I

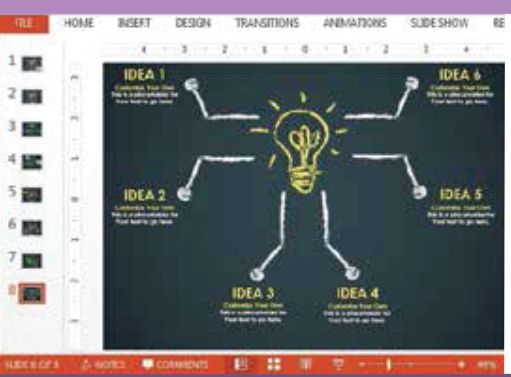
Name _____

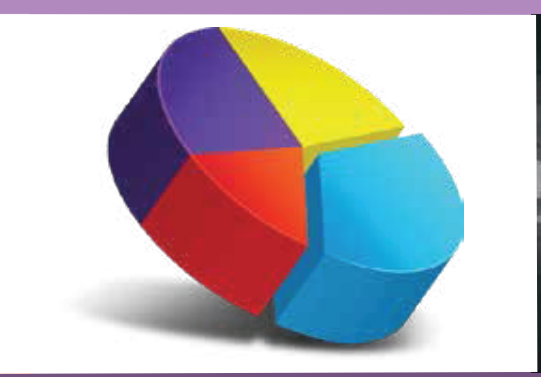
Roll No. _____ Year 20____ -20____

Exam. Seat No. _____

ALL PROGRAMMES | SEMESTER - I | DIPLOMA IN ENGINEERING AND TECHNOLOGY

A LABORATORY MANUAL FOR FUNDAMENTALS OF ICT (22001)





MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION, MUMBAI

(Autonomous) (ISO 9001 : 2015) (ISO / IEC 27001 : 2013)

VISION

To ensure that the Diploma level Technical Education constantly matches the latest requirements of technology and industry and includes the all-round personal development of students including social concerns and to become globally competitive, technology led organization.

MISSION

To provide high quality technical and managerial manpower, information and consultancy services to the industry and community to enable the industry and community to face the changing technological and environmental challenges.

QUALITY POLICY

We, at MSBTE are committed to offer the best in class academic services to the students and institutes to enhance the delight of industry and society. This will be achieved through continual improvement in management practices adopted in the process of curriculum design, development, implementation, evaluation and monitoring system along with adequate faculty development programmes.

CORE VALUES

MSBTE believes in the followings:

- Education industry produces live products.
- Market requirements do not wait for curriculum changes.
- Question paper is the reflector of academic standards of educational organization.
- Well designed curriculum needs effective implementation too.
- Competency based curriculum is the backbone of need based program.
- Technical skills do need support of life skills.
- Best teachers are the national assets.
- Effective teaching learning process is impossible without learning resources.

A Laboratory Manual

for

Fundamentals of Information and Communication Technologies

(22001)

Semester-I

(All Branches)

Maharashtra State
Board of Technical Education, Mumbai
(Autonomous) (ISO:9001:2015) (ISO/IEC 27001:2013)

Maharashtra State Board of Technical Education,
(Autonomous) (ISO : 9001 : 2015) (ISO/IEC 27001 : 2013)
4th Floor, Government Polytechnic Building, 49, Kherwadi,
Bandra (East), Mumbai - 400051.
(Printed on June, 2017)

MAHARASHTRA STATE

BOARD OF TECHNICAL EDUCATION

Certificate

This is to certify that Mr. / Ms. ……..… Roll No. ……., of First Semester of Diploma in……..…… of Institute ……..……. …… (Code: ……...) has completed the term work satisfactorily in course **Fundamentals of Information and Communication Technologies (22001)** for the academic year 20…….. to 20…….. as prescribed in the curriculum.

Place: …… Enrollment No:.……

Date: …… Exam. Seat No: ……

Subject Teacher **Head of the Department** **Principal**

Seal of Institution

Preface

The need and importance of Information Technology (IT) has been established in all walks of professions and everyone has experienced that one of the most important components of IT is computer. The role of computer and other digital equipment is well accepted in decision making, automation of work and in communication. Therefore, it has become essential for every diploma student irrespective of their core discipline to acquire basic knowledge and skills to develop insight not only into its potential and application but also to utilize and manage basic IT infrastructure and resources effectively. In particular through this course the students acquire knowledge and skills related to basic computer system and local area network infrastructure that equip them with the ability to operate a computer, such as, creating word processing documents, creating spreadsheets to analyze the data and creating presentations, sending emails and using internet for various purposes.

The ultimate aim of this practical manual is that by the end of the semester, the student achieves the stated pre-determined competency of this course. This practical manual is student centered manual with the teacher functioning as a facilitator. It is intended to be self- instructional, so that in advance, the students read it, understand it and comes to the laboratory to perform on his/her own under the supervision of the teachers. This is with the intention to encourage self-directed learning to inculcate life-long learning. However, the teachers could intervene and guide the student when required. At same time, the institution has to provide all the required resources to the students, teachers and the supporting staff to perform the practicals successfully.

The interpretation of results and conclusions to be written by the students towards the end of each practical work are two important separate skills which the industry expects from every student. Blank sheets are also provided at the end of each practical, so that student can report some of the actual things s/he learned and did and certain things which the teacher tells them to do during and after every practical work. Apart from this manual, the student will maintain a separate log book for the laboratory work for incidental writing. S/he will use the observations in this log book to complete this practical manual which has to be submitted in the next laboratory class to the teacher for assessment and record for progressing assessment.

So the authors wish you all the best for a fun filled, meaningful semester by which you will be able to achieve the pre-determined competency and associated skills to become a confident individual. The authors thank MSBTE for giving this opportunity in nation building.

Although best possible care has been taken to check for errors (if any) in this laboratory manual, perfection may elude us as this is the first edition of this manual. Any errors and suggestions for improvement are solicited and highly welcome.

Programme Outcomes (POs) to be achieved through Practical of this Course

Following programme outcomes are expected to be achieved out of the ten programme outcomes through the practicals of the course on Fundamentals of Information and Communication Technologies.

PO 1. ***Basic knowledge:*** *Apply knowledge of basic mathematics, science and basic engineering to solve the problems related to application of computers and communication services in storing, manipulating and transmitting data, often in the context of a business or other enterprise.*

PO 2. ***Discipline knowledge:*** *Apply Information Technology knowledge to solve broad- based Information Technology related problems.*

PO 3. ***Experiments and practice:*** *Plan to perform experiments, practices and to use the results to solve Information Technology related problems.*

PO 4. ***Engineering tools:*** *Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.*

PO 5. ***The engineer and society:*** *Assess societal, health, safety and legal issues and the consequent responsibilities relevant to practice in the field of Information technology.*

PO 6. ***Environment and sustainability:*** *Apply Information Technology related engineering solutions for sustainable development practices in environmental contexts.*

PO 7. ***Ethics:*** *Apply ethical principles for commitment to professional ethics, responsibilities and norms of practice in the field of Information Technology.*

PO 8. ***Individual and team work:*** *Function effectively as a leader and team member in diverse/ multidisciplinary teams.*

PO 9. ***Communication:*** *Communicate effectively in oral and written form.*

PO 10. ***Life-long learning:*** *Engage in independent and life-long learning along with the technological changes in the IT and allied industry*

Practical- Course Outcome matrix

Course Outcomes (COs)

a. Use computer system and its peripherals.
b. Prepare business document using word processing tool.
c. Interpret data and represent it graphically using spreadsheet.
d. Prepare professional presentations.
e. Use different types of web browsers.

Sr. No.	Practical Outcome	CO a.	CO b.	CO c.	CO d.	CO e.
1.	Identify various input/output devices, connections and peripherals of computer system.	√	-	-	-	-
2.	Manage files and folders: Create, copy, rename, delete, move files and folder.	√	-	-	-	-
3.	Create, edit and save document.	-	√	-	-	-
4.	Use bullets, numbering, page formatting.	-	√	-	-	-
5.	Insert and edit images and shapes, sizing, cropping, colour, background, group / ungroup.	-	√	-	-	-
6.	Insert and apply various table formatting features on it.	-	√	-	-	-
7.	Apply page layout features on documents.	-	√	-	-	-
8.	Use mail merge with options.	-	√	-	-	-
9.	Create, open and edit worksheets.	-	-	√	-	-
10.	Insert formulas, "if" conditions, functions and named ranges in worksheet.	-	-	√	-	-
11.	Apply data sort, filter and data validation features.	-	-	√	-	-
12.	Create charts to apply various chart options.	-	-	√	-	-
13.	Apply page setup and print options for worksheet to print the worksheet.	-	-	√	-	-
14.	Apply design themes to the given presentation	-	-	-	√	-
15.	Add tables and charts in the slides.	-	-	-	√	-
16.	Apply animation effects to the text and slides.	-	-	-	√	-
17.	Add audio and video files in the presentation.	-	-	-	√	-

18.	Configure Internet connection.	-	-	-	-	√
19.	Use internet for different web services.	-	-	-	-	√
20.	Use the given setting option in browsers.	-	-	-	-	√

List of Industry Relevant Skills

The following industry relevant skills of the competency 'Use computers for internet services, electronic documentation, data analysis and slide presentation' are expected to be developed in you by undertaking the practical's of this laboratory manual.

1. Identify various input/output devices, connections and peripherals of computer system.
2. Handling Files and Folders.
3. Working on Documents, Spreadsheets and Presentation.
4. Learning Internet Connectivity and other settings.

Guidelines to Teachers

1. There will be two sheets of blank pages after every practical for the student to report other matters (if any), which is not mentioned in the printed practicals.
2. For difficult practicals if required, teacher could provide the demonstration of the practical emphasizing of the skills which the student should achieve.
3. Teachers should give opportunity to students for hands-on after the demonstration.
4. Assess the skill achievement of the students and COs of each unit.
5. One or two questions ought to be added in each practical for different batches. For this teachers can maintain various practical related question bank for each course.
6. For effective implementation and attainment of practical outcomes, teacher ought to ensure that in the beginning itself of each practical, students must read through the complete write-up of that practical sheet.
7. During practical, ensure that each student gets chance and takes active part in taking observations/ readings and performing practical.
8. Teacher ought to assess the performance of students continuously according to the MSBTE guidelines.

Instructions for Students

1. For incidental writing on the day of each practical session every student should maintain a ***dated log book*** for the whole semester, apart from this laboratory manual which s/he has to ***submit for assessment to the teacher*** in the next practical session.
2. Listen carefully to all the information regarding curriculum, its course outcomes, and major learning outcomes, equipment(s) and instruments in the laboratory, method of assessment.
3. Read the write-up of each experiment to be performed, a day in advance
4. Organize the work in team/individual and record all the observations and output.
5. Understand the practical implication of the experiments.
6. Students should not hesitate to ask any question while performing the experiment.
7. Students should develop debugged and hand run skills
8. Students should develop the habit of discussion about experiments that is performed to enhance the understanding and sharing of knowledge.
9. Students to attend the practical class regularly and complete the laboratory work during the stipulated hours and submit the manuals for assessment regularly.
10. Students shall refer to technical magazines, refer websites, proceedings of seminars, related to scope of the course and enhance the knowledge and skills.
11. Student should develop self-learning methods.

Content Page

List of Practical's and Progressive Assessment Sheet

Sr. No	Practical Outcome	Page No.	Date of perfor mance	Date of submi ssion	Assess ment marks(25)	Dated sign. of teacher	Remar ks (if any)
17.	Add audio and video files in the presentation.	77					
18.	Configure Internet connection.	81					
19.	Use internet for different web services.	85					
20.	Use the given setting option in browsers.	91					
Total							

- To be transferred to Proforma of CIAAN-2017.

Practical No. 1: Working with Computer System and Identifying Peripherals

I Practical Significance

In order to work on computer system, it is a good idea that students get familiar with various components of computer systems and their functioning. Students must also be familiar with the various network infrastructure components and networking environment in which they have to work. Through these hands-on practice students will be able to acquire these basic skills before they really use computer systems for given purpose.

II Relevant Program Outcomes

Basic knowledge: Apply knowledge of basic mathematics, science and basic engineering to solve the problems related to application of computers and communication services in storing, manipulating and transmitting data, often in the context of a business or other enterprise.
Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.
Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.
Ethics: Apply ethical principles for commitment to professional ethics, responsibilities and norms of practice in the field of Information Technology.
Individual and team work: Function effectively as a leader and team member in diverse/ multidisciplinary teams.

III Relevant Course Outcomes

Use computer system and its peripherals.

IV Practical Learning Outcome

Identify various input/output devices, connections and peripherals of computer system.

V Practical Skills

Identify computer system components, peripherals and various components used in network.

VI Relevant Affective domain related Outcomes

a. Follow safety practices.
b. Practice good housekeeping.

VII Minimum Theoretical Background

Computer is an electronic device which has hardware like keyboard, mouse, monitor etc. These components are categories as input device and output devices. Input devices are use to give input to the computer system. The processor processes input and produces the output on computer output devices. The Computer devices consist of various peripherals like, Processor / CPU, ALU, Memory Unit, processor, motherboards, RAM, ROM, video cards, sound cards and internal hard disk drives, monitors, keyboards, mouse, printers, CD/DVD, hard disk and pen drive.

VIII Circuit diagram / Experimental set-up / Work Situation

-Not Applicable-

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop computer with basic configuration	One computer system for a small batch of student	

X Procedure

1. Identify the internal components of computer system and explain their functions.
2. Observe the inter-connection between each component of computer system.
3. Identify the input output devices and peripheral devices of computer system.
4. Explain the physical layout of the network components and explain their functions.

XI Precautions

1. Handle computer system with care.

XII Actual procedure followed

.....

.....

XIII Resources used (with major specifications)

.....

.....

XIV Precautions followed

.....

.....

XV Observations and Calculations

-Not Applicable-

XVI Results

.....

.....

XVII Interpretation of Results

.....

.....

XVIII Conclusions and Recommendations

.....

.....

XIX Practical Related Questions

Note: Below given questions are few sample questions for references. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. List various input devices and output devices
2. Draw block diagram of Computer System.

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Identify the internal parts of CPU:- motherboard, processor, RAM, ROM, video cards, sound cards and internal hard disk drives.
2. Identify the different types of input/output devices available in your computer lab.

.

XXI References / Suggestions for further Reading

- http://www.ybet.be/en-hardware/course-pc.php
- https://techmits.com/list-of-input-and-output-devices/

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. …….
3. …….
4. …….

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

Practical No. 2: Working with Files and Folders

I Practical Significance

Any data/information in a computer system is stored in the form of files. A file is stored in a folder. For managing files & folders different management operations can be performed such as creating folders, renaming existing files and folders, making a copy of file to other folder(s) , moving files from one folder to another folder and deleting files and folders. This practical is useful for developing these necessary skills to manage files and folders so as to organize different files.

II Relevant Program Outcomes

Discipline knowledge: Apply Information Technology knowledge to solve broad- based Information Technology related problems.
Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.
Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.
Ethics: Apply ethical principles for commitment to professional ethics, responsibilities and norms of practice in the field of Information Technology.
Individual and team work: Function effectively as a leader and team member in diverse/ multidisciplinary teams.
Communication: Communicate effectively in oral and written form.
Life-long learning: Engage in independent and life-long learning along with the technological changes in the IT and allied industry.

III Relevant Course Outcomes

Use computer system and its peripherals**.**

IV Practical Learning Outcome

Manage files and folders: Create, copy, rename, delete, move files and folder.

V Practical Skills

1. Create files and folders on computer system as per specified path.
2. Apply operations such as rename, copy, move and delete on files and folders.

VI Relevant Affective domain related Outcomes

a. Follow safety practices.
b. Follow ethical practices.

VII Minimum Theoretical Background

The information that is stored in a computer system is stored in a form of files. Whenever a computer file is created an operating system assigns fixed memory of 512 Bytes to each file. Once that memory is utilized next segment of 512 Byte is assign. There is a hierarchical structure of storing a file in computer. Folder is the one which contains file(s). There are many type of directory structure in OS like: Single Level, Two Level, Tree Structured etc.

VIII Circuit diagram / Experimental set-up / Work Situation

-Not Applicable-

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop with basic configuration	One computer system for each student	

X Procedure (Step wise)

1. Create a sample text file using relevant text editor available in Operating System and save it at default location.
2. Apply relevant method to manage files and folders-
   Create a folder with your name on the desktop and apply operations to perform following tasks:
   a. Copy the file which is initially created and saved at default location into the newly created folder.
   b. Rename the file.
   c. Rename the folder.
   d. Delete the file initially created at default location.
   e. Move the folder to a different location other than desktop.

XI Precautions (if any)

1. Handle computer system with care.
2. Be cautious while performing files related operations in computer system.
   Closely observe and remember the file name and its folder.

XII Actual procedure followed

.....

.....

XIII Resources used (with major specifications)

.....

.....

XIV Precautions followed

.....

.....

XV Observations and Calculations

-Not Applicable-

XVI Results

.....

.....

XVII Interpretation of results

.....

.....

XVIII Conclusions and Recommendations (if any)

.....

.....

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Explain the ways to delete a file.
2. How can we restore the deleted file? Explain.
3. What will happen if you create a file with the same name which already exists?

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Create a file with your name and Save it at Desktop
2. Create a folder with your college name at Desktop and create one more folder in it.

XXI References / Suggestions for further Reading

1. https://www.pcmag.com/encyclopedia/term/60967/files-vs-folders
2. https://www.gcflearnfree.org/windowsbasics/working-with-files/1/

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

Practical No. 3: Create, Edit and Save Document

I Practical Significance

Creating documents for different purpose such as creating notes/reports, statements and applying desk top publishing features involves different kind of skills in creating editing and formatting text matter in various ways. This practical is useful for developing necessary skills to incorporate the same and is helpful to use computers for all sort of electronic documentation.

II Relevant Program Outcomes (POs)

Discipline knowledge: Apply Information Technology knowledge to solve broad- based Information Technology related problems.
Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.
Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.
Ethics: Apply ethical principles for commitment to professional ethics, responsibilities and norms of practice in the field of Information Technology.
Individual and team work: Function effectively as a leader and team member in diverse/ multidisciplinary teams.
Communication: Communicate effectively in oral and written form.
Life-long learning: Engage in independent and life-long learning along with the technological changes in the IT and allied industry.

III Relevant Course Outcomes

Prepare business document using word processing tool.

IV Practical Learning Outcome

Create, edit and save document.

V Practical Skills

a Create, edit and save document by composing the mater as per given specifications.
b Apply formatting features at text level, line level and at paragraph level.

VI Relevant Affective domain related Outcomes

a. Follow ethical practices.
b. Practice good housekeeping.

VII Minimum Theoretical Background

Word processing tools are computer software which allows user to create, edit and save a text file. Mostly all operating system supports basic word processing tools to create a basic text document. These tools provide features of creating a new file, editing already existing file, printing a file. One can also make use of existing tools to create tables and add certain graphics in these files.

VIII Circuit diagram / Experimental set-up / Work Situation

-Not Applicable-

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Office software Package	Open office, Star office, Libre office, MS office or any other such software		

X Procedure (Step wise)

1. Create and Save Document

Create a new document Use relevant tool from the menu/ ribbon using short cut keys to perform following tasks:

i. Type 15-20 lines of some useful text matter.
ii. Apply formatting features on the given space of text/ line/ paragraph.
iii. Go to relevant menu/option and change font face, size, color. Apply effects like bold, italic, underline, subscript and superscript, use case changing options.
iv. Go to relevant option to preview a document to know how it will appear on paper when printed.

2. To save a document

i. Go to relevant menu and choose ***save as*** option, now choose the location of file to be saved i.e. the drive and the folder. Give the file name in ***File name*** box and then set the file type in ***save as type*** box. Now press save button to save the document.
ii. To close and exit the document- close the window and exit the application.

3. Edit a Document

Open a document which needs to be edited. Traverse to the text/paragraph which needs to be edited. Perform necessary action i.e. add new text / delete or modify existing text. Perform text level formatting on text.

XI Precautions (if any)

1. Handle computer system with care.
2. Remember to save the document before you close and exit the application.

XII Actual procedure followed

.....

.....

XIII Resources used (with major specifications)

.....

.....

XIV Precautions followed

.....

.....

XV Observations and Calculations

-Not Applicable-

XVI Results

.....

.....

XVII Interpretation of Results

.....

.....

XVIII Conclusions and Recommendations (if any)

.....

.....

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Explain the difference between paste and paste special?
2. Explain the difference between save and save as?
3. What will happen if we apply the format painter tool to a part of a document?

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Create a file with any arbitrary name. Write your name and basic information about yourself in it. Save it at Desktop.
2. Open file created in Question 1. Delete some information and write word count details from available menu/options.

XXI References / Suggestions for further Reading

- https://www.webopedia.com/TERM/W/word_processing.html
- http://jan.ucc.nau.edu/lrm22/technology/wpbasics/wpbasics.htm

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

Practical No. 4: Use of Bullets, Numbering, Page Formatting in a Word Processing

I Practical Significance

Bullets and numbering are used to arrange list of things with auto numbering/ bullets with different style and make lists easier to read and follow. Using page formatting, a document can be formatted by various page formatting features such as adjust page margins, change page orientation, create headers and footers, set and change indentations, Insert and clear tabs. This practical is useful for developing necessary skills to use bullets and number list options and format the page in many ways.

II Relevant Program Outcomes

Basic knowledge: Apply knowledge of basic mathematics, science and basic engineering to solve the problems related to application of computers and communication services in storing, manipulating and transmitting data, often in the context of a business or other enterprise.

Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.

Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.

III Relevant Course Outcomes

Prepare business document using document processing tool.

IV Practical Learning Outcome

Use bullets, numbering, page formatting.

V Practical Skills

1. Apply bullets & numbering to a document.
2. Set bullets and numbers using different format.
3. Apply page formatting features such as adjust page margins, change page orientation, create headers and footers, set and change indentations, insert and clear tabs to a document.

VI Relevant Affective domain related Outcomes

a Follow safety practices.

b Follow ethical practices.

VII Minimum Theoretical Background

While creating a word document, one needs to give emphasis on formatting to make the document more presentable and readable. The document creator / editor needs to consider various options to ensure that the document is well formatted. Most of the word processing tools give the facility for text level formatting like bold, italic, underline. Use of paragraph and line spacing makes a good enough space between lines which gives good look to the document. With good formatting one need to look for proper page setting like page size, margin, and orientation. This allows ease of setting printer. Spelling and grammatical check features makes document error free. Use of appropriate header and footer is desirable along with bullets to categorize the document.

VIII Circuit diagram / Experimental set-up / Work Situation

-Not Applicable-

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Office software Package	Open office, Star office, Libre office, MS office or any other such software		

X Procedure

1. Use bullets, numbering and page formatting-
   Create a document file and Apply operations to perform following tasks:
   a. Apply bullets in list.
   b. Apply numbering in list.
2. Use different options to set bullets and number styles and format it.
3. Apply following page formatting features to a document file –
   a. Adjust page margins
   b. Change page orientation
   c. Create headers and footers
   d. Set and change indentations
   e. Insert and clear tabs.

XI Precautions

1. Handle computer system with care.
2. Margin shall be set as per page size.
3. Appropriate uses of Header Footer as and when require.

XII Actual procedure followed

.....

.....

XIII Resources used (with major specifications)

.....

.....

XIV Precautions followed

.....

.....

XV Observations and Calculations

-Not Applicable-

XVI Results

……
……

XVII Interpretation of results

……
……

XVIII Conclusions and Recommendations (if any)

……
……

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Explain the significance of ***Gutter*** in page setting?
2. Demonstrate procedure to create multilevel list.
3. Demonstrate the procedure to mark starting page number as10.

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Open any file available on system, add some points and mark them as bullets, change bullets styles and verify the results of all bullet styles.
2. Create new document and make following setting.
   a. Page Size : A4
   b. Orientation : Landscape
   c. Margin : Top: 1.25” , Bottom 1.5” , Left 1.5” Right 1.0”
   d. Page Border: Box

XXI References / Suggestions for further Reading

- http://jan.ucc.nau.edu/lrm22/technology/wpbasics/wpbasics.htm
- https://www.webopedia.com/TERM/W/word_processing.html

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

Practical No.5: Use of Images and Shapes

I Practical Significance

While creating documents for different purpose, there are situations when we need to insert images or diagrams and apply desk top publishing features. After inserting the graphics; it is required to compose text matter along with image or diagrams. This practical is useful for developing necessary skills to incorporate the same and is helpful to use computers for electronic documentation.

II Relevant Program Outcomes

Basic knowledge: Apply knowledge of basic mathematics, science and basic engineering to solve the problems related to application of computers and communication services in storing, manipulating and transmitting data, often in the context of a business or other enterprise.

Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.

Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.

Environment and sustainability: Apply Information Technology related engineering solutions for sustainable development practices in environmental contexts.

Ethics: Apply ethical principles for commitment to professional ethics, responsibilities and norms of practice in the field of Information Technology.

Communication: Communicate effectively in oral and written form.

III Relevant Course Outcomes

Prepare business document using document processing tool.

IV Practical Learning Outcome

Insert and edit images and shapes, sizing, cropping, colour, background, group / ungroup.

V Practical Skills

a Insert and edit images and shapes in document by way of hands on to compose the given image in the document as per given specifications.

b Format the image as per the specification.

VI Relevant Affective domain related Outcomes

a. Follow safety practices.

b. Practice good housekeeping.

VII Minimum Theoretical Background

While creating a big document(s) such as report, books one need to use various shapes to be draw to depict as block diagram, processing diagram or one can make use of images that are already created. Word processing tools give this facility to create an object using shapes available. One can insert already existing image in the document to make the document more readable. Word processing tool does support editing of such images once it is inserted. One can use appropriate option from available menu..

.

VIII Circuit diagram / Experimental set-up / Work Situation

-Not Applicable-

IX Resources required (In tabular form)

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Office software Package	Open office, Star office, Libre office, MS office or any other such software		

X Procedure (Step wise)

Following activities are to be carried using identified software package.

a. Insert different shapes and images in given document

To insert image and shape, Use relevant tool from the menu/using short cut keys:

a. Place the cursor in the document where you want to insert the picture.
b. Go to relevant menu to insert picture.
c. Choose the folder where your file is located.
d. Select the image file.
e. Insert the file into your document.

b. Edit/format the image/shape

a. Once image is inserted it can be formatted in many ways.
b. Select the image. Choose relevant menu to format/edit the image or press right click button to activate various image formatting/editing options like setting brightness, contrast, transparency, cropping the image.
c. One can also insert shapes and clipart from relevant menu/option. After clicking on image/graphic object, use handles on the border of image to set its size or drag it to move and change its place.
d. To group multiple image/shapes to treat it as single entity it can be grouped by selecting each image/shape (click on each image/shape while pressing the control key) and then right click on any image/shape and choose the group option.

XI Precautions (if any)

Handle computer system with care.

XII Actual procedure followed

.....

.....

XIII Resources used (with major specifications)

.....

.....

XIV Precautions followed

.....

.....

XV Observations and Calculations
-Not Applicable-

XVI Results

.....
.....

XVII Interpretation of Results

.....
.....

XVIII Conclusions and Recommendations (if any)

.....
.....

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. What is the significance of having shapes in a word document?
2. What are the different image formats supported by word processing tools?

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. How to insert the image, to the right hand side of the bulleted list of the document.
2. Write the steps for rotating the image by 60^{o}.
3. Write the steps for ungrouping the images.

XXI References / Suggestions for further Reading

- https://www.gcflearnfree.org/word2013/shapes/1/
- https://www.lifewire.com/insert-pictures-and-clip-art-3540356

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

Practical No.6: Tables in Documents

I Practical Significance

A table is an organizational tool that presents information in an organized way in easy-to-read format. The important features of tables are to organize data, as well as sort data and perform basic calculations on it. Document can use tables to place information into rows and columns. This practical is useful for adding a table to document and formatting it to combine/split table cells or inserting/removing rows/columns to it to provide a visual grouping of information.

II Relevant Program Outcomes

Basic knowledge: Apply knowledge of basic mathematics, science and basic engineering to solve the problems related to application of computers and communication services in storing, manipulating and transmitting data, often in the context of a business or other enterprise.

Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.

Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.

The engineer and society: Assess societal, health, safety and legal issues and the consequent responsibilities relevant to practice in the field of Information technology.

Individual and team work: Function effectively as a leader and team member in diverse/ multidisciplinary teams.

Communication: Communicate effectively in oral and written form.

III Relevant Course Outcomes

Prepare business document using document processing tool.

IV Practical Learning Outcome

Insert and apply various table formatting features on it.

V Practical Skills

1. Create a table in a document.
2. Format a table with given specification.
3. Insert and delete columns and rows in a table.
4. Use Borders and shading to the table.
5. Merge and split cells in a table.

VI Relevant Affective domain related Outcomes

a. Follow safety practices.
b. Follow ethical practices.

VII Minimum Theoretical Background

While creating a word document one can make use of a table to give statistical data with its attribute/value. Word processing tool gives a freedom to insert a table of use's choice from available menu. The User can format a table as per their convenience. One can make use of table for various purposes like comparison, denoting value in tabular form.

VIII Circuit diagram / Experimental set-up / Work Situation

-Not Applicable-

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Office software Package	Open office, Star office, Libre office, MS office or any other such software		

X Procedure

1. Go to ***insert*** menu.
2. Choose the ***Table*** option from Ribbon/menu item.
3. Specify the number of rows and columns.
4. Insert table in the document.
5. Apply table formatting/editing features to a document.
   a. Insert and delete columns and rows in a table-
      i. To insert column/row to table, place cursor to location where user want to add new row/column.
      ii. Select the relevant menu option or right click in the table. Choose relevant option to insert rows/columns.
      iii. To delete column/row in a table, place cursor to location where user want to delete existing row/column.
      iv. Select the relevant menu option or right click in the table. Choose relevant option to delete rows/columns.
   b. Split a cell in a table-
      i. Place cursor in the cell which is to be split.
      ii. Select the relevant menu option or right click in the table.
      iii. Choose the relevant option to split the cell.
      iv. Specify number of rows/columns to which this cell is to be spitted. Press ***OK***.
   c. Merge cells in a table-
      i. Select the number of cells to be merge by dragging mouse.
      ii. Select the relevant menu option or right click in the table.
      iii. Choose the relevant option to merge the cells.
      iv. Choose ***merge*** option.
   d. Repeating columns heading to each page-
      i. Click in the table row to be repeated on each page.
      ii. Choose relevant option from menu to repeat it.
   e. Use border and shading in table-
      i. Click anywhere in the table.
      ii. Choose relevant option from menu or right click the mouse.
      iii. Choose relevant option for making/changing the table border.

XI Precautions

1. Use appropriate caption for table.
2. Insert table with desired numbers of rows and columns.

XII Actual procedure followed

.....

.....

XIII Resources used (with major specifications)

.....

.....

XIV Precautions followed

.....

.....

XV Observations and Calculations

- Not Applicable -

XVI Results

.....

.....

XVII Interpretation of results

.....

.....

XVIII Conclusions and Recommendations (if any)

.....

.....

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. What happens to cell contents when multiple cells are merged to form a single cell?
2. Explain the concept of splitting and merging cell in a table?

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Write steps to repeat heading row on each page when a table is spread on two or more pages.
2. Insert a table with 5 rows and 5 columns and make row height as 15 and Column width as 20.
3. Insert a table with having predefined colors to the cells.

XXI References / Suggestions for further reading

Learning Websites-

- https://computer.howstuffworks.com/how-to-make-table-on-microsoft-word.htm
- https://www.mediacollege.com/microsoft/word/tables.html

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Practical No.7 Document Page Layout

I Practical Significance

Page layout feature is used to describe how each page of document will appear when it is printed. Page layout includes elements such as the margins setting, the number of columns, headers and footers, create multicolumn page and document printing. This practical is useful for developing these skills that are helpful in electronic documentation.

II Relevant Program Outcomes

Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.
Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.
Environment and sustainability: Apply Information Technology related engineering solutions for sustainable development practices in environmental contexts.
Individual and team work: Function effectively as a leader and team member in diverse/ multidisciplinary teams.
Communication: Communicate effectively in oral and written form.

III Relevant Course Outcomes

Prepare business document using document processing tool**.**

IV Practical Learning Outcome

Apply page layout features on documents.

V Practical Skills

1. Create documents and apply different page layout features such as insert and delete a page break, Insert page numbers, insert the date and time.
2. Use different options to print a document.

VI Relevant Affective domain related Outcomes

a. Choose appropriate layout to visualize text document as per the requirement.
b. Follow ethical practices.

VII Minimum Theoretical Background

The Page layout option gives a freedom to the user to work with various properties of a document. The user can work with themes of document, gives color to document. This option enables user to manipulate margin, orientation, size and columnar view of a document. One can add watermark to the documents along with page border. Grouping and ungrouping of object can be handled by page layout option. One can make efficient use of page break to give user define breaks in a document.

VIII Circuit diagram / Experimental set-up / Work Situation

-Not Applicable-

IX Resources required (In tabular form)

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Office software Package	Open office, Star office, Libre office, MS office or any other such software		

X Procedure (Step wise)-

1. Insert Page Layout Elements to Documents -

Create a document file and apply following operations:

a. Choose relevant option to insert and delete a page break.
b. Select relevant option to set page layout.
c. Change the page orientation (portrait and landscape).
d. Set the page margins.
e. Set the position of header and footer.
f. Set paper size.
g. Insert page numbers.
h. Insert the date and time.

2. Work with Columned Layouts and Section Breaks-

Create document on a desktop and apply operations to perform following tasks:

a. Select relevant menu option to insert / remove section breaks.
b. Set a different page layout for newly created section.
c. Choose relevant option to create multi columns page.
d. Create Newsletter style columns.
e. Increase/Decrease Column width.
f. Adjust column spacing.
g. Insert manual column breaks.

3. Printing a document

a. Go to relevant menu and choose “Print” option.
b. Choose the printer name from the drop down list.
c. Choose all pages/selected pages to be printed.
d. Choose number of copies.
e. Choose relevant options to set properties to:
   i. Take printout on both sides on A4 size paper.
   ii. Set printing intensity (dark/normal or faint)
f. Take a print preview.
g. Once satisfied with all the settings, click OK to take print out on paper.

XI Precautions (if any)

1. Appropriate use of watermark and page border.
2. Strictly follow the instructions for specifications to be applied while performing page layout operations in a document.

XII Actual procedure followed

.....

.....

XIII Resources used (with major specifications)

.....

.....

XIV Precautions followed

.....

.....

XV Observations and Calculations

- Not Applicable -

XVI Results

.....

.....

XVII Interpretation of results

.....

.....

XVIII Conclusions and Recommendations (if any)

.....

.....

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Explain the importance of section break in document.
2. Can we make portrait and landscape pages in the same document?

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Write steps to split a document in two windows.
2. Create a document and make one paragraph as *Two Columnar view.*
3. Create a document and write your name as “Watermark Text”.

XXI References / Suggestions for further Reading

1. https://www.gcflearnfree.org/word2016/page-layout/1/
2. https://wordribbon.tips.net/C0716_Page_Layout.html

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

Practical No.8: Use of Mail Merge

I Practical Significance

There are situations where same letter or content has to be sent to multiple persons with different names and address. Mail merge is a feature that uses a data file of names addresses, and other fields and merge it together with a template document (containing the actual matter to be sent), to produce multiple copies of a same document each personally addressed to different recipient. This practical is useful for developing necessary skills to implement the aforementioned skills and is an important feature in using computers for electronic documentation.

II Relevant Program Outcomes

Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.
Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.
The engineer and society: Assess societal, health, safety and legal issues and the consequent responsibilities relevant to practice in the field of Information technology.
Environment and sustainability: Apply Information Technology related engineering solutions for sustainable development practices in environmental contexts.
Individual and team work: Function effectively as a leader and team member in diverse/ multidisciplinary teams.
Communication: Communicate effectively in oral and written form.

III Relevant Course Outcomes

Prepare business document using word processing tool**.**

IV Practical Learning Outcome

Use mail merge with options.

V Practical Skills

1. Create data file that can be merged with a document.
2. Use mail merge option to send copy of a letter to multiple recipients.

VI Relevant Affective domain related Outcomes

a. Follow safety practices.
b. Follow ethical practices.

VII Minimum Theoretical Background

Mail Merge is a powerful tool in Microsoft Word that can quickly replaces a names of recipient while sending out cards or holiday cards, making labels, or emailing out a note to a large amount of recipients. Mail merge got its name because in earlier versions of word processing tools, it was primarily used to address envelopes or put information on labels. To merge something means to combine two or more things into one. Now, it can merge much more than just mail, and can be a very useful tool.

VIII Circuit diagram / Experimental set-up / Work Situation

- Not Applicable**-**

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Office software Package	Open office, Star office, Libre office, MS office or any other such software		

X Procedure

1. Create a letter with mail merge option:
   a. Prepare Document- Type the body of the letter in the document.
   b. Prepare mailing list- create mailing list during mail merge.
   c. Enter data in required field in the list.
   d. Open existing letter. Keep the cursor at location where data need to be merged. Where ever required click on that location and insert merge field.
   e. Select Recipients.
   f. Preview your letters-To see the data from database into a document.
   g. Complete the Merge.
   h. Save the Merged Letters.

XI Precautions

1. Maintain the list of recipient efficiently.
2. Strictly follow the instruction while performing the operations.

XII Actual procedure followed

.....

.....

XIII Resources used (with major specifications)

.....

.....

XIV Precautions followed

.....

.....

XV Observations and Calculations

- Not Applicable -

XVI Results

.....

.....

XVII Interpretation of results

.....

.....

XVIII Conclusions and Recommendations (if any)

.....

.....

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Is it possible to edit data in the data file once the fields from it are inserted in to documents?
2. Differentiate merging to new document and print document approaches in mail merge.
3. Can you use a Merge field in the Subject box of an e-mail message?

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Create a formal letter of invitation and add 10 recipient names in it.
2. Create a normal certificate of appreciation and add 5 students name on it.

XXI References / Suggestions for further Reading

1. https://study.com/academy/lesson/how-to-use-mail-merge-in-microsoft-word.html
2. https://www.bettercloud.com/monitor/the-academy/mail-merge-in-microsoft-word/

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

Practical No. 9: Create, Open and Edit Worksheets

I Practical Significance

A worksheet is a file that helps organize data in rows and columns. Different types of data is entered in cells of a table to perform various types of calculations on it, sort and filter data based on criteria and can also represent it in the form of charts. This practical develop the ability to create worksheet, enter data and edit it in many ways.

II Relevant Program Outcomes

Basic knowledge: Apply knowledge of basic mathematics, science and basic engineering to solve the problems related to application of computers and communication services in storing, manipulating and transmitting data, often in the context of a business or other enterprise.
Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.
Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.
Individual and team work: Function effectively as a leader and team member in diverse/ multidisciplinary teams.
Communication: Communicate effectively in oral and written form.

III Relevant Course Outcomes

Interpret data and represent it graphically using spreadsheet.

IV Practical Learning Outcome

Create, open and edit worksheets.

V Practical Skills

1. Create, edit and save spreadsheets by way of entering the given sample data and performing basic calculations on it.
2. Format data and sheet layout, adjust row height and column width.
3. Insert and delete cells, rows and columns
4. Apply wrap text, text orientation feature on cell.

VI Relevant Affective domain related Outcomes

a. Demonstrate working as a leader/a team member.
b. Maintain tools and equipment.
c. Follow ethical practices.

VII Minimum Theoretical Background

Worksheets are very important tool in any office related operation. Most of the time business/commercial activities are documented with the help of worksheet. Worksheet gives a complete row – column scenario where one can use statistical data and perform certain operations on it. Each box is known as cell. One can define a formula or use readymade formula by writing (=) *equal to* symbol at the beginning of cell.

VIII Circuit diagram / Experimental set-up / Work Situation

Not Applicable

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Office software Package	Open office, Star office, Libre office, MS office or any other such software		

X Procedure

a. Create and save Spreadsheets:

Use appropriate tool from the menu/ ribbon/using short cut keys to perform following tasks:

a. Enter sample data as instructed.
b. Save the worksheet.
c. Close and open workbook.

b. Edit Spreadsheets:

a. By keeping mouse on the boundary line of row/column and dragging the line user can adjust row height and column width.
b. One can use all the word processing features to format/edit text data.
   Use it to format font, delete, move data, Copy and Paste, Find and Replace, Spell Check, Zoom In-Out, insert Special Symbols, Insert Comments, Add Text Box, and Undo Changes.
c. Use relevant options from the menu to perform following tasks:
   Rotate Cells, Set Text Alignments, Merge and Wrap cell, apply Borders and Shades, Set Background, Clear formatting, setting line spacing.
   Adjust page Margins, and Page Orientation, add/remove Header and Footer, Insert Page Breaks.
d. To hide/unhide rows/columns-
   i. Click on the column/row designation number on the top/right to select whole column/row.
   ii. Use relevant menu or right click the mouse button and choose ***Hide*** to hide the column/row.
   iii. To unhide the hidden column, choose two successive column/rows between which the hidden column/row exists.
   iv. Use relevant menu option or right click the muse button and choose ***Unhide*** to unhide the hidden column/row.
e. To Freeze Panes-
   i. Place cursor to a cell for reference point. Use relevant menu and choose freeze option to freeze the column to left and rows above the cell made as reference point. This will keep freezing while scrolling the sheet vertically/horizontally.
   ii. To unfreeze it, choose the unfreeze option from the relevant menu.
f. To insert rows and columns in between the existing rows/columns-
   i. Keep cursor to a cell where user wants to insert new row/column.
   ii. Choose relevant menu option or right click the mouse button.
   iii. Choose ***entire row***/***entire column*** option.

c. Formatting Cells and sheet of spreadsheets:
Set Cell Type, Set Fonts, Text options.

XI Precautions
Handle computer system with care.

XII Actual procedure followed
.....
.....

XIII Resources used (with major specifications)
.....
.....

XIV Precautions followed
.....
.....

XV Observations and Calculations
- Not Applicable -

XVI Results
.....
.....

XVII Interpretation of Results
.....
.....

XVIII Conclusions and Recommendations
.....
.....

XIX Practical Related Questions
Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Differentiate absolute and relative cell addressing.
2. Write steps to split the cell content in multiple lines when the contents are bigger than column width?
3. Write procedure to insert three columns between columns D and E.

XX Exercise
Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

a. Create a worksheet, enter 10 different values in different cells and perform addition of them.
b. Create a worksheet and assign various data type from available menu.

XXI References / Suggestions for further Reading

- https://www.gcflearnfree.org/excel2007/working-with-worksheets/1/
- https://www.makeuseof.com/tag/excel-worksheet-tabs/

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Practical No. 10: Working with Formula and Functions in Worksheet

I Practical Significance

Spreadsheet conditions, functions and formulas are expressions entered into a cell on the spreadsheet software. It is used to perform calculations on the values entered to obtain the desired result. There are numerical/mathematical/trigonometric, statistical, financial and logical formulas that can make complex calculations. This practical develop the ability to apply formulas, "IF" conditions, function and named ranges in many ways.

II Relevant Program Outcomes

Basic knowledge: Apply knowledge of basic mathematics, science and basic engineering to solve the problems related to application of computers and communication services in storing, manipulating and transmitting data, often in the context of a business or other enterprise.

Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.

Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.

Ethics: Apply ethical principles for commitment to professional ethics, responsibilities and norms of practice in the field of Information Technology.

Individual and team work: Function effectively as a leader and team member in diverse/ multidisciplinary teams.

Communication: Communicate effectively in oral and written form.

III Relevant Course Outcomes

Interpret data and represent it graphically using spreadsheet.

IV Practical Learning Outcome

Insert formulas, "if" conditions, functions and named ranges in worksheet.

V Practical Skills

1 Develop formulas to simplify calculations of data on spreadsheet.
2 Apply conditional statements on spreadsheet data.
3 Apply different functions on spreadsheet data as per requirement.

VI Relevant Affective domain related Outcomes

a. Demonstrate working as a leader/a team member.
b. Maintain tools and equipment.
c. Follow ethical practices.

VII Minimum Theoretical Background

All worksheet tools give the facility to have custom formulas. To use a formula in any of the cell one needs to begin it with (=) equal to symbol followed by formulas in brackets. User can make use of predefined formulas to perform certain operations such as addition, average, min, max, etc. One can make use of advance mathematical formulas like sqrt, power and also uses conditional statements like if.

VIII Circuit diagram / Experimental set-up / Work Situation

Not Applicable

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Office software Package	Open office, Star office, Libre office, MS office or any other such software		

X Procedure

1. **Work with Formula:**
   a. Select the cell to enter the formula in.
   b. Type an equal sign in the cell to begin formula.
   c. Type an open parenthesis if necessary.
   d. Create a cell reference.
   e. Enter a mathematical, comparison, text, or reference operator as required.
   f. Close parenthesis for each open parenthesis.
2. **Writing a function:**
   a. Select the cell to enter the function.
   b. Type an equal sign to enter a function.
   c. Type the complete function with necessary parameters by following its syntax.
   d. Press *Enter* key.

   Alternate way is as follows:
   a. Click the relevant button provided to insert function.
   b. Select a function from a category.
   c. Refer cells to enter necessary arguments.
   d. Click OK.
3. **Writing IF function:**
   a. Type ***=if***
   b. Add open brackets
   c. Type the conditional statement followed by a comma.
   d. Type the value/formula if the condition written in the conditional statement is satisfied, followed by a comma.
   e. Type the value/formula if the condition written in the conditional statement is unsatisfied.
   f. Close the brackets.
   g. Press **Enter** key.

XI Precautions

1. Use appropriate formulas on desirable cell.
2. Take care to balance opening and closing brackets when using complex formula.

XII Actual procedure followed

.....

.....

XIII Resources used (with major specifications)

.....

.....

XIV Precautions followed

.....

.....

XV Observations and Calculations

- Not Applicable -

XVI Results

.....

.....

XVII Interpretation of Results

.....

.....

XVIII Conclusions and Recommendations (if any)

.....

.....

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Name the function that displays row data in a column or column data in a row.
2. Write the general syntax of **IF** function.
3. Can we include a function while creating a formula?

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

a. Create a worksheet to demonstrate result of 10 students.
b. Create a worksheet to demonstrate use of if statement.
c. Make a new worksheet to demonstrate use of any 5 mathematical functions.

XXI References / Suggestions for further Reading

- https://www.techonthenet.com/excel/formulas/index_ws.php
- https://ccm.net/contents/673-spreadsheet-formulas

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

Practical No. 11: Sort, Filter and Validate Data

I Practical Significance

In spreadsheets, sort and filter are some of the most commonly used features. These features used to change the order of data, to sort it, to focus on a specific set of data, filter a range of cells or a table and data validation. This practical develop the ability to apply data sorting, filter the data based on defined criteria and data validation features of spreadsheets.

II Relevant Program Outcomes

Basic knowledge: Apply knowledge of basic mathematics, science and basic engineering to solve the problems related to application of computers and communication services in storing, manipulating and transmitting data, often in the context of a business or other enterprise.

Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.

Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.

The engineer and society: Assess societal, health, safety and legal issues and the consequent responsibilities relevant to practice in the field of Information technology.

Individual and team work: Function effectively as a leader and team member in diverse/ multidisciplinary teams.

Communication: Communicate effectively in oral and written form.

III Relevant Course Outcomes

Interpret data and represent it graphically using spreadsheet.

IV Practical Learning Outcome

Apply data sort, filter and data validation features.

V Practical Skills

1. Apply ascending and descending sort on data of spreadsheet.
2. Apply filter on specific fields of spreadsheet.
3. Apply validation on data of spreadsheet.

VI Relevant Affective domain related Outcomes

a. Demonstrate working as a leader/a team member.
b. Maintain tools and equipment.
c. Follow ethical practices.

VII Minimum Theoretical Background

Most of the spreadsheet tools give facility to format existing data based on condition. This ensures that related data can be easily identified. Spreadsheet which contains huge data it is necessary to segregate data with specific background colour or fore colour. This data can get sorted as per requirement in specific order i.e. ascending or descending order. Data validation option gives facility to validate the data which is entered by the user. One can initiate Data Validation by selecting appropriate menu, after that user can set the allowed values in specific cell / column. This feature restrict user from entering any arbitrary value(s).

VIII Circuit diagram / Experimental set-up / Work Situation

- Not Applicable -

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Office software Package	Open office, Star office, Libre office, MS office or any other such software		

X Procedure

1. Data Sorting:

a. Select the cell range to sort.
b. Select the relevant option to activate Sort command.
c. The Sort dialog box will appear.
d. Decide the sorting order (either ascending or descending).
e. Once satisfied with selection, click ***OK***.
f. The cell range will be sorted by the selected column.

2. Filter a range of data

a. Select the relevant option to activate Filter command. A drop-down arrow will appear in the header cell for each column.
b. Click the drop-down arrow for the column to be filter.
c. The Filter menu will appear.
d. Select/specify filter criteria.
e. When done, click ***OK***.
f. The worksheet data will be filtered according to search term.

3. Conditional formatting

a. Select the cells to apply conditional formatting.
b. On the relevant tab/menu, click the option related to Conditional Formatting.
c. Select the type of criterion to be use.
d. Enter the values for reference in the text box.
e. Click the relevant options and select the desired formatting.
f. Click ***OK.***

4. Data Validation:

a. Select cell to enter the data.
b. On the relevant menu choose option for Validation.
c. On the Settings tab choose the “custom” option.
d. Specify/choose the relevant validation conditions for preventing duplicate data/restrict the data to a given range/no leading or trailing space/ no blank cells.
e. Click ***OK*** when done.

XI Precautions

1. Carefully apply the conditions for sorting, filtering and validating the data.

XII Actual procedure followed

.....

.....

XIII Resources used (with major specifications)

.....

.....

XIV Precautions followed

.....

.....

XV Observations and Calculations

- Not applicable -

XVI Results

.....

.....

XVII Interpretation Of Results

.....

.....

XVIII Conclusions and Recommendations

.....

.....

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Write any two data validation conditions.
2. Explain the concept of Filters to be applied to a worksheet.
3. Write one benefit of applying conditional formatting on data.

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Enter 10 names in a column and sort in Descending order
2. Enter percentage of students in your batch and sort it in ascending order

XXI References / Suggestions for further Reading

- https://www.gcflearnfree.org/googlespreadsheets/sorting-and-filtering-data/1/
- http://www.progenygenetics.com/knowledgebase/index.php?/Knowledgebase/Article/View/624/180/sorting-and-filtering-spreadsheet-data

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Practical No. 12: Charts for Visual Presentation

I Practical Significance

In Spreadsheets, Charts are used to display series of numeric data in a graphical format to make it easier to understand large quantities of data and the relationship between different series of data. This practical develop the ability to create different types of charts and apply various chart options to organize it in many ways.

II Relevant Program Outcomes

Basic knowledge: Apply knowledge of basic mathematics, science and basic engineering to solve the problems related to application of computers and communication services in storing, manipulating and transmitting data, often in the context of a business or other enterprise.

Discipline knowledge: Apply Information Technology knowledge to solve broad- based Information Technology related problems.

Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.

Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.

Ethics: Apply ethical principles for commitment to professional ethics, responsibilities and norms of practice in the field of Information Technology.

Communication: Communicate effectively in oral and written form.

Life-long learning: Engage in independent and life-long learning along with the technological changes in the IT and allied industry.

III Relevant Course Outcomes

Interpret data and represent it graphically using spreadsheet.

IV Practical Learning Outcome

Create charts to apply various chart options.

V Practical Skills

1. Create charts for the workbook data.
2. Edit charts and apply different chart options on charts.

VI Relevant Affective domain related Outcomes

a. Practice good housekeeping.
b. Follow ethical practices.
c. Choose appropriate chart type.

VII Minimum Theoretical Background

Charts in spreadsheets provide an attractive visual representation of data stored in worksheet(s). This is an easier way to understand and interpret the data as user can pick up the patterns. Almost all spreadsheet tools provides facility of charts like - Bar, Pie, Line charts,

VIII Circuit diagram / Experimental set-up / Work Situation

Not Applicable

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Office software Package	Open office, Star office, Libre office, MS office or any other such software		

X Procedure

1. Create a Chart:

a. On the worksheet, arrange the data that is to be plot in a chart.
b. Select the cells that contain the data to be use for the chart
c. On the relevant menu/option click the chart type, and then a chart subtype.
d. By default, the chart is placed on the worksheet as an embedded chart. If user want to place the chart in a separate chart sheet, one can change its location by doing the following:
   i. Click anywhere in the embedded chart to activate it.
   ii. Using the relevant option user can place the chart to new location i.e. new sheet.

2. Edit Chart

a. **Apply a predefined chart layout**
   i. Click anywhere in the chart that user want to format by using a predefined chart layout.
   ii. This displays different Chart Tools.
   iii. Choose relevant tool to activate the Chart Layouts , click the chart layout that user want to use.

b. **Apply a predefined chart style**
   i. Click anywhere in the chart to format by using a predefined chart style.
   ii. Using the relevant option**,** choose the chart style that user want to use.

c. **Change the format of chart elements**
   i. Click the chart element for which user want to change the layout.
   ii. Click anywhere in the chart to display the Chart Tools.
   iii. Using relevant tool click the chart element such as Labels, Axes, or Background then choose the layout option that user want.
   iv. To format the shape of a selected chart element such as Shape Fill, Shape Outline, or Shape Effects, chooses the formatting options.

d. **Add chart and axis titles and data labels**
   Add a chart title
   i. Click anywhere in the chart to which user want to add a title.
   ii. Using the relevant option change the Chart Title.
   iii. To format the text, select it, and then click the formatting options as per requirement.

   Add axis titles
   i. Click anywhere in the chart to which axis titles to be added.

ii. Choose relevant option/tool to change Axis Titles of Primary Horizontal Axis Title/ Primary Vertical Axis Title.

Add data labels

i. To add a data label to all data points of all data series, click the chart area.
ii. To add a data label to all data points of a data series, click anywhere in the data series.
iii. To add a data label to a single data point in a data series, click the data series that contains the data point that user want to label, and then click the data point that user want to label.
iv. Using relevant tool choose Data Labels, and then click the display option.

e. **Show or hide a legend**

When one create a chart, the legend appears, but user can hide the legend or change its location after creating the chart.

i. Click the chart where legend needs to be shown or hidden.
ii. Using relevant option click **Legend**.
iii. Do one of the following:
iv. To hide the legend, click **None**.
v. To display a legend, click the display option.

f. **Display or hide chart axes or gridlines**

i. Click the chart where one need to display or hide axes.
ii. To display an axis, click Primary Horizontal Axis or Primary Vertical Axis.
iii. To specify detailed axis display and scaling options, click the Primary Horizontal Axis, Primary Vertical Axis and choose relevant option from the available options.

g. **Display or hide gridlines**

i. Click the chart to display or hide chart gridlines.
ii. Choose relevant option of the the **Axes** and choose **Gridlines**.
iii. To add horizontal gridlines to the chart, point to **Primary Horizontal Gridlines**. If the chart has a secondary horizontal axis, one can also click **Secondary Horizontal Gridlines**.
iv. To add vertical gridlines to the chart, point to **Primary Vertical Gridlines**, and then click the option as per requirement. If the chart has a secondary vertical axis, one can also click **Secondary Vertical Gridlines**.
v. To hide chart gridlines, point to **Primary Horizontal Gridlines**, **Primary Vertical Gridlines**, and then click **None**.
vi. To quickly remove chart gridlines, select them, and then press DELETE.

3. <u>Move or resize a chart</u>

One can move a chart to any location on a worksheet or to a new or existing worksheet, also change the size of the chart for a better fit.

i. To move a chart, drag it to the desired location.
ii. To resize a chart, Click the chart, and then drag the sizing handles to the desirable size.

XI Precautions

1. Handle computer system with care.
2. Legends and axis to be used properly.

XII Actual procedure followed

.....

.....

XIII Resources used (with major specifications)

.....

.....

XIV Precautions followed

.....

.....

XV Observations and Calculations

- Not Applicable -

XVI Results

.....

.....

XVII Interpretation Of Results

.....

.....

XVIII Conclusions and Recommendations

.....

.....

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Write procedure to convert existing excel worksheet data and charts to an HTML document.
2. Write procedure to print only an embedded chart in a worksheet.
3. After a chart has been inserted and formatted, is it possible to change the data value on which the chart is prepared or to add new rows of data?

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Prepare a dummy worksheet and draw pie chart for it.
2. Prepare a worksheet containing your marks in class test and prepare a Subject wise bar chart.

XXI References / Suggestions for further Reading

- https://www.lifewire.com/charts-and-graphs-definition-3123402
- https://www.computerhope.com/jargon/c/chart.htm

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Practical No. 13: Worksheet Printing

I Practical Significance

In spreadsheet, printing allows getting the work on paper. This is useful both for referencing and sharing work. Data available on worksheets can be explored and exploited in various areas like visual presentation. Since printing involves different issues, it is important to know the page setup and print option for worksheet. This practical develop the ability to apply page setup and print options for worksheet to print the worksheet.

II Relevant Program Outcomes

Basic knowledge: Apply knowledge of basic mathematics, science and basic engineering to solve the problems related to application of computers and communication services in storing, manipulating and transmitting data, often in the context of a business or other enterprise.

Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.

Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.

Environment and sustainability: Apply Information Technology related engineering solutions for sustainable development practices in environmental contexts.

Ethics: Apply ethical principles for commitment to professional ethics, responsibilities and norms of practice in the field of Information Technology.

III Relevant Course Outcomes

Interpret data and represent it graphically using spreadsheet.

IV Practical Learning Outcome

Apply page setup and print options for worksheet to print the worksheet.

V Practical Skills

1. Apply all options of page Setup on spreadsheet.
2. Apply print options on spreadsheets.

VI Relevant Affective domain related Outcomes

a. Demonstrate working as a leader/a team member.
b. Maintain tools and equipment.
c. Follow ethical practices.

VII Minimum Theoretical Background

Worksheet printing is very important task in spreadsheet tool yet it is hectic. As most of the user fail to understand basic set up of worksheet. Worksheet cannot be printed as a simple text document. While printing a worksheet one need to consider various factors like print area, margin, paper size and also data visualization. One needs to set desired view to print complete worksheet on page.

VIII Circuit diagram / Experimental set-up / Work Situation

Not Applicable

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Office software Package	Open office, Star office, Libre office, MS office or any other such software		

X Procedure

Page setting allows user to specifically configure and control many issues related to printing. User can have various options, using the relevant Menu/Ribbon for the Page Setup.

1. First set the print range/print area.
2. On the Ribbon/menu related to print, Select Page Layout and use the options available for the Page Setup.
3. Choose the option for scaling the page.
4. Select paper size.
5. Set the top, bottom, left and right page margins.
6. Type header/footer if needed.
7. Choose various options related to sheet-
   a. Choose the row(s) to be repeated on top of every page.
   b. Choose column(s) to be repeated at left of every page.
   c. Select the options to include/exclude gridlines on sheet.
   d. Select the desired page order.
8. Once all settings are done, click on “print preview” to see and check the settings applied. If settings are as per plan/instructions, click on “print”/” OK” button to get the print on paper ,otherwise go for modifying/applying desired print settings as per instructions.

XI Precautions

1. Handle computer system with care.
2. Optimize the page settings to minimize the number of printing pages.

XII Actual procedure followed

.....

.....

XIII Resources used (with major specifications)

.....

.....

XIV Precautions followed

.....

.....

XV Observations and Calculations

-Not Applicable-

XVI Results

.....

.....

XVII Interpretation Of Results

.....

.....

XVIII Conclusions and Recommendations (if any)

.....

.....

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Explain the importance of setting print area of a worksheet?
2. Can we print worksheet and related chart on same page?
3. What is the significance of repeating a row on the top of paper when the header option is available?

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Scale the current view of Spreadsheet to 75%
2. Select 10 rows and set them as “Print Area”.

XXI References / Suggestions for further Reading

- http://www.excel-easy.com/basics/print.html
- https://www.bigactivities.com/printing/index.php

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

Practical No. 14: Slide Presentations

I Practical Significance

Creating presentation for different purpose such as statements and reports, presentation for seminars and demonstrations involves different kind of skills such as making series of electronic slides by way of composing, editing and formatting text matter, along with drawing, shapes images audio and video, sequencing the slides and presenting it with presentation management tools. This practical is useful for developing necessary skills to incorporate the same and is helpful to produce a professional looking presentation.

II Relevant Program Outcomes (POs)

Discipline knowledge: Apply Information Technology knowledge to solve broad- based Information Technology related problems.
Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.
Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.
Environment and sustainability: Apply Information Technology related engineering solutions for sustainable development practices in environmental contexts.
Ethics: Apply ethical principles for commitment to professional ethics, responsibilities and norms of practice in the field of Information Technology.
Communication: Communicate effectively in oral and written form.

III Relevant Course Outcomes

Prepare professional presentations.

IV Practical Learning Outcome

1. Apply design themes to the given presentation.
2. Add new slides and insert pictures/images, shapes.

V Practical Skills

1. Create, edit and save presentations by way of hands on to compose the given sample presentations as per given design specifications.
2. Apply formatting features to the slides.

VI Relevant Affective domain related Outcomes

1. Choose appropriate theme and layout.
2. Apply various transition and effect(s).

VII Minimum Theoretical Background

Preparing a power-point presentation is always recommended while delivering a computerized presentation. One need to define and use proper outline points before preparing a presentation. The presenter can finalize the elements that will be use in presentation like image, audio, and video as well. Based on the presentation topic the user can select appropriate theme and makes formatting to it. Use of suitable transition and effect makes a presentation attractive and effective.

VIII Circuit diagram / Experimental set-up / Work Situation

-Not Applicable-

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Office software Package	Open office, Star office, Libre office, MS office or any other such software		

X Procedure

Following activities are to be carried using identified software package.

1. Create a new presentation.

a. Once users open the presentation software a new blank slide is open with default design/layout.
b. Alternatively a new slide is added by choosing the relevant menu/option and choosing from the available layout/design.
c. In the blank slide use relevant menu/ short cut keys to insert and place text box on the slide to insert and edit text. User can perform all word processing related tasks on text.
d. Insert some sample text and format it.
e. Add few more slides.

2. Add pictures in the presentation:

a. Go to slide where picture is to be inserted.
b. Go to relevant menu to insert picture.
c. Choose the folder where file is located.
d. Select the file.
e. Insert the file into presentation.
f. Once picture is inserted to slide, it can be formatted in many ways.
g. Click the image on slide. Choose relevant menu to format/edit the image or press right click button to activate various image formatting/editing options like setting brightness, contrast, transparency, cropping the image.
h. One can also insert shapes and clipart from relevant menu/option.
i. After clicking on image/graphic object, use handles on the border of image to set its size or drag it to change its place on the slide.
j. Go to relevant menu to view the presentation.
k. Using ***view*** option user can change the slide sequence by choosing ***slide sorter*** option and dragging the slide and dropping it to new location in the sequence. ***Slide master*** option is use to insert a piece of text/image to make it appear on every slide.
l. Go to relevant menu to change a slide layout, apply a theme, and change background color.
m. Add new slides and insert more text/images/shapes from the relevant menu. Format and place it and complete the presentation.

NOTE: *To create and edit text matter, the procedure described in* ***practical*** **No. 3 "Create, Edit And Save Document"** ***may be followed. Similarly to insert and edit image/shape the procedure described in*** **Practical No.5 "**Insert ***and edit images and shapes "may be followed.***

XI Precautions (if any)

1. Handle computer system with care.
2. Effects and timing shall be considered.

XII Actual procedure followed

.....

.....

XIII Resources used (with major specifications)

.....

.....

XIV Precautions followed

.....

.....

XV Observations and Calculations

-Not Applicable-

XVI Results

.....

.....

XVII Interpretation Of Results

.....

.....

XVIII Conclusions and Recommendations (if any)

.....

.....

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. If you compress the images in the presentation, then what will be the effect on the file?
2. How will you enter a text on blank theme slide?
3. How to start the slide show from any particular slide?
4. What are the different types of layout?

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Prepare a simple slide show of 5 slides displaying your name, middle name, surname, branch, and college name.
2. Prepare a simple slide show of 3 Slide displaying various cartoon characters.

XXI References / Suggestions for further Reading

- https://business.tutsplus.com/tutorials/powerpoint-presentation-tips--cms-29886
- https://www.lifewire.com/ways-to-view-slides-in-powerpoint-2767112

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

Practical No.15: Slide Presentation Using Tables and Charts

I Practical Significance

Table can be used to organize and analyze data in presentation and the charts are visual elements that represent the data in the form of various types of graphs. The visual method can make the point much stronger than simply describing the data. This practical is useful to develop skills to create and manipulate tables in the slides and representing the data in various forms of charts/graphs and manage its presentation.

II Relevant Program Outcomes

Basic knowledge: Apply knowledge of basic mathematics, science and basic engineering to solve the problems related to application of computers and communication services in storing, manipulating and transmitting data, often in the context of a business or other enterprise.

Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.

Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.

The engineer and society: Assess societal, health, safety and legal issues and the consequent responsibilities relevant to practice in the field of Information technology.

Ethics: Apply ethical principles for commitment to professional ethics, responsibilities and norms of practice in the field of Information Technology.

Communication: Communicate effectively in oral and written form.

III Relevant Course Outcomes

Prepare professional presentations.

IV Practical Learning Outcome

1. Add tables and charts in the slides.
2. Run slide presentation in different modes.
3. Print slide presentation as handouts.

V Practical Skills

1. Add tables and charts in the slides and manage it.
2. Run slide presentation in different modes.
3. Print slide presentation as handouts.

VI Relevant Affective domain related Outcomes

1. Follow safety practices.
2. Follow ethical practices.

VII Minimum Theoretical Background

One of the major reasons of using power point presentation is to convey message to the audience via static data. This leads to clarity of message to the user and increases the readability and understanding of user. One shall make appropriate use of charts, tables and graphs to fulfill the need.

VIII Circuit diagram / Experimental set-up / Work Situation

-Not Applicable-

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Office software Package	Open office, Star office, Libre office, MS office or any other such software.		

X Procedure

Following activities are to be carried using identified software package.

Create a new presentation, Use relevant tool from the menu/ using short cut keys to perform following tasks:

1. **Create and format a table in presentation**

a. Select the slide to add a table.
b. From the relevant menu, select Table.
c. Specify the number of rows and columns.
d. To add text to the table cells, click a cell, and then enter text.

2. **Create a charts in a presentation**

a. Using the relevant menu ribbon, select the Chart option.
b. Select the type of chart from the different chart types.
c. Modify a Chart: To change the type of chart then select the chart and use relevant option to choose the new chart type.
d. To format the charts layout styles, then select the relevant option.

NOTE: *To create and edit charts, the procedure described in* ***practical number 12 "Create Charts for visual presentation of data"****may be followed.*

3. **Print slide presentation as handouts**

a. Go to *Print* Menu
b. From the print option choose *handouts*.
c. Specify the number of slides per page.
d. Specify the order of slides.
e. Click on *print/ok* button.

XI Precautions (if any)

1. Select appropriate layout and theme for presentation.

XII Actual procedure followed

.....

.....

XIII Resources used (with major specifications)

.....

.....

XIV Precautions followed

.....

.....

XV Observations and Calculations

- Not Applicable-

XVI Results

.....

.....

XVII Interpretation Of Results

.....

.....

XVIII Conclusions and Recommendations (if any)

……

……

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Differentiate *Normal view* and *Slide sorter view*?
2. What is the significance of banded rows and banded columns of the table?
3. Which chart type is most appropriate to -
   a. Compare Magnitude.
   b. Show trend.

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Prepare a slide show and add chart showing in gender specific population of your class.
2. Create a chart in slide show depicting your earlier semester's marks in bar chart

XXI References / Suggestions for further Reading

- https://visual.ly/blog/creating-charts-presentations/
- https://www.enotes.com/homework-help/what-importance-charts-powerpoint-presentation-119221

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answers)

Practical No.16: Animation Effects to Text and Slides

I Practical Significance

Animation can help make a presentation more dynamic, and can emphasize a whole slide or a piece of text/object on a slide. The animation also prevents the complete text to appear at once on the slide. You can also add sound to increase the intensity of your animation effects. This practical enable to develop skills in creating slides with different animation effects in different modes.

II Relevant Program Outcomes

Basic knowledge: Apply knowledge of basic mathematics, science and basic engineering to solve the problems related to application of computers and communication services in storing, manipulating and transmitting data, often in the context of a business or other enterprise.

Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.

Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.

Environment and sustainability: Apply Information Technology related engineering solutions for sustainable development practices in environmental contexts.

Individual and team work: Function effectively as a leader and team member in diverse/ multidisciplinary teams.

Communication: Communicate effectively in oral and written form.

III Relevant Course Outcomes

Prepare professional presentations.

IV Practical Learning Outcome

1. Apply animation effects to the text and slides.

V Practical Skills

1. Add slides with different animation effects during slide transition.
2. Add different animation effects on text and other objects and control the same.

VI Relevant Affective domain related Outcomes

1. Follow safety practices.
2. Follow ethical practices.

VII Minimum Theoretical Background

While preparing a quality presentation one can make use of animation and transition on slides and objects. Power point tool supports various effects on objects and text. This increases attention of audience(s) and enables presenters to give emphasis on certain presentation objects. One shall make sure that these animations and transitions are to be used only when it is require and avoid excess use of animations.

VIII Circuit diagram / Experimental set-up / Work Situation

-Not Applicable-

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Office software Package	Open office, Star office, Libre office, MS office or any other such software		

X Procedure (Step wise)

Create a new presentation, Use relevant tool from the menu/ using short cut keys to perform following tasks:

1. **To add animation to text or an object, do the following:**
   a. Select the text or object that is to be animate.
   b. On the relevant menu, click *custom animation.*
   c. Choose an animation effect, apply from different given effects.
   d. Control its appearance and speed by choosing relevant options.
      To alter the animation effect-
      i. Select the text/object.
      ii. Remove the applied effect with its settings.
      iii. Select the new effect and then click the type of animation.
      iv. Control its appearance and speed by choosing relevant options.

2. **To add slide transition effect, do the following:**
   a. Go to slide to which transition effect is to be applied.
   b. Go to relevant menu to choose the transition effect.
   c. Once an effect is selected, choose from different options to control its appearance and speed.

XI Precautions

1. Handle computer system with care.
2. Avoid excessive use of effects and transition on slide/object.

XII Actual procedure followed

.....
.....

XIII Resources used (with major specifications)

.....
.....

XIV Precautions followed

.....
.....

XV Observations and Calculations

- Not Applicable –

XVI Results

.....

.....

XVII Interpretation of Results

.....

.....

XVIII Conclusions and Recommendations (if any)

.....

.....

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Explain, in what way the animation effects are helpful in creating an effective presentation?
2. Describe the significance of adding header and footer to a presentation.
3. Describe transition.

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Prepare a slide show and apply any five transitions to object on entry.
2. Prepare a slide show and apply any five transitions to object on emphasis.
3. Prepare a slide show and apply any five transitions to object on exit.

XXI References / Suggestions for further Reading

- https://www.windowscentral.com/sliding-transitions-powerpoint
- https://www.gcflearnfree.org/powerpoint2016/animating-text-and-objects/1/

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

Practical No.17: Audio and Video Files Presentation

I Practical Significance

Create presentation for different purpose such as notes, seminars and demonstrations. For better understanding, it is very beneficial to insert audio clips, video. This practical is useful for developing necessary skills to incorporate the same and is useful to use computers for electronic documentation.

II Relevant Program Outcomes

Discipline knowledge: Apply Information Technology knowledge to solve broad based Information Technology related problems.
Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.
Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.
Ethics: Apply ethical principles for commitment to professional ethics, responsibilities and norms of practice in the field of Information Technology.
Communication: Communicate effectively in oral and written form.

III Relevant Course Outcomes

Prepare professional presentations.

IV Practical Learning Outcome

Add audio and video files in the presentation.

V Practical Skills

Add slides with different audio and video files by way of hands on to compose the given sample presentations as per given specifications.

VI Relevant Affective domain related Outcomes

1. Add appropriate audio and videos suitable to the presentation.
2. Follow ethical practices by providing citation to the audios and videos used in slide(s).

VII Minimum Theoretical Background

As one can add images and objects in a presentation, user can easily add audio and video to make the use of readily available files to make presentation closer to the reality. The presenter can use similar steps which are used to add image, just one need to embed the audio(s) and video(s). One need to ensure that by adding audio and video the size of presentation is increased to certain level. The presenter needs to take utmost care of path while adding audio/ video files as wrong path may lead to embedding undesirable files while presentation.

VIII Circuit diagram / Experimental set-up / Work Situation

-Not Applicable-

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Office software Package	Open office, Star office, Libre office, MS office or any other such software		

X Procedure

Following activities are to be carried using identified software package**.**

Create a new presentation, use relevant tool from the menu/using short cut keys to perform following tasks:

1. To Add audio/videos clips in the presentation:
   There are two different ways to insert an audio file.
   a. from a file stored on computer or a disk;
   b. from clip organizer
2. To insert an audio/video from file:
   a. Go to slide where clip is to be inserted.
   b. Go to relevant menu to insert audio/video clip.
   c. Choose the location where file is located.
   d. Select the file.
   e. Insert the file into presentation.
   f. Once inserted it can be controlled in many ways by choosing the relevant options to play it and setting its properties.

XI Precautions (if any)

1. Use of appropriate file format for audios and videos to be embed.
2. Avoid embedding files with big file size.

XII Actual procedure followed

.....

.....

XIII Resources used (with major specifications)

.....

.....

XIV Precautions followed

.....

.....

XV Observations and Calculations

- Not Applicable **-**

XVI Results

.....

.....

XVII Interpretation Of Results

.....

.....

XVIII Conclusions and Recommendations (if any)

.....

.....

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Name one format each of movie and sound file supported by your presentation software.
2. What will happen if you apply ***Loop until stopped*** option?
3. Can movie or sound clip be edited once inserted in the presentation? Write steps for same.

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Prepare a new presentation and add audio on 5th Slide.
2. Prepare a new presentation; name the file as "My Video". Add video on 6th Slide suitable to the presentation theme.

XXI References / Suggestions for further Reading

- http://guides.lib.umich.edu/c.php?g=283149&p=1886375
- https://www.laptopmag.com/articles/powerpoint-2013-audio-video

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	Product Related(15)	Total(25)	

(Space for Answer)

Practical No. 18: Configuration of Internet Connection

I Practical Significance

In order to get internet connectivity on computer we need to do certain settings and do some configurations using operating system. Depending on whether Internet services are sought through a cable or DSL internet service provider (ISP), the steps need to take to setup internet connection will be different. This practical develop the ability to configure internet connection on a computer.

II Relevant Program Outcomes

Basic knowledge: Apply knowledge of basic mathematics, science and basic engineering to solve the problems related to application of computers and communication services in storing, manipulating and transmitting data, often in the context of a business or other enterprise.

Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.

Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.

Ethics: Apply ethical principles for commitment to professional ethics, responsibilities and norms of practice in the field of Information Technology.

Communication: Communicate effectively in oral and written form.

Life-long learning: Engage in independent and life-long learning along with the technological changes in the IT and allied industry.

III Relevant Course Outcomes

Use different types of web browsers.

IV Practical Learning Outcome

Configure Internet connection.

V Practical Skills

Apply setting for internet connection.

VI Relevant Affective domain related Outcomes

a. Follow safety practices.
b. Demonstrate working as a leader/a team member.
c. Maintain tools and equipment.
d. Follow ethical practices.

VII Minimum Theoretical Background

Internet is a way of connecting various computer and mobile devices together in a common yet private and secure network. In internet each devices are having unique identification named as *IP Address*. Each remote computers are connected by using their distinct domain name/Uniform Resource Locator (URL). Before one can connect to a computer, appropriate configuration for network needs to be done. Network devices like router, gateway needs to be configured as per the requirements.

VIII Circuit diagram / Experimental set-up / Work Situation

-Not Applicable –

IX Resources required

Sr. No.	Name of Resource	Broad Specifications	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Cable/DSL modem	**For cable Modem:** 10/100/1000BASE-T auto-sensing Ethernet port, speed 25 Mbps or higher. **For DSL Modem:** 10/100Base-T Ethernet port, speed 10 Mbps or higher, Wi-Fi support for 802.11B, 802.11G, 802.11n standards	Sufficient numbers so that multiple batches of students can work in parallel.	One modem may be shared amongst number of students

X Procedure

a. Setting Up a Cable Internet Connection

a. Plug the cable modem into computer.
b. Plug the cable modem into the wall cable socket.
c. Plug in the cable modems power cord. Most modems don't have an On/Off switch. Plugging and unplugging them is how you turn them on and off.
d. Test internet connection.

b. Setting Up a DSL Internet Connection

i. Plug the DSL modem into computer.
ii. Plug the DSL modem into the wall cable socket.
iii. Plug in the DSL modems power cord. Most modems don't have an On/Off switch. Plugging and unplugging them is how you turn them on and off.
iv. Log in to the modems administrative screen. Open a web browser. In the address field, type the modems IP address.
v. Enter your DSL account username and password.
vi. Save settings.
vii. Test internet connection.

XI Precautions

1. Assign appropriate IP address to device.
2. Carefully note down the user name and password and protect the same.

XII Actual procedure followed

.....
.....

XIII Resources used (with major specifications)

.....
.....

XIV Precautions followed

.....

.....

XV Observations and Calculations

- Not Applicable -

XVI Results

.....

.....

XVII Interpretation of Results

.....

.....

XVIII Conclusions and Recommendations

.....

.....

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. What is the role of ISPs?
2. List types of Modems.
3. What are the hardware/software requirements for Internet Connection?

XX References / Suggestions for further Reading

- http://www.liutilities.com/how-to/set-up-an-internet-connection/
- https://www.lifewire.com/connecting-a-computer-to-the-internet-817763

XXI Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

Practical No. 19: Internet for different Web Services

I Practical Significance

The Internet carries an extensive range of information resources and services, such as the inter-linked hypertext documents of the World Wide Web (WWW), chatting on Internet, e-mail, video conferencing, e-learning, e-shopping, e-reservation, e-groups, social networking. This practical is useful for developing necessary skills required to get web services.

II Relevant Program Outcomes

Basic knowledge: Apply knowledge of basic mathematics, science and basic engineering to solve the problems related to application of computers and communication services in storing, manipulating and transmitting data, often in the context of a business or other enterprise.

Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.

Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.

The engineer and society: Assess societal, health, safety and legal issues and the consequent responsibilities relevant to practice in the field of Information technology.

Ethics: Apply ethical principles for commitment to professional ethics, responsibilities and norms of practice in the field of Information Technology.

Communication: Communicate effectively in oral and written form.

III Relevant Course Outcomes

Use different types of web browsers**.**

IV Practical Learning Outcome

Use internet for different web services.

V Practical Skills

Use internet for sending e-mail, video-conferencing, e-learning, e-shopping, e-reservation, e-groups, social networking.

VI Relevant Affective domain related Outcomes

a. Use of appropriate web servers and web site to retrieve desired information.
b. Follow ethical practices.

VII Minimum Theoretical Background

To retrieve information one needs to use internet and search relevant information on website. There are many website where almost any information is available. As an internet user, one needs to use desired keywords to get such information. These websites are collection of different web pages stored across web servers. To get the information user can choose any available web browser such as Internet explorer, Google Chrome, Mozila Firefox, Safari etc.

VIII Circuit diagram / Experimental set-up / Work Situation

-Not Applicable-

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop computer with basic configuration	One computer system for each student	
2	Web Browser	Internet Explorer, Google Chrome, Opera, Mozilla Firefox or any other web browser		Web browsers on computer system may be made available pre loaded or students may be given the set up copy and asked to load the same on their computer systems.

X Procedure

1. Open a website with web browser-
   a. Open a web browser window.
   b. Type Uniform Resource Locator (URL) inside the address bar of web browser window and press 'Enter' key.
2. Create user account for e-mail-
   a. Open a web browser window.
   b. Type Uniform Resource Locator (URL) inside the address bar of web browser window and press 'Enter' key.
   c. Click on hyperlink create account to open registration form.
   d. Enter required fields in the form and confirm the registration.
3. Send e-mail to different users-
   a. Open a web browser window.
   b. Type Uniform Resource Locator (URL) inside the address bar of web browser window and press 'Enter' key.
   c. Type user id and password and click on login/sign in.
   d. To create and send new mail, click on ***Compose*** button.
   e. Type email id at "To:" to whom the message has to be sent.
   f. Type subject at "Subject:".
   g. Type the body of the mail.
   h. If users want to attach a file, click at "Attach" and select file to be attached and click "Open".
   i. Click at "Send" option.
4. Perform chatting on Internet-
   a. Open Messenger application and sign in using Email_Id/User Name and password and click on sign in button.
   b. From the list of friends, select the name of a person with whom user want to talk.
   c. Types the message for e.g. 'Hi, how are you?' and click on 'Send' button.
   d. Read the reply from friend and type next message in the same window with 'send' button.

5. Perform video conferencing-

a. Check the cameras at each location; make sure all the images are clear.
b. Check audio input, whether it's through a microphone, a telephone or speakers on computer, to assure high-quality sound output.
c. Choose the video conferencing software that user want to use and install the software on computer.
d. Experiment with audio output to make sure that speakers or headphones received audio communications without interference.

XI Precautions

1. Email address is written properly.
2. Follow the instruction related to safe use of Internet.

XII Actual procedure followed

.....
.....

XIII Resources used (with major specifications)

.....
.....

XIV Precautions followed

.....
.....

XV Observations and Calculations

- Not Applicable -

XVI Results

.....
.....

XVII Interpretation of results

.....
.....

XVIII Conclusions and Recommendations (if any)

.....
.....

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Enlist any three chatting environment.
2. Write procedure to create new group in messenger.
3. Write procedure to create signature while sending e-mail.

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Open any search engine and search information about ICT.
2. Open following web and view complete session. Write down important points http://nptel.ac.in/courses/110105079/58

XXI References / Suggestions for further Reading

1. https://informatics.buzdo.com/p914-internet-services.htm
2. http://mark.random-article.com/weber/inet/week3.html

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

……

……

……

……

……

……

……

Practical No. 20: Browser Settings and Uses

I Practical Significance

Now days Internet is very useful to get many services/applications such as e-Mail, Chat, Video Conferencing, e-learning, e-shopping, e-Reservation. In order to use Internet effectively, we need to use browser with different settings. This practical is useful to develop this skill.

II Relevant Program

Experiments and practice: Plan to perform experiments, practices and to use the results to solve Information Technology related problems.
Engineering tools: Apply appropriate Information Technology related techniques/ tools with an understanding of the limitations.
Environment and sustainability: Apply Information Technology related engineering solutions for sustainable development practices in environmental contexts.
Individual and team work: Function effectively as a leader and team member in diverse/ multidisciplinary teams.
Communication: Communicate effectively in oral and written form.

III Relevant Course Outcomes

Use different types of web browsers.

IV Practical Learning Outcome

Apply the given setting option in browsers.
Use the specified option for effective searching in search engine.

V Practical Skills

Basic settings of web browsers- history, extension, default page, default search engine, creating and retrieving bookmarks, use search engines effectively for searching the content.

VI Relevant Affective domain related Outcomes

1. Follow safety practices.
2. Practice good housekeeping.

VII Minimum Theoretical Background

While working with internet one needs to use available browser which make communication with web server. The user needs to understand basic settings of web browser. The web browser setting contains history, default web page, default search engine etc. One can make use of bookmarks to open certain webpages instantly. Cookies are also important in web browser to make sure that computer can be easily recognized in upcoming sessions with same web site.

VIII Circuit diagram / Experimental set-up / Work Situation

-Not Applicable-

IX Resources required

Sr. No.	Name of Resource	Specification	Qty.	Remarks
1	Computer System	Any desktop or laptop with basic configuration	One computer system for each student	**Internet connection**
2	Browser	Internet Explorer, Google Chrome, Opera, Mozilla Firefox or any other web browser		

X Procedure

1. Open the browser. Go to Internet Options. Set and Unset the Default Page, Default Search Engine, Default Browser.
2. Go to "Privacy". Clear browsing data: download history, clear browsing history, and cookies and plug in data, cache images and files, passwords, auto fill form data.
3. Set or Unset cookies data.
4. Click on ***Extensions***: enable or disable plug in.

XI Precautions (if any)

1. Ensure auto-save field is disabled.
2. Disable auto save username and password.

XII Actual procedure followed

.....

.....

XIII Resources used (with major specifications)

.....

.....

XIV Precautions followed

.....

.....

XV Observations and Calculations

- Not Applicable -

XVI Results

.....

.....

XVII Interpretation of Results

.....

.....

XVIII Conclusions and Recommendations (if any)

.....

.....

XIX Practical Related Questions

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Write steps to set the Default Search Engine in the browser?
2. What is the importance of setting or unsetting the Cookies data?
3. Write two advantages of keeping web History.

XX Exercise

Note: Below given are few sample questions for reference. Teachers must design more such questions so as to ensure the achievement of identified CO.

1. Clear the browsing history till "*Last two days"*.
2. Open a browser setting and make following website as default website/web page *www.nptel.ac.in*
3. Open following web site and make it as bookmark. *www.msbte.org.in*

XXI References / Suggestions for further Reading

1. https://support.google.com/
2. https://support.microsoft.com
3. https://support.mozilla.org/

XXII Assessment Scheme

Performance indicators		Weightage
Process related (10 Marks)		**40 %**
a.	Tool Selection Ability.	20%
b.	Use of Appropriate tool to perform the identified task(s)	20%
Product related (15 Marks)		**60 %**
a.	Performed/completed the identified task(s)	20%
b.	Correctness of output achieved	20%
c.	Completed the practical in stipulated time	10%
d.	Correctness of question asked	10%
Total (25 Marks)		**100 %**

List of Student Team Members

1. ……..
2. ……..
3. ……..
4. ……..

Marks Obtained			Dated signature of Teacher
Process Related(10)	**Product Related(15)**	**Total(25)**	

(Space for Answer)

List Of Laboratory Manuals Developed by MSBTE

First Semester:

1	Fundamentals of ICT	22001
2	English	22101
3	English Work Book	22101
4	Basic Science (Chemistry)	22102
5	Basic Science (Physics)	22102

Second Semester:

1	Bussiness Communication Using Computers	22009
2	Computer Peripherals & Hardware Maintenace	22013
3	Web Page Design with HTML	22014
4	Applied Science (Chemistry)	22202
5	Applied Science (Physics)	22202
6	Applied Machines	22203
7	Basic Surveying	22205
8	Applied Science (Chemistry)	22211
9	Applied Science (Physics)	22211
10	Fundamental of Electrical Engineering	22212
11	Elements of Electronics	22213
12	Elements of Electrical Engineering	22215
13	Basic Electronics	22216
14	'C' programming Language	22218
15	Basic Electronics	22225
16	Programming in "C"	22226
17	Fundamentals of Chemical Engineering	22231

Third Semester:

1	Applied Multimedia Techniques	22024
2	Advanced Serveying	22301
3	Highway Engineering	22302
4	Mechanics of Structures	22303
5	Building Construction	22304
6	Concrete Technology	22305
7	Strength Of Materials	22306
8	Automobile Engines	22308
9	Automobile Transmission System	22309
10	Mechanical Operations	22313
11	Technology Of Inorganic Chemicals	22314
12	Object Oriented Programming Using C++	22316
13	Data Structure Using 'C'	22317
14	Computer Graphics	22318
15	Database Management System	22319
16	Digital Techniques	22320
17	Principles Of Database	22321
18	Digital Techniques & Microprocessor	22323
19	Electrical Circuits	22324
20	Electrical & Electronic Measurment	22325
21	Fundamental Of Power Electronics	22326
22	Electrical Materials & Wiring Practice	22328
23	Applied Electronics	22329
24	Electrical Circuits & Networks	22330
25	Electronic Measurments & Instrumentation	22333
26	Principles Of Electronics Communication	22334
27	Thermal Engineering	22337
28	Engineering Matrology	22342
29	Mechanical Engineering Materials	22343
30	Theory Of Machines	22344

Fourth Semester:

1	Hydraulics	22401
2	Geo Technical Engineering	22404
3	Chemical Process Instrumentation & Control	22407
4	Fluid Flow Operation	22409
5	Technology Of Organic Chemicals	22410
6	Java Programming	22412
7	GUI Application Development Using VB.net	22034
8	Microprocessor	22415
9	Database Managment	22416
10	Electric Motors And Transformers	22418
11	Industrial Measurements	22420
12	Digital Electronics And Microcontroller Applications	22421
13	Linear Integrated Circuits	22423
14	Microcontroller & Applications	22426
15	Basic Power Electronics	22427
16	Digital Communication Systems	22428
17	Mechanical Engineering Measurments	22443
18	Fluid Mechanics and Machinery	22445
19	Fundamentals Of Mechatronics	22048

Fifth Semester:

1	Design of Steel and RCC Structures	22502
2	Public Health Engineering	22504
3	Heat Transfer Operation	22510
4	Environmental Technology	22511
5	Operating Systems	22516
6	Advanced Java Programming	22517
7	Software Testing	22518
8	Control Systems and PLC's	22531
9	Embedded Systems	22532
10	Mobile and Wireless Communication	22533
11	Industrial Machines	22523
12	Switchgear and Protection	22524
13	Energy Conservation and Audit	22525
14	Power Engineering and Refrigeration	22562
15	Solid Modeling and Additive Manufacturing	22053
16	Guidelines & Assessment Manual for Micro Projects & Industrial Training	22057

Sixth Semester:

1	Solid Modeling	17063
2	Highway Engineering	17602
3	Contracts & Accounts	17603
4	Design of R.C.C. Structures	17604
5	Industrial Fluid Power	17608
6	Design of Machine Elements	17610
7	Automotive Electrical and Electronic Systems	17617
8	Vehicle Systems Maintenance	17618
9	Software Testing	17624
10	Advanced Java Programming	17625
11	Mobile Computing	17632
12	System Programing	17634
13	Testing & Maintenance of Electrical Equipments	17637
14	Power Electronics	17638
15	Illumination Engineering	17639
16	Power System Operation & Control	17643
17	Environmental Technology	17646
18	Mass Transfer Operation	17648
19	Advanced Communication System	17656
20	Mobile Communication	17657
21	Embedded System	17658
22	Process Control System	17663
23	Industrial Automation	17664
24	Industrial Drives	17667
25	Video Engineering	17668
26	Optical Fiber & Mobile Communication	17669
27	Therapeutic Equipment	17671
28	Intensive Care Equipment	17672
29	Medical Imaging Equipment	17673

Pharmacy Lab Manual

First Year:

1	Pharmaceutics - I	0805
2	Pharmaceutical Chemistry - I	0806
3	Pharmacognosy	0807
4	Biochemistry and Clinical Pathology	0808
5	Human Anatomy and Physiology	0809

Second Year:

1	Pharmaceutics - II	0811
2	Pharmaceutical Chemistry - II	0812
3	Pharmacology & Toxicology	0813
4	Hospital and Clinical Pharmacy	0816

HEAD OFFICE

Secretary,
Maharashtra State Board of Technical Education
49, Kherwadi, Bandra (East), Mumbai - 400 051
Maharashtra (INDIA)
Tel: (022)26471255 (5 -lines)
Fax: 022 - 26473980
Email: -secretary@msbte.com
Web -www.msbte.org.in

REGIONAL OFFICES:

MUMBAI

Deputy Secretary (T),
Mumbai Sub-region,
2nd Floor, Govt. Polytechnic Building,
49, Kherwadi, Bandra (East)
Mumbai - 400 051
Phone: 022-26473253 / 54
Fax: 022-26478795
Email: rbtemumbai@msbte.com

PUNE

Deputy Secretary (T),
M.S. Board of Technical Education,
Regional Office,
412-E, Bahirat Patil Chowk,
Shivaji Nagar, Pune
Phone: 020-25656994 / 25660319
Fax: 020-25656994
Email: rbtepn@msbte.com

NAGPUR

Deputy Secretary (T),
M.S. Board of Technical Education
Regional Office,
Mangalwari Bazar, Sadar, Nagpur - 440 001
Phone: 0712-2564836 / 2562223
Fax: 0712-2560350
Email: rbteng@msbte.com

AURANGABAD

Deputy Secretary (T),
M.S. Board of Technical Education,
Regional Office,
Osmanpura, Aurangabad -431 001.
Phone: 0240-2334025 / 2331273
Fax: 0240-2349669
Email: rbteau@msbte.com