Remote Desktop and share data using any remote login method.	04
13.	4	Practice browsing websites using search engines, create an email account, and send, receive, and store emails using services like Gmail or Yahoo Mail.	06
14.	4	Create an online form for registration of students (for any activity) and download its response.	04
15.	4	Organize an online video meeting inviting 10 students.	04
		Total	90

List of Laboratory/Learning Resources Required:

1. Computer



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2. Projector
3. Equipments like Printer, Scanner, Plotter, Modem

1. Microsoft Office Professional 2010
2. Window 7.0
3. MS-OFFICE Indic

Suggested Project List:

- MS Word Projects

1. **Resume Design** – Create a professional resume using formatting tools.
2. **Event Invitation** – Design a party or seminar invite with borders and images.
3. **Report Writing** – Write a short report with a table of contents, header/footer and images.
4. **Newsletter** – Create a school or community newsletter with columns, sections and photos.

- MS Excel Projects

1. **Student Marksheet** – Create a grade calculator using formulas.
2. **Expense Tracker** – Personal monthly budget tracker with pie chart.
3. **Attendance Sheet** – Simple employee or student attendance register with conditional formatting.
4. **Simple Invoice Generator** – Basic template to enter items, prices and totals using formulas.

- MS PowerPoint Projects

1. **Self-Introduction Slideshow** – 5-slide intro about yourself with animations and transitions.
2. **Tourist Destination Presentation** – Highlight 1-2 places with images and facts.
3. **Basic Science Concept** – Explain a topic like water cycle or photosynthesis visually.
4. **Startup Idea Pitch** – A creative mini business idea presented as a pitch deck.

- Internet & Email Projects

1. **Create and Use Email** – Sign up, send and organize emails with attachments.
2. **Online Forms** – Fill out and submit a Google Form or online survey.
3. **Web Search Task** – Research a topic using Google and present findings in Word/PowerPoint.
4. **Safe Browsing Guide** – Create a list of tips for safe internet use.



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- Basic Digital Tools
- 1. **Canva Poster Design** – Make a digital poster or certificate using Canva.
- 2. **Paint Drawing** – Use MS Paint to draw a scene or logo.
- 3. **Typing Practice Log** – Track improvement in typing speed over a week.
- 4. **Simple Coding Project** – Create a basic HTML page (e.g., your bio or favorite animal info page)

Suggested Activities for Students:

Following is the list of proposed student activities like: assignments based on MS-Office, teacher guided self-learning activities and lab based mini-projects on MS-Word, MS-Excel and MS-PowerPoint. These could be individual or group-based.

- Manage files and folder using Windows.
- Prepare letter document Project report in MS-Word
- Generate student marks and represent data in graphical mode using MS-Excel
- Develop effective presentation of Project report using MS-PowerPoint.

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