LESSON PLAN

1. Operating System

Teaching Objectives

Students will learn about

☞ Operating system

☞ Why we need an Operating System?

☞ Functions of an Operating System

☞ Types of operating systems

☞ What is user interface?

☞ A comparison between CUI and GUI

Teaching Plan   **Number of periods:** 5

While While teaching this chapter, tell the students how a computer works with a combination of hardware and software.

Share with the students different categories of software:

• System software   • Application software

Explain what is an operating system

Explain what is the need of an operating system

Demonstrate to the students different functions of an OS

• Arranging Files and Folders	• Assigning Tasks to CPU	• Managing Memory
• Managing Resources	• Managing Devices	• Security

Tell the students about the different types of OS

• Single-user Operating System

• Multi-processor Operating System

• Multi-tasking Operating System

• Multi-user Operating System

• Real Time Operating System

Introduce user interface and its advantages and disadvantages.

Share with the students different types of User interfaces

Explain GUI and its advantages and disadvantages

Compare and explain differences between CUI & GUI

Ensure that the scope of Teacher's Corner given at the end of the chapter has been covered.

Ask the students some oral questions based on this chapter.

Q.   What is a System Software

Q.   What is an OS

Q.   What is the need of an OS

Q.   What are some different types of OS

Q.   Explain the use of GUI in an OS

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 12 and 13 of the main course book as One Touch Learn and Let's Do It. After solving the course book exercises, tell the students to solve Crack the Code activity given on Page 14 of the main course book. Help the students to solve these questions.

In Creative Assignment, activities like Fun in Lab given on Page 14 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create an algorithm to add 2 numbers and explain through a flowchart.

2. Spreadsheet—Functions and Charts

In this chapter, you will learn about some advanced features of MS Excel 2010.

Teaching Objectives

Students will learn about

☞   Formula basics

☞   Order of Operation

☞   Cell referencing in formulas and its types

☞   Functions

☞   Charts in Excel

Teaching Plan   **Number of periods:** 5

While While teaching this chapter, tell the students that MS Excel has some built-in formulas called functions.

Share with the students the basic elements and rules of writing a formula in Excel.

Show to them the different methods of copying and pasting a formula.

Tell them the order of operation followed in Excel.

Introduce cell referencing as use of cell address while writing a formula.

Make them understand the different types of cell referencing and the difference between the three – Absolute, Relative and Mixed.

Tell the students about rules for using Functions and different categories of Functions in Excel.

Demonstrate the use of mathematical functions – SUM, PRODUCT, MOD, SQRT, INT, POWER and COUNT.

Demonstrate the use of text functions – CONCATENATE, LEFT, RIGHT, LEN, UPPER and LOWER.

Demonstrate the use of logical functions – MAX, MIN and AVERAGE.

Demonstrate the use of date functions – TODAY, MONTH, YEAR and DAY (Refer Suggested Activity 1 also).

Show the different components of an Excel chart.

Familiarize the students with the different types of chart options available.

Demonstrate the steps of:

• Creating a chart (Refer Suggested Activity 2 also).

• Modifying a chart by changing its type, layout and design.

Ensure that the scope of Teacher's Corner given at the end of the chapter has been covered.

Ask the students some oral questions based on this chapter.

Q. What are Functions in Excel?

Q. Name the different elements of a formula in Excel.

Q. What is the order of operation followed in Excel?

Q. Define cell referencing.

Q. Name some important categories of Functions.

Q. State the purpose of SUM / SQRT / MOD / COUNT / LEN / RIGHT / TODAY / MAX Function.

Q. What is the syntax of PRODUCT / INT / POWER / CONCATENATE / LEFT / UPPER / LOWER / MIN / AVERAGE function?

Q. Define charts in Excel.

Q. What is a legend?

Q. What are gridlines in a chart?

Q. When is a Line / Column / Pie / Bar / Area chart used?

Q. In Excel, can we change the type of chart used earlier?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 33 and 34 as One Touch Learn and Let's Do It. After solving the course book exercises, tell the students to solve Crack the Code activity given on Pages 35 and 36. Help the students to solve these questions.

In Creative Assignment, activities like Fun in Lab given on Page 36 will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

1. Ask the students to enter their last mark sheet in Excel and calculate total marks scored, average marks scored, maximum and minimum marks amongst all the marks and the number of subjects using various Functions used in Excel.

2. From the previous mark sheets of Grade 1 to 6, collect data about your attendance in various Grades. Plot a Line Chart in Excel from the data.

3. Algorithms and Flowcharts

Teaching Objectives

Students will learn about

☞ Algorithm

☞ Characteristics of a good algorithm

☞ Uses of an algorithm

☞ Writing an algorithm

☞ Defining flowcharts

☞ Solving problems using algorithms and flowchart

Teaching Plan   **Number of periods:** 5

While teaching this chapter, tell the students how to solve problems using various strategies.

Share with the students what is an algorithm and characteristics of a good algorithm

Explain what are the uses of an algorithm

Demonstrate to the students the method of writing algorithms with examples

Tell the students the steps involved in writing an algorithm

Introduce flowchart and different symbols used in a flowchart

Show to the students rules of drawing a flowchart and advantages of flowcharts.

Share with the students how to use algorithms and flowcharts for solving problems.

Ensure that the scope of Teacher's Corner given at the end of the chapter has been covered.

Ask the students some oral questions based on this chapter.

Q.   What is an algorithm

Q.   What are advantages of using an algorithm

Q.   What is a flowchart

Q.   What are some rules of drawing a flowchart.

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 45 and 46 of the main course book as One Touch Learn and Let's Do It. After solving the course book exercises, tell the students to solve Crack the Code activity given on Page 46 of the main course book. Help the students to solve these questions.

In Creative Assignment, activities like Fun in Lab given on Page 47 of the main course book will enhance the ability of the students and serve as a Subject Enrichment activity.

Suggested Activity

Ask the students to create an algorithm to add 2 numbers and explain through a flowchart.

ANSWER KEY

1. Operating System

One Touch Learn

A. 1. (b)   2. (a)   3. (a)   4. (a)   5. (b)   6. (d)

B. 1. CUI   2. Operating System   3. Characters
       4. GUI   5. Application Software

C. 1. T
       2. F **Correct Statement:** OS stands for Operating System.
       3. T   4. T   5. T

D. 1. (c)   2. (d)   3. (e)   4. (a)   5. (b)

Let's Do It

A. 1. An operating system is a system software that works as a mediator between user and computer hardware.
       2. System software and application software
       3. DOS and windows command prompt
       4. Windows and linux

B. 1 .

CUI	GUI
It provides lots of commands to perform different types of operations.	It provides icons, buttons, windows and menus to give commands.
A user needs to remember lots of commands.	A user need not to remember commands. He can just click on the icons, menus etc.
It uses keyboard to give commands.	It uses mouse, stylus, fingers to give commands.
Examples are DOS, Windows Command Prompt, etc.	Examples are Windows, Mac, etc.

2. **Managing Memory:** An operating system manges the memory space for multiple processes. It keeps track of every memory location, regardless of either it is allocated to some process

or it is free. It also allocates memory to the files and folders. When we delete a file or folder, the operating system de-allocates the memory space allocated for it.

Managing Resources: An operating system keeps a track of the hardware and software requirements of the processes. It works as a manager of the resources and allocates them to different programs.

3. We prefer to use GUI as in this interface, a user need not to remember all the commands. GUI allows us to give commands to the computer simply by clicking with the mouse.

4. **Single-user Operating System:** This type of operating system allows only one user can access the computer system at a time. The most commonly used single-user operating systems are Palm computer and DOS.

Multi-user Operating System: In this type of operating system, multiple users can use the computer at the same time. Examples of multi-user operating systems are Linux, Windows, etc.

Crack The Code

A. 1. Tally is an application software
2. As a beginner he should take the computer with GUI

FUN in LAB

Do yourself.

2. Spreadsheet—Functions and Charts

One Touch Learn

A. 1. (a) 2. (a) 3. (c) 4. (b) 5. (b)
6. (d) 7. (c) 8. (c) 9. (c) 10. (d)

B. 1. F **Correct Statement:** Every formula begins with a = sign.
2. T
3. F **Correct Statement:** We can create Bar chart in Excel.
4. F **Correct Statement:** You can sort more than one columns at a time in a selected range of cells.
5. T 6. T

C. 1. Functions 2. Equal 3. Square Root
4. Column 5. Dollar 6. Custom Sort

D. 1. (b) 2. (c) 3. (d) 4. (a)

A. 1. A cell reference is a cell address that can be used in a formula to denote a specific cell.

2. **Legend:** Legend is a key which shows the meanings of symbols and colours used in the chart.

   Data Series: Data series is related to the set of values. It is represented by the bars or slices that represent the data values.

3. Excel can arrange the selected data in ascending or descending order. This is called **sorting** of data.

4. **Area Chart:** It is used to display the quantitative magnitude of the data graphically. These charts are based on the features of the line chart. They basically emphasise the area between the line and the axis with the help of the colours, textures, pictures, etc.

B. 1. It returns the length of the text string.

2. **Rules for using Functions**
   - All Excel functions must begin with = sign
   - Function name must be a valid Excel name.
   - Function must be followed by opening and closing parenthesis.
   - Most of the functions must contain an argument within it.

3. **Column Chart:** It is usually used to display the data in the form of vertical bars. It is used to show the changes in data over a period of time or comparison among the different data items. The categories are represented on the horizontal axis and the values are represented on the vertical axis.

   Scatter Chart: Scatter charts also known as XY scatter plot charts. They show the correlations between the two sets of values. The x and y axis is used to represent the data plots on the chart.

Crack The Code

A. 1. PIE CHART   2. CELL REFERENCING

B. DOWN
   1. CELL REFERENCING   2. TODAY
   4. SUM   6. FUNCTIONS
   7. COLUMN

   ACROSS
   3. OPERATORS   5. UPPER
   8. CONSTANT   9. LOWER
   10. PRODUCT

FUN in LAB

Do yourself.

3. Algorithms and Flowcharts

One Touch Learn

A. 1. (b) 2. (c) 3. (c)

B. 1. F **Correct Statement:** Flowchart uses various symbols to shows the process flow of the program.
   2. T
   3. F **Correct Statement:** Algorithm and flowchart are not the same thing.

C. 1. algorithm 2. flow lines, arrows 3. consistent

D. 1. c 2. a 3. d 4. b

Let's Do It

A. 1. An Algorithm is a set of steps in a sequential manner to solve a problem or to complete a task.
   2. A flowchart is a type of graphical diagram that represents an algorithm.

B. 1. Process symbol shows a process or action step whereas input/output box represents material or information entering or leaving the system.
   2. (i) **Precision:** each step is precisely defined
      (ii) **Effective:** it is measured in terms of time and space.

Crack The Code

A. 1. Start/stop
   2. Decision
   3. Process
   4. Input/output

FUN in LAB

Do yourself.