

STRUCTURAL CONSTRUCTION WORKS LEVEL – II

Based on March 2022 Curriculum Version 1



Module Title: - Operating application soft ware

Module code: EIS SCW2 M01 0322

Nominal duration: 120 Hours

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Acknowledgment

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Acronym

CADcomputer-aided design
LAPlearning activity performance
OHS.....Occupational health and safety
MSMicrosoft
RAMRandom Access Memory

Introduction to the Module

In structural construction work; the Operate Application software of structural construction work helps to know use a range of prepare relevant information for software application procedures, perform CAD and Microsoft office project package is booted properly, Necessary tools and equipment are identified..

This module is designed to meet the industry requirement under the structural construction work occupational standard, particularly for the unit of competency Read and interpret building drawing and specifications.

This module covers the units:

- CAD and micro soft office project environment Measurement,
- Open software application and manipulate desktop
- Print
- Shut down computer

Learning Objective of the Module

- Prepare the CAD and micro soft office project environment.
- System of open software application and manipulate desktop environment
- Preform Print information
- Perform Shut down computer

Module Instruction

For effective use this modules trainees are expected to follow the following module instruction:

1. Read the information written in each unit
2. Accomplish the Self-checks at the end of each unit
3. Perform Operation Sheets which were provided at the end of units
4. Do the “LAP test” giver at the end of each unit and
5. Read the identified reference book for Examples and exercise

Unit one: CAD and micro soft office project environment Measurement,

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- work health and safety
- Software application procedures.
- Tools and equipment
- CAD and Microsoft office Project package.
- Screen display

This unit will also assist you to attain the learning outcomes stated below. Upon completion of this learning guide, you will be able to:

- Apply work health and safety
- Prepare software application procedures.
- Identify tools and equipment.
- Perform CAD and Microsoft office Project package.
- Display screen with instruction

1.1. work health and safety

1.1.1. Definition

Occupational health and safety is the discipline concerned with preserving and protecting human resources in the workplace. Occupational health is the adaptation of work to man and of each man to his job. It has the following components.

- Promotion and maintenance of the highest degree of physical, mental and social wellbeing of workers in all occupations;
- Prevention among workers of departures from health caused by their working conditions
- Protection of workers in their employment from risks resulting from factors adverse to health; and
- Placing and maintenance of a worker in an occupational environment adapted to his physiological and psychological equipment.

What is Occupational Health?

Occupational health deals with all aspects of health and safety in the workplace and has a strong focus on primary prevention of hazards. The health of the workers have several determinants, including risk factors at the workplace leading to cancers, accidents, musculoskeletal diseases, respiratory diseases, hearing loss, circulatory diseases, stress related disorders and communicable diseases and others.

1.1.2. Objectives of Occupational Health and Safety

The ten high priority objectives proposed by the strategy are as follows:

- Strengthening of international and national policies for health at work and developing the necessary policy tools
- Development of healthy work environment
- Development of healthy work practices and promotion of health at work
- Strengthening of OHS
- Establishing of support services for occupational health
- Development of occupational health standards based on scientific risk assessment

- Development of human resources for occupational health
- Establishment of registration and data systems, development of information Services for experts, effective transmission of data and raising of public awareness through public information
- Strengthening of research

1.1.3. Principles of Occupational Health and Safety

Occupational health and safety is a multi-disciplinary field, covering issues related to law, medicine, technology, economics and industry specific concerns. The core occupational health and safety principles are as follows:

- All workers have rights. Workers, as well as employees and government, must ensure that these rights are protected and foster decent conditions of labour. As the International Labor Conference stated in 1984:
 - ✓ Work should take place in a safe healthy environment;
 - ✓ Conditions of work should be consistent with workers' well-being and human dignity;
 - ✓ Work should offer real possibilities for personal achievement, self-fulfillment and service society¹.
- Occupational health and safety policies must be established. Such policies must be implemented at both the governmental and enterprise levels. They must be effectively communicated to all parties concerned.
- There is a need for consultation with the social partners (that is, employers and workers) and other stakeholders. This should be done during the formulation, Implementation and review of such policies.
- Prevention and protection must be the aim of occupational health and safety Programmes and policies. Efforts must be focused on primary prevention at the

Workplace level. Workplaces and working environment should be planned and designed to be safe and healthy

1.1.4. Organizing Your Workspace

A computer performs five major operations or functions irrespective of its size and make.

These are

- it accepts data or instructions as input,
- it stores data and instruction
- it processes data as per the instructions,
- it controls all operations inside a computer, and
- it gives results in the form of output.

1.1.5. Precautions to be taken against viruses

- Install a memory-resident program in RAM that will detect and warn if a virus is present.
- Do not allow hardware engineers or sales persons to put a write enabled floppy into your computer unless they can guarantee that it is not infected.
- Backup copies of all programs and data files should be kept.
- Backup copies of programs should be held as read-only disks to prevent infection.
- At least 2 copies of the backup must be kept.
- Never boot your machine with a floppy from an unknown source.
- Always write-protect your disk when you use it in another machine

1.2. Software application procedures

1.2.1. CAD procedures

Introduction

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AutoCAD is a Computer-Aided Drafting (CAD) software application built by Autodesk. It helps to create both 2D (Two dimensional) and 3D(Three-Dimensional) models of solid as well as mesh surfaces which helps engineers, architects, drafters, and other designing professionals to design the models instead of using manual hand drafting tools like pencils, rulers, compasses, drafting boards, etc. These conventional methods are time-consuming as well as not accurate. AutoCAD released in 1982; since then, it is used widely because of its accuracy, robust features, and automated drafting tools. AutoCAD helps you design and create the models, transform that model into 3D model renderings, and create animated presentations. AutoCAD provides many built-in layouts for users. This built-in layout contains various types of templates that are used for architecture planning and constructing buildings. In this article, we are going to see the steps to install AutoCAD on the windows system so that we can use that to create designs.

Steps to Install AutoCAD on windows system are given as follows:

- **Step 1:** Access the Autodesk website

Use web browsers like Google Chrome, Mozilla Firefox, etc. Then Go to the AutoCAD official website by using this link: <https://www.autodesk.com>

- **Step 2:** Select Students and Educators from Drop down list of the Menu.

It will give you three options, i.e. free trials, students and educators, and worldwide sites. Here I am selecting the students and educators option.

- **Step 3:** Then, you will see Get set up for career success with the Autodesk tab. From that tab, click on Start now under Download free software option.

- **Step 4:** It will give a list of Autodesk products like 3DS Max, Maya, AutoCAD, etc. Under that, click on the AutoCAD option from the list.

- **Step 5:** If you have already registered, then click on Sign in, and you will be forwarded to your Autodesk Login information. Otherwise, click on Create Account and create a new account using your email ID.

- **Step 6:** Select version After signing in, you can select the version of AutoCAD you want to download and install and Operating System: 32 bit or 64 bit.

Note: To check whether your operating system is 32 bit or 64 bit go to Control Panel > System and Security > System. It will display whether you are running a 32 bits system or 64 bits system. Then choose a language which is preferable for you. The Serial number and

product key will be displayed. Copy this information as it is required for activation purposes after installing the software to authenticate the download.

Now click on download. You will see a prompt with a security warning from the download. In that prompt, click “Run” or “Ok” (which is applicable to continue the download process) as Autodesk products are relatively secure

- **Step 7:** License and Services Agreement After that, you will see the “License and Services Agreement” Prompt. Read it carefully, and then click on the “I Accept” option, then click the next button to install AutoCAD on your Windows System
- **Step 8:** After the installation of the manager, you will see an “Autodesk Download Manager” window. Specify the desired path where you want to save that file and click on OK.

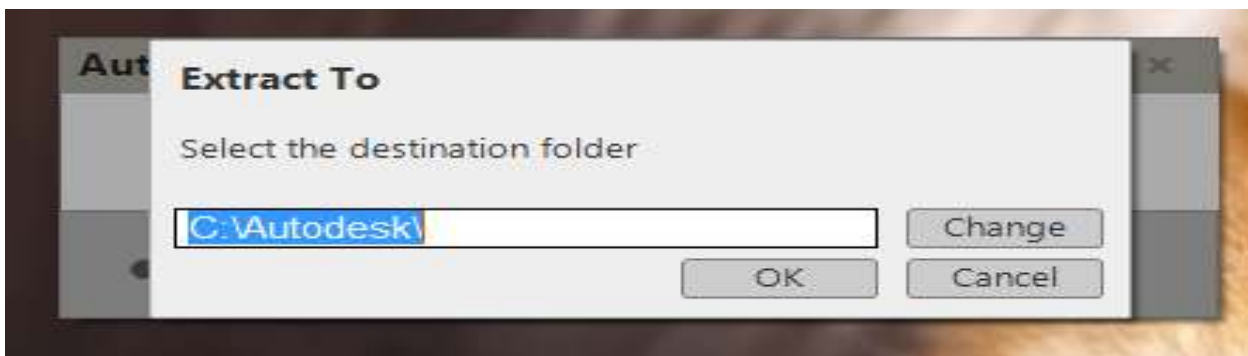


Fig.1.1.auto desk

The Autodesk Download manager will be loading.

- **Step 9:** After that, you will see a window where you can configure the Autocad installation process. Here give the path where you want to save the files
- **Step 10:** In the next window, select the Custom Option. Make sure all the features under the drop-down are checked.
- **Step 13:** After finishing the installation, you have to provide a Product Key to further the use of AutoCAD.

1.2.2. Microsoft office Project

Procedures

- Step 1: File -> Options -> General tab -> Project view -> Default view.

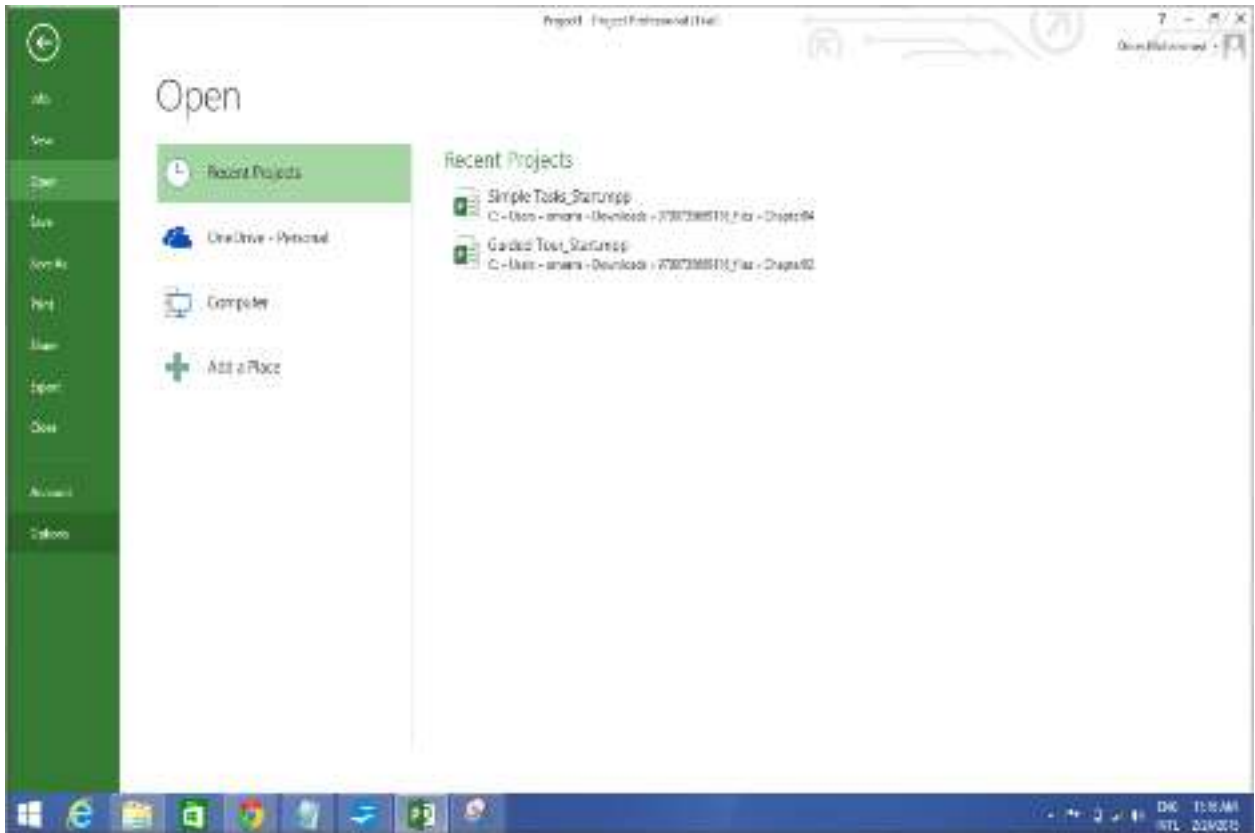


Fig.1.2.ms project

Step 2: File -> Options -> Display tab -> Show Indicators and Options Buttons For.
Check all options.

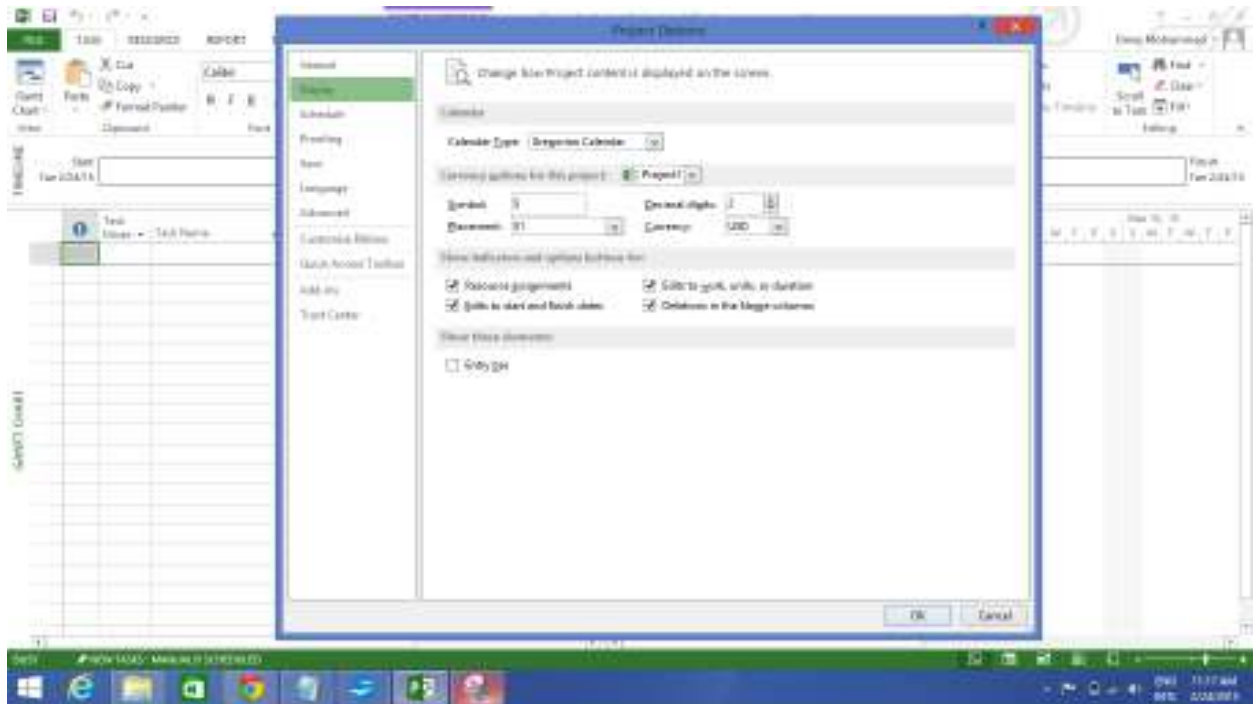


Fig.1.3.project options

- Step 3: File -> Options -> Schedule tab -> Schedule -> Show Assignment Units.

Choose “percentage” from the dropdown box.

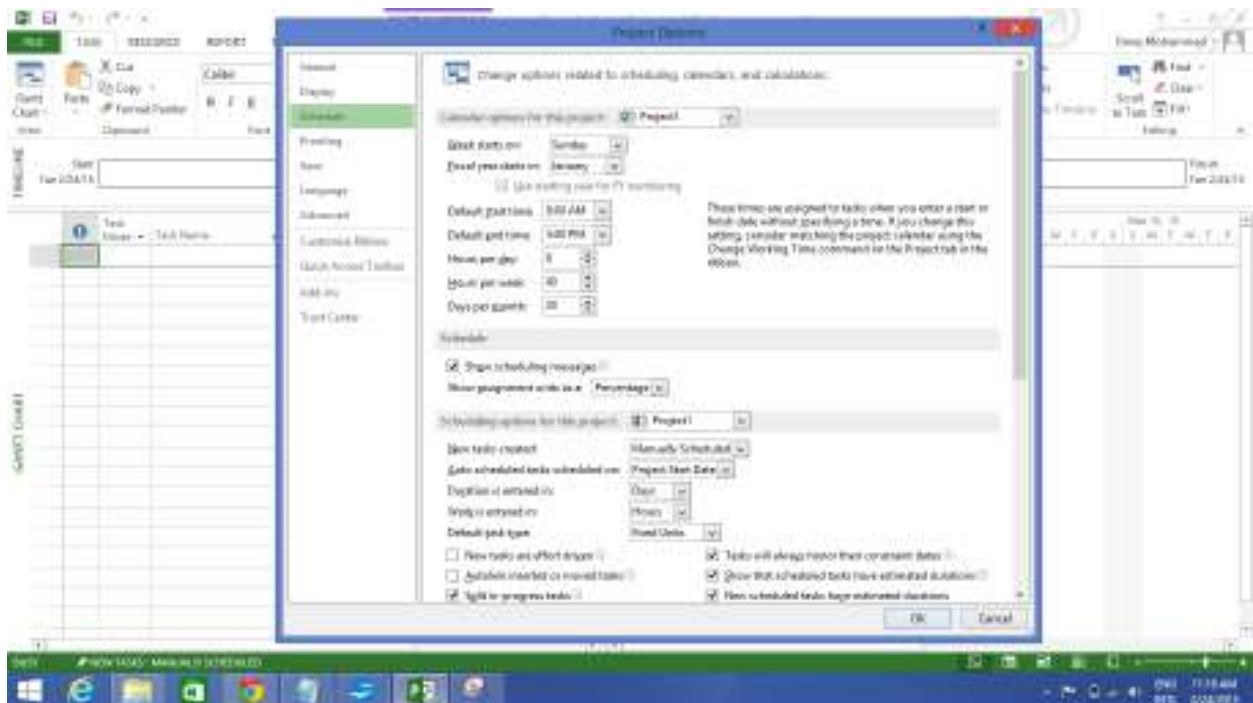


Fig.1.4.project options

- Step 4: File -> Options -> Schedule tab -> Calculation -> Calculate Project after Each Edit.

Check the On button.

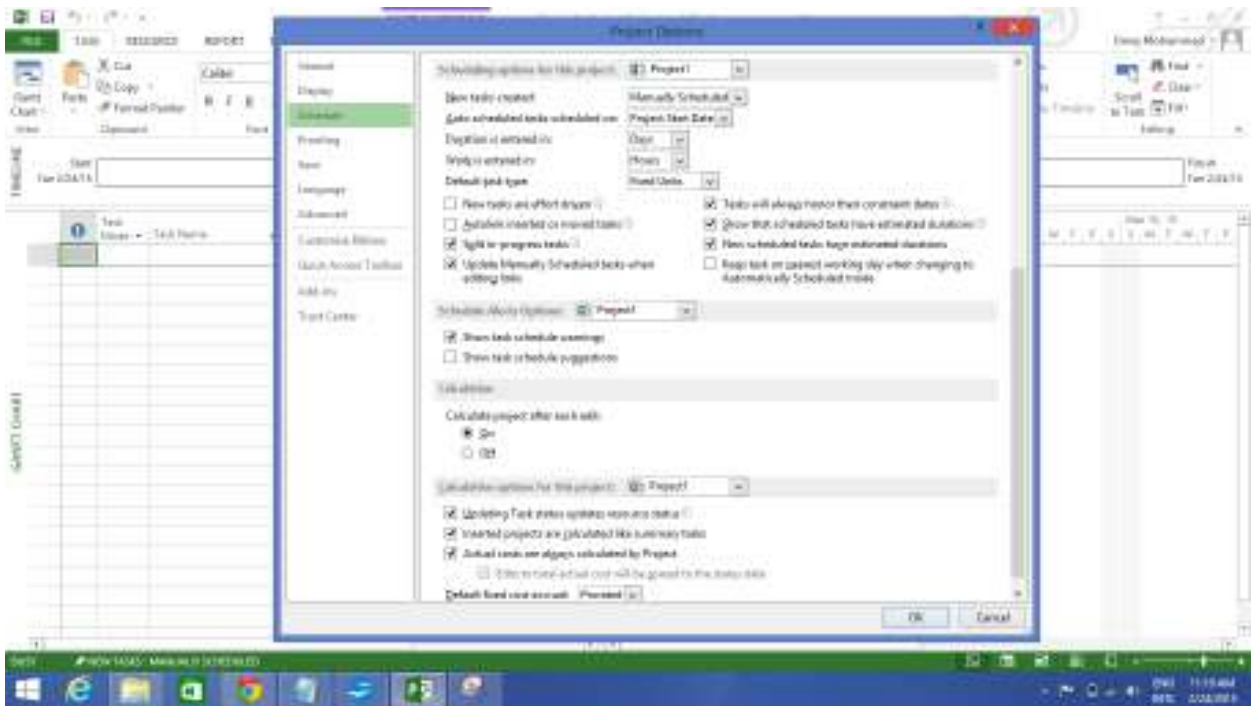


Fig.1.5.schedule

- Step 5: File -> Options -> Save tab -> Save projects -> Save Files In this format. Select Project (*.mpp).

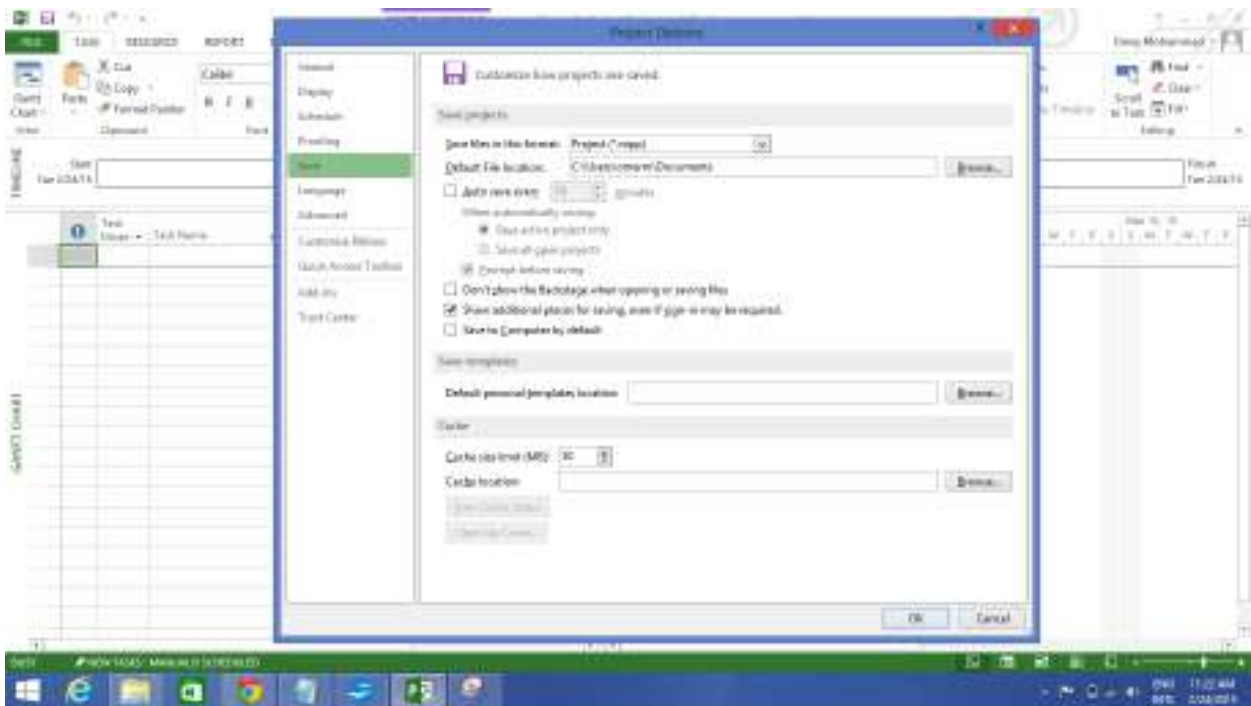


Fig.1.6. project options

Step 6: File -> Options -> Advanced tab -> Edit.

Check all options.

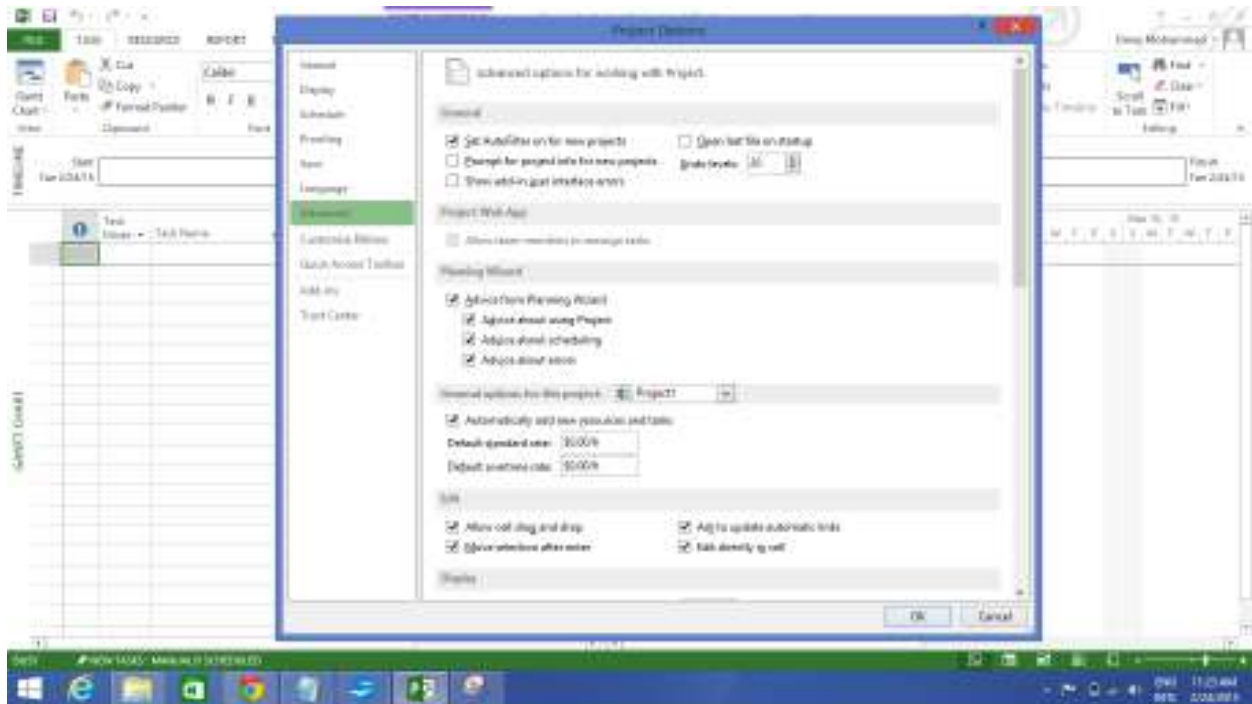


Fig.1.7.advanced tool

- Step 7: File -> Options -> Advanced tab -> Display -> Show Status Bar -> Show Scroll Bar.

Both options, Status Bar and Scroll Bar should be checked

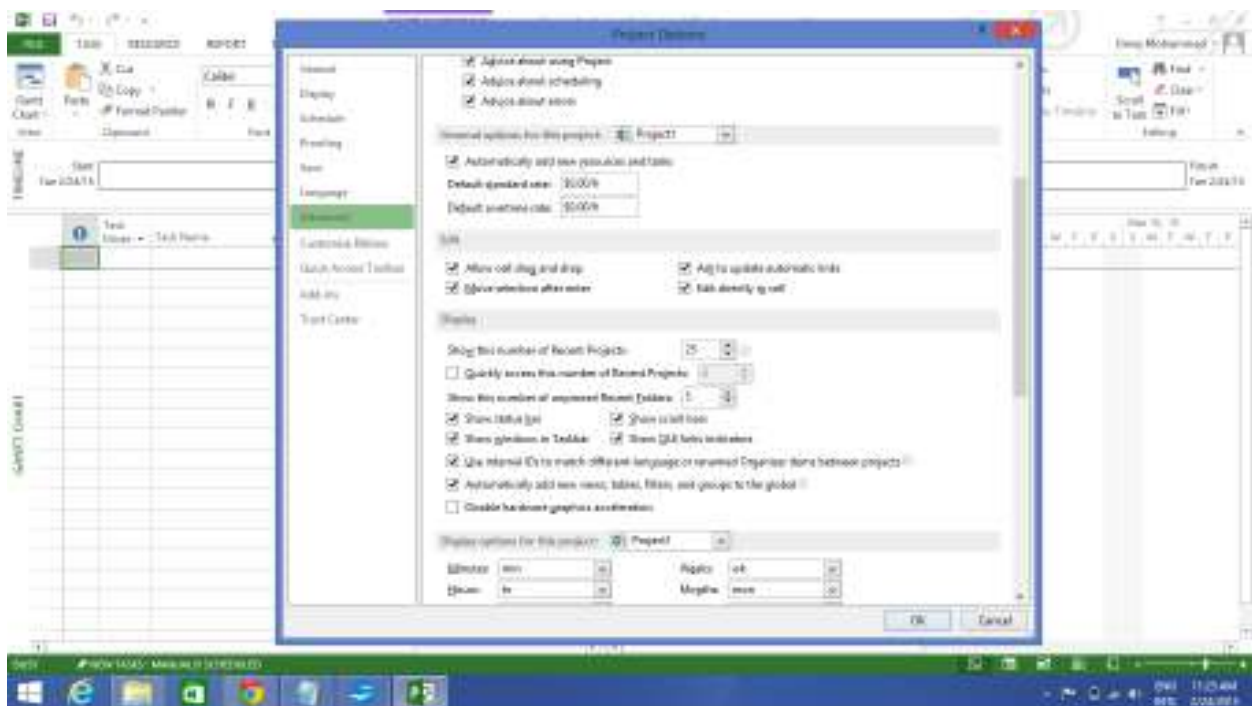


Fig.1.8.work space

➤ Step 8: Resources -> Level -> Leveling Options -> Leveling Calculations.

Set to manual.

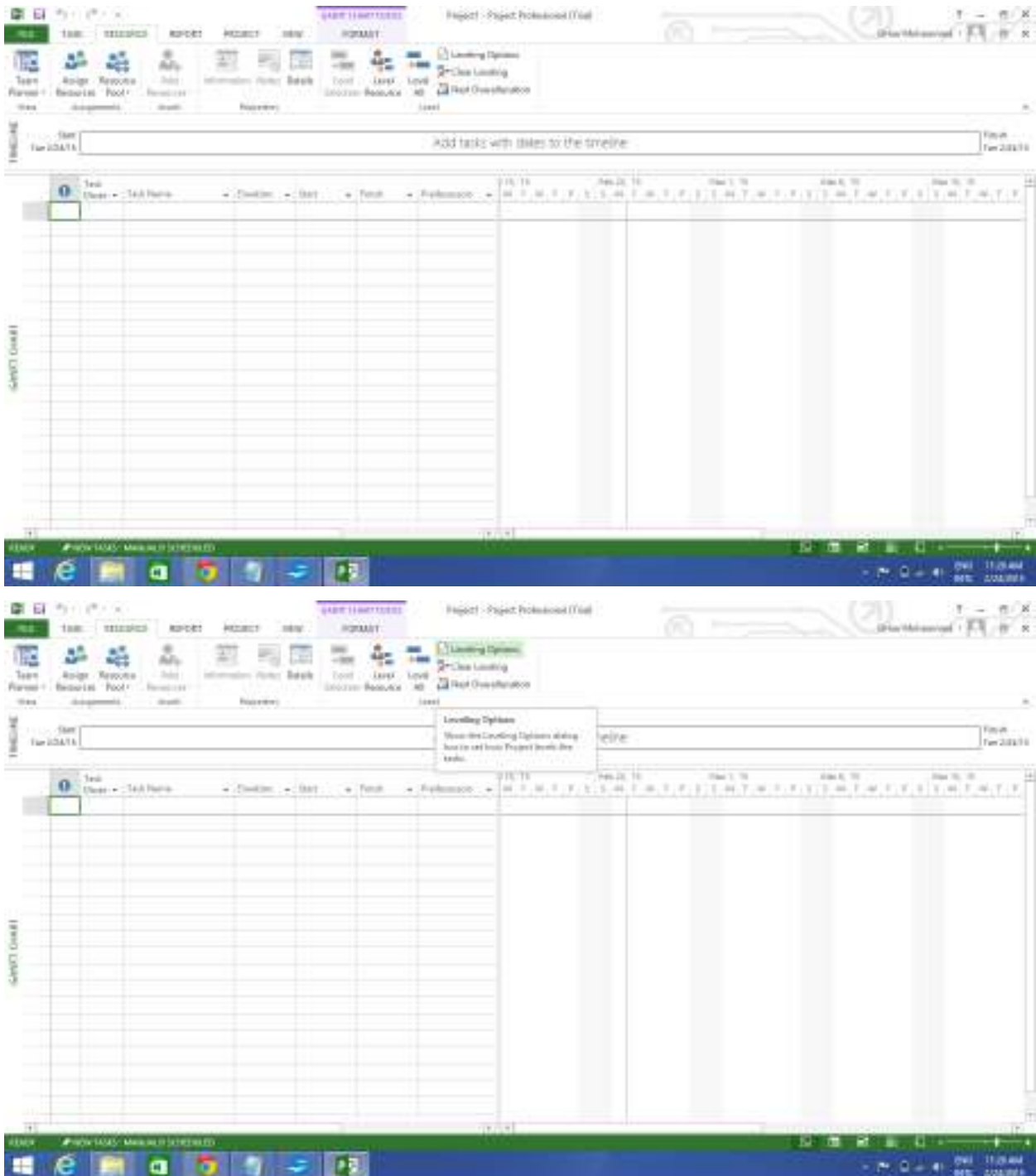


Fig.1.9.grant chart

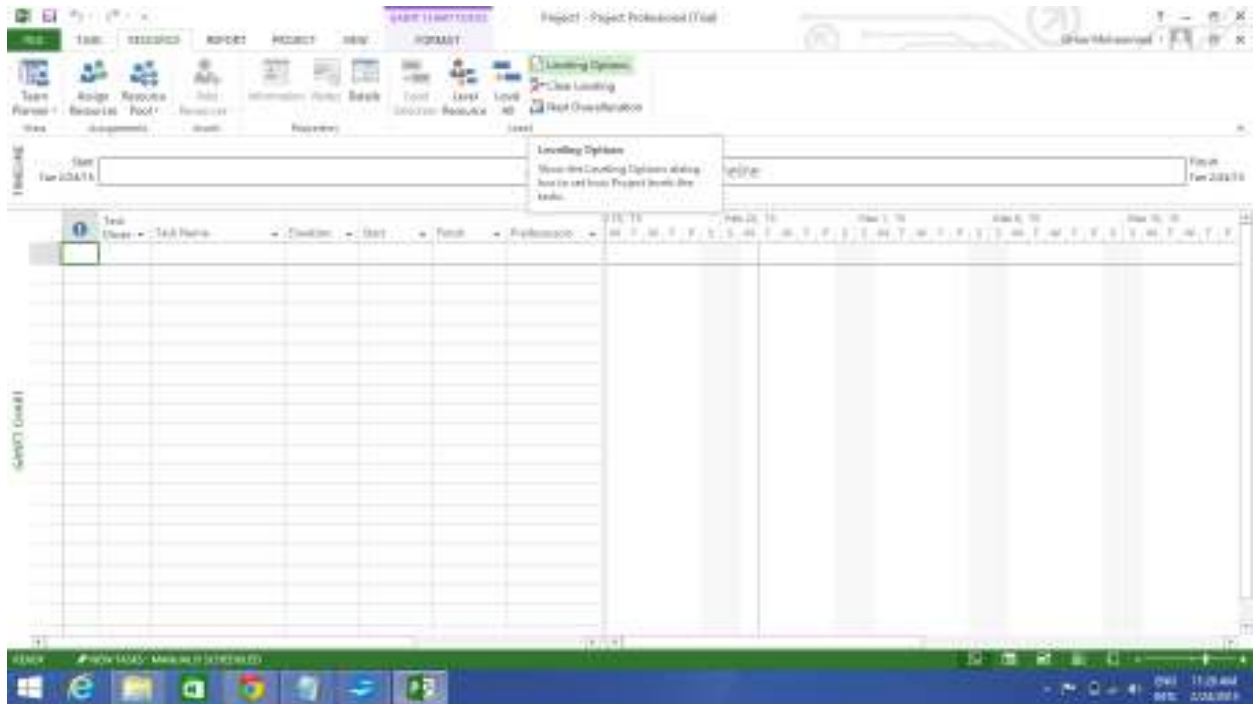


Fig.1.10.leveling options

- Step 9: Resources -> Level -> Leveling Options -> Leveling calculations -> Look for Over allocations.

Select “Day By Day” from dropdown box.

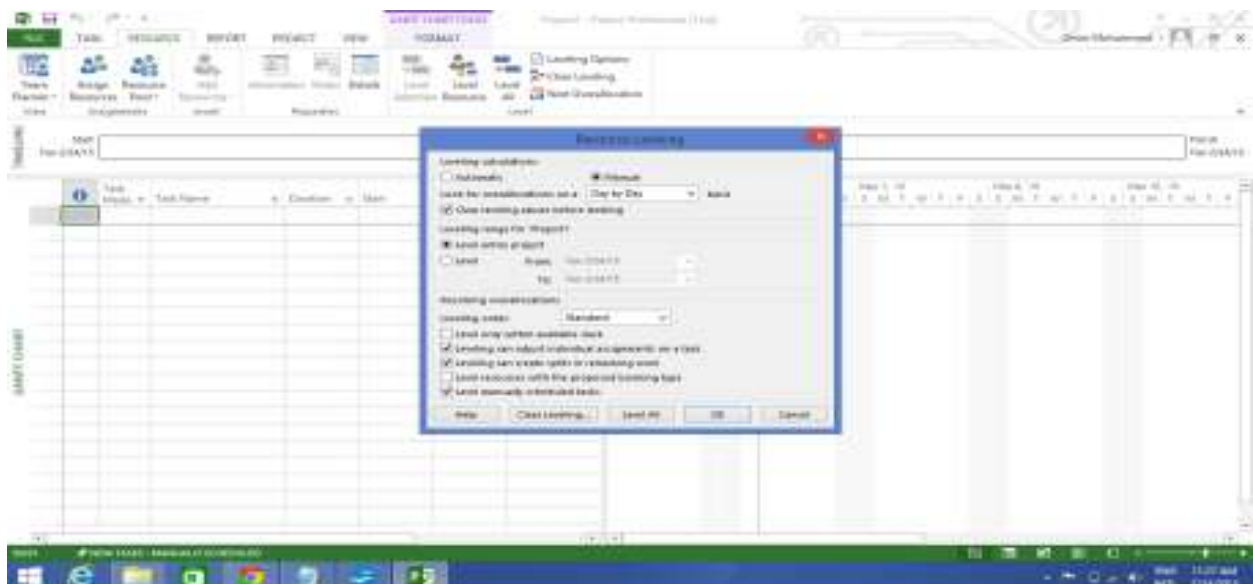


Fig.1.11.resource leveling

1.3. Tools and equipment

1.3.1. Equipment

- **printers**

Printer: Printers are used to produce paper (commonly known as hardcopy) output. Based on the technology used, they can be classified as Impact or Non-impact printers.

- **monitor**

Monitor: is often used synonymously with “computer screen” or “display.” Monitor is an output device that resembles the television screen. It may use a Cathode Ray Tube (CRT) to display information. The monitor is associated with a keyboard for manual input of characters and displays the information as it is keyed in. It also displays the program or application output.

Like the television, monitors are also available in different sizes.

- **desktop**

A computer system consists of mainly four basic units; namely input unit, storage unit, central processing unit and output unit. Central Processing unit further includes Arithmetic logic unit and control unit, as shown in

A computer performs five major operations or functions irrespective of its size and make.

These are

- it accepts data or instructions as input,
- it stores data and instruction
- it processes data as per the instructions,
- it controls all operations inside a computer, and
- it gives results in the form of output.

1.3.2. Tool

- **keyboard**

Keyboard: The keyboard is very much like a standard typewriter keyboard with a few additional keys. The basic QWERTY layout of characters is maintained to make it easy to use the system. The additional keys are included to perform certain special functions. These are known as function keys that vary in number from keyboard to keyboard.



Fig.1.12.key board

- **Mouse**

Mouse: A device that controls the movement of the cursor or pointer on a display screen. A mouse is a small object you can roll along a hard and flat surface. Its name is derived from its shape, which looks a bit like a mouse. As you move the mouse, the pointer on the display screen moves in the same direction.



Fig.1.13. Mouse

1.4. CAD and Microsoft office Project package.

1.4.1. CAD

The contents of this chapter are designed to introduce features of the AutoCAD 2007 window and methods of operating AutoCAD 2007.

Opening AutoCAD 2007

AutoCAD 2007 is designed to work in a Windows operating system. In general, to open AutoCAD 2007, either double-click on the AutoCAD 2007 shortcut in the Windows desktop or right-click on the icon, followed by a left-click on Open in the menu which then appears

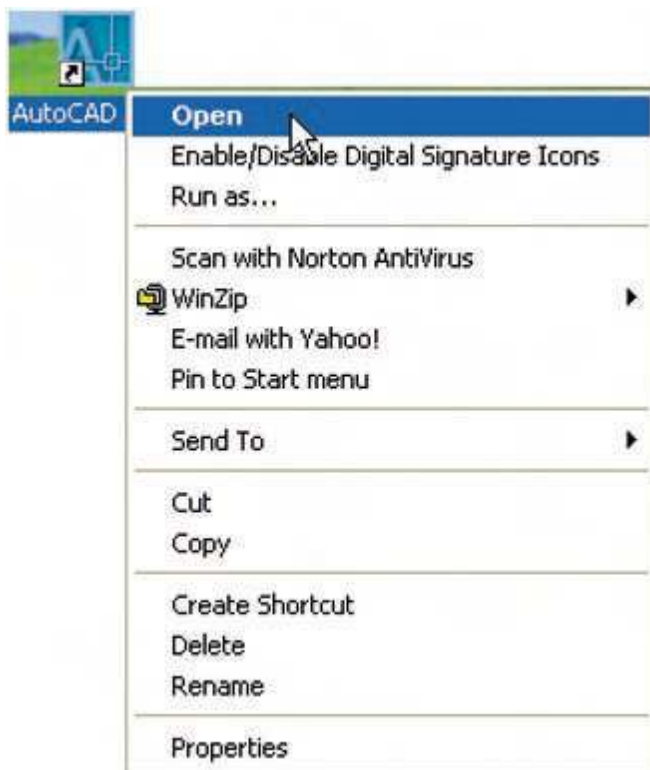


Fig.1.14.autocad 2007

When working in education or in industry, computers may be configured to allow other methods of opening AutoCAD, such as a list appearing on the computer in use when the computer is switched on, from which the operator can select the program they wish to use.

When AutoCAD 2007 is opened a window appears, depending upon whether a Classic AutoCAD, a 3D Modeling or an AutoCAD Default workspace has been used previously. In this example the Classic AutoCAD workspace is shown and includes the drop-down menu from which a choice of the AutoCAD workspace to be opened can be made This Classic AutoCAD workspace shows:

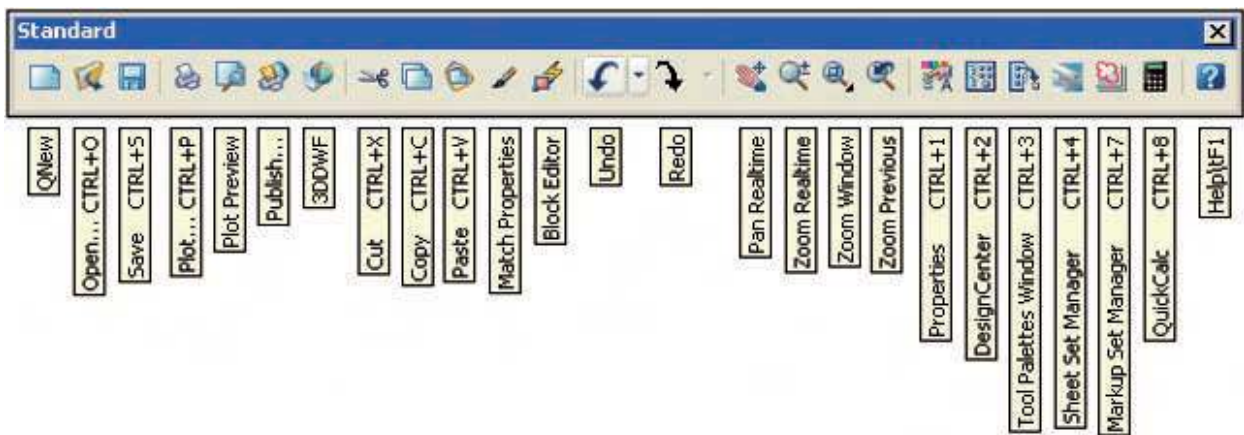
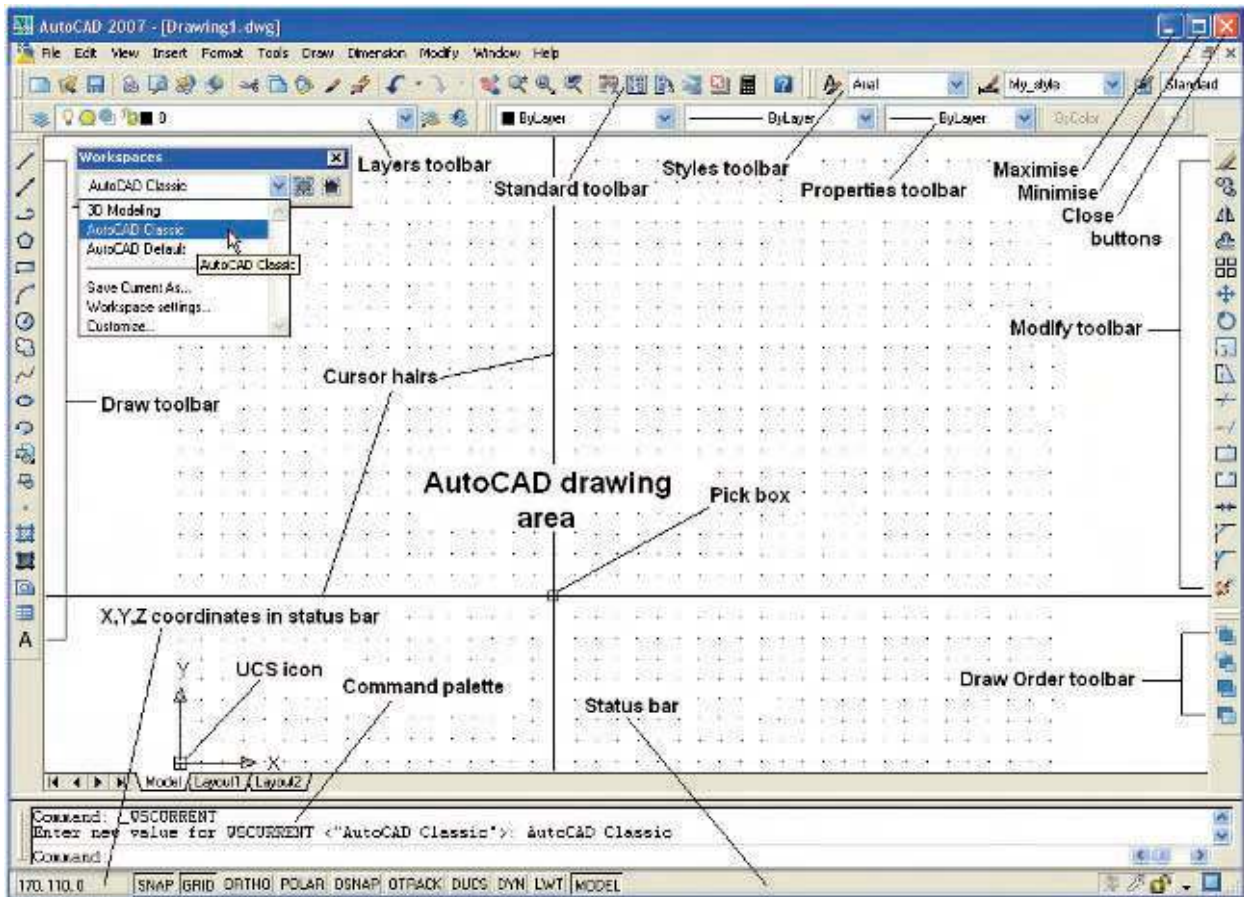


Fig.1.15. *Standard* toolbar

Workspaces toolbar usually within the workspace.

Styles toolbar *docked* to the right of the **Standard** toolbar.

Layers toolbar *docked* under the **Standard** toolbar.

Properties toolbar *docked* to the right of the **Layers** toolbar.

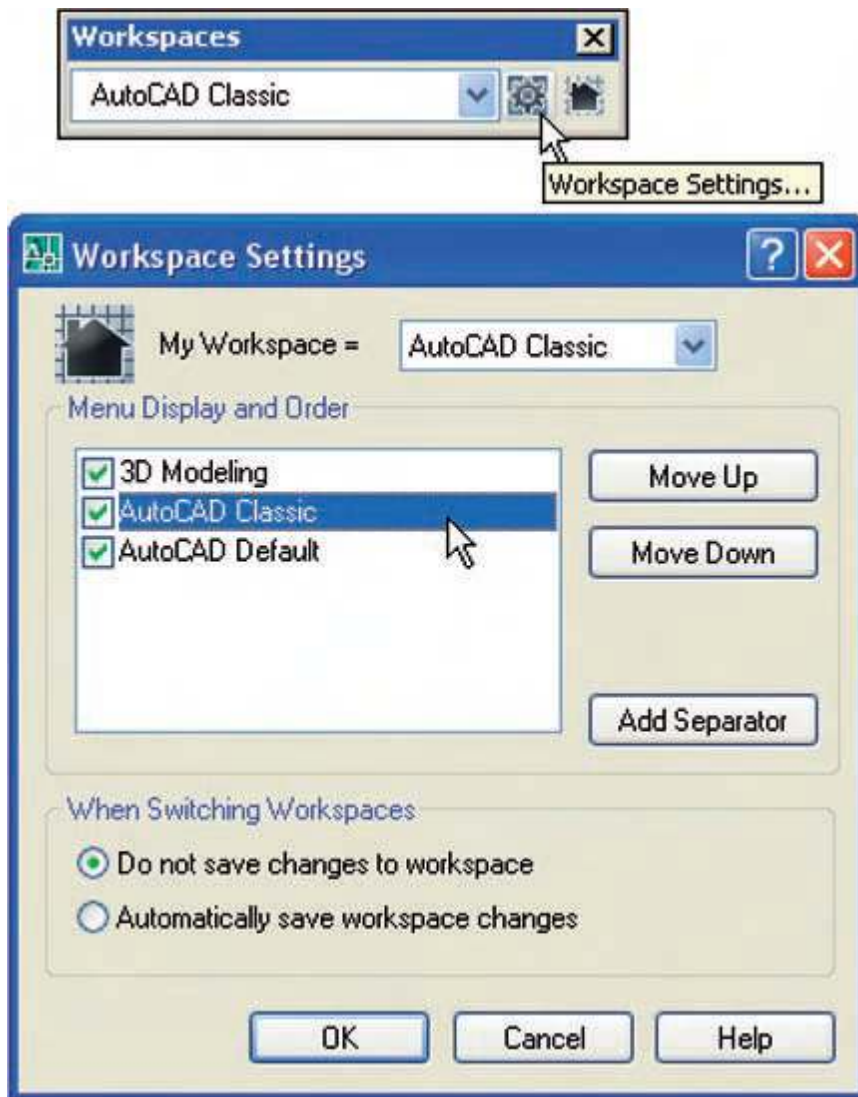


Fig.1.16.work space

Highlights of AutoCAD

Before the invention of AutoCAD, all designing and modeling were done manually. This was a time-consuming task and resulted in a lot of costly errors. But, with the invention of AutoCAD, the process of modeling and designing got digitalized and simplified. A technology that has emerged as a solution to most of the designers, engineers, and architects. Some of the most powerful components of AutoCAD are-

- The designers and architects can create accurate models, sketches, and drawings with AutoCAD. This is next to impossible when done manually.

With the introduction to AutoCAD, the user can even model 3D objects with colors & materials that can be applied to various surfaces, making it simpler for the user to anticipate the outcome, which cannot be fulfilled in manual 3D sketches

Some of the most powerful components of AutoCAD are-

- The designers and architects can create accurate models, sketches, and drawings with AutoCAD. This is next to impossible when done manually.
- With the introduction to AutoCAD, the user can even model 3D objects with colors & materials that can be applied to various surfaces, making it simpler for the user to anticipate the outcome, which cannot be fulfilled in manual 3D sketches.
- Creating drawings manually is a time-consuming task. When designers create drawings on a digital platform with computer software, they get the benefit of the application interface. Editing is also easy with AutoCAD as it has many editing commands.
- AutoCAD is an advanced program that has default commands incorporated in the application. With these commands, the users can edit and change their files without any limitations.

Characteristics of AutoCAD

In the Above Section, we have learned about Introduction to AutoCAD; there are some main characteristics that one need:

- AutoCAD is a global application. It is being used globally by product development teams, manufacturing facilities, medical professionals, in educational institutions, by professionals and engineers.
- 3D modeling and visualization are two main important features of the program. AutoCAD allows the modelers to create powerful 3d models, wireframes, meshes & surfaces by using various 3D tools & commands.
- AutoCAD is a professional application that has flexibility in design changes and has an auto-specification check feature. The mistakes in the designs or the product can be avoided and can be re-edit as and when required.
- AutoCAD has the capability to create section planes. These section planes help in achieving cross-sectional views of 3D objects. The users can change, select, or move the section planes to inspect the inner details of 3D objects.
- AutoCAD helps the user to develop, modify, and design better infrastructure, deliver scalable and feasible building assignments, supervise production finances, and foresee project results.

- Recreating and editing 2D images with their text properties can also be achieved with AutoCAD.
- AutoCAD drawings can also be linked directly to Microsoft Excel Spreadsheets. With this technique, formulas and data from Excel can be imported directly to AutoCAD. This feature is an Auto-Update command.

Computer Aided Drafting

- Autodesk is the most popular drawing program
- Many student versions available for free online at students.autodesk.com
 - AutoCAD
 - Architecture
 - Mechanical
 - Revit
 - Inventor
 - Civil

1.4.2. Microsoft office Project

Microsoft Project is a project management software program developed and sold by Microsoft, designed to assist a project manager in developing a schedule, assigning resources to tasks, tracking progress, managing the budget, and analyzing workloads.

Project creates budgets based on assignment work and resource rates. As resources are assigned to tasks and assignment work estimated, the program calculates the cost, equal to the work times the rate, which rolls up to the task level and then to any summary task, and finally to the project level.

Each resource can have its own calendar, which defines what days and shifts a resource is available. Microsoft Project is not suitable for solving problems of available materials (resources) constrained production. Additional software is necessary to manage a complex facility that produces physical goods.

A basic understanding of Computers and Windows Operating System is all it takes to get started. Hardware: A reasonable home desktop configuration. Software: MS Project 2013 on Windows OS. (At the time of writing this tutorial, Project 2013 is not available for Mac)

1.5. Computer instruction

1.5.1CAD

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Starting a New Drawing

- The big A is like the home button in MS Office or the File menu in most programs
- The default template is good

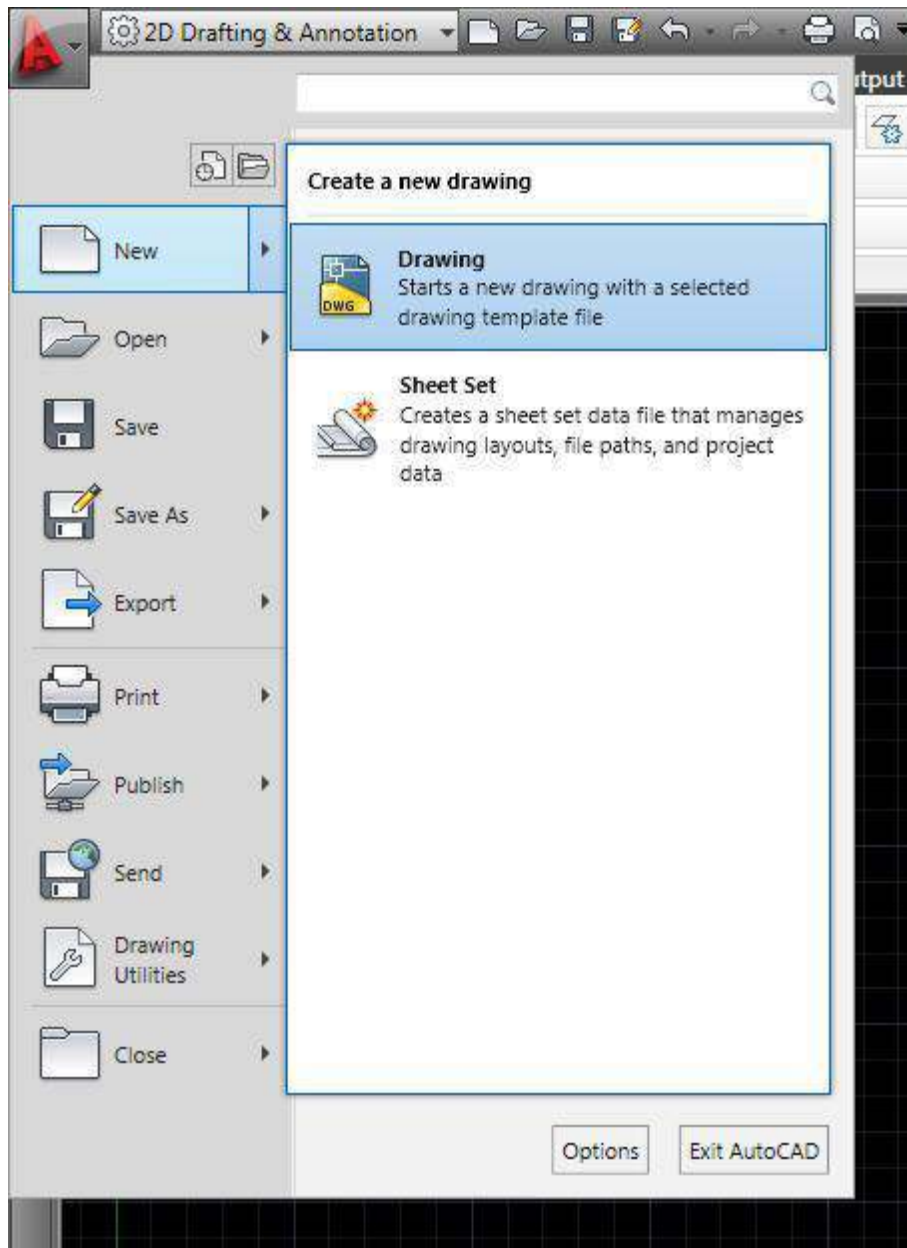


Fig.1.17.new drawing

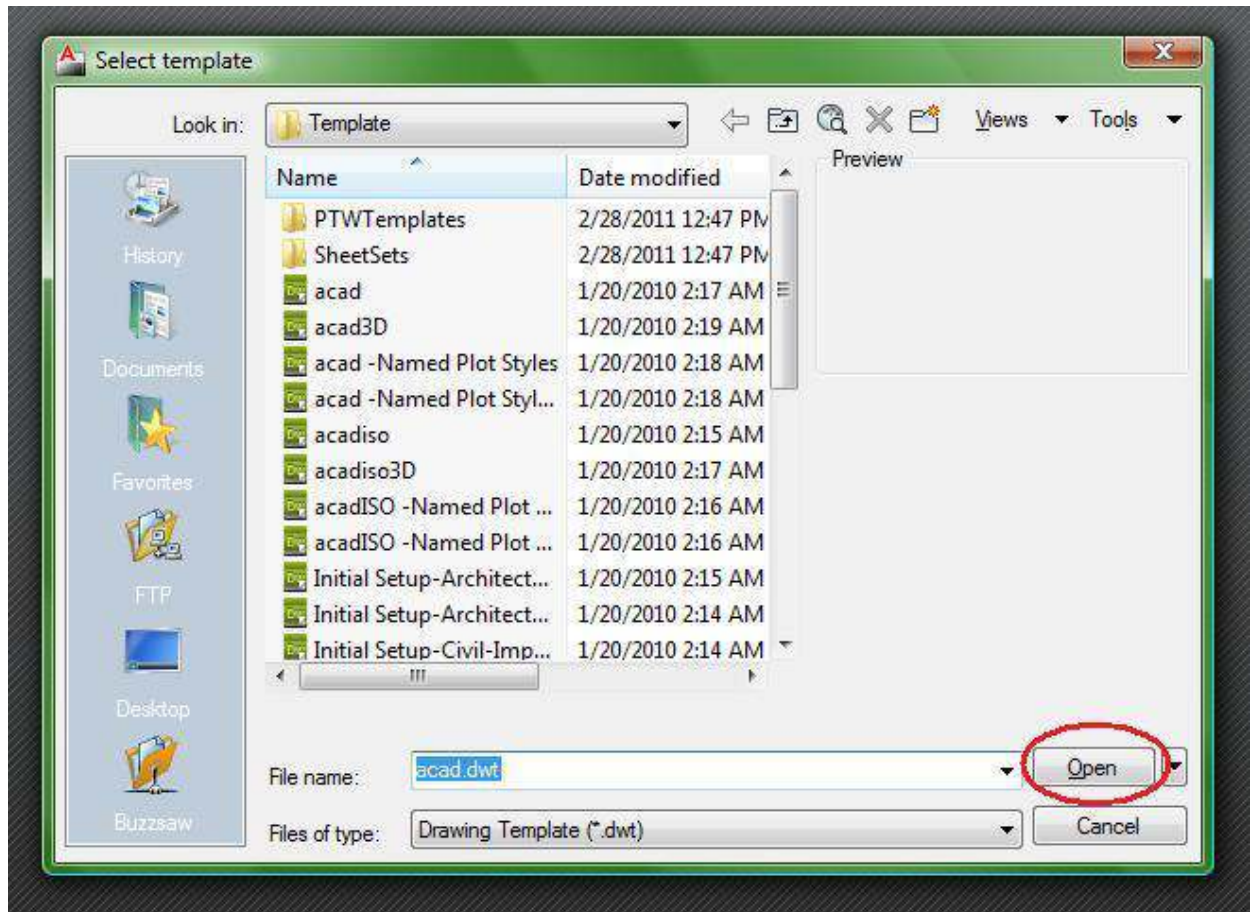


Fig.18.template

1.5.2 MS project

- Windows 7: Click on Start menu, point to All Programs, click Microsoft Office, and then click Project 2013.
- Windows 8: On the Start screen, tap or click Project 2013.
- Windows 10: Click on Start menu -> All apps -> Microsoft Office -> Project 2013.

The following screen is the Project's start screen. Here you have options to open a new plan, some other plans, and even a new plan template.

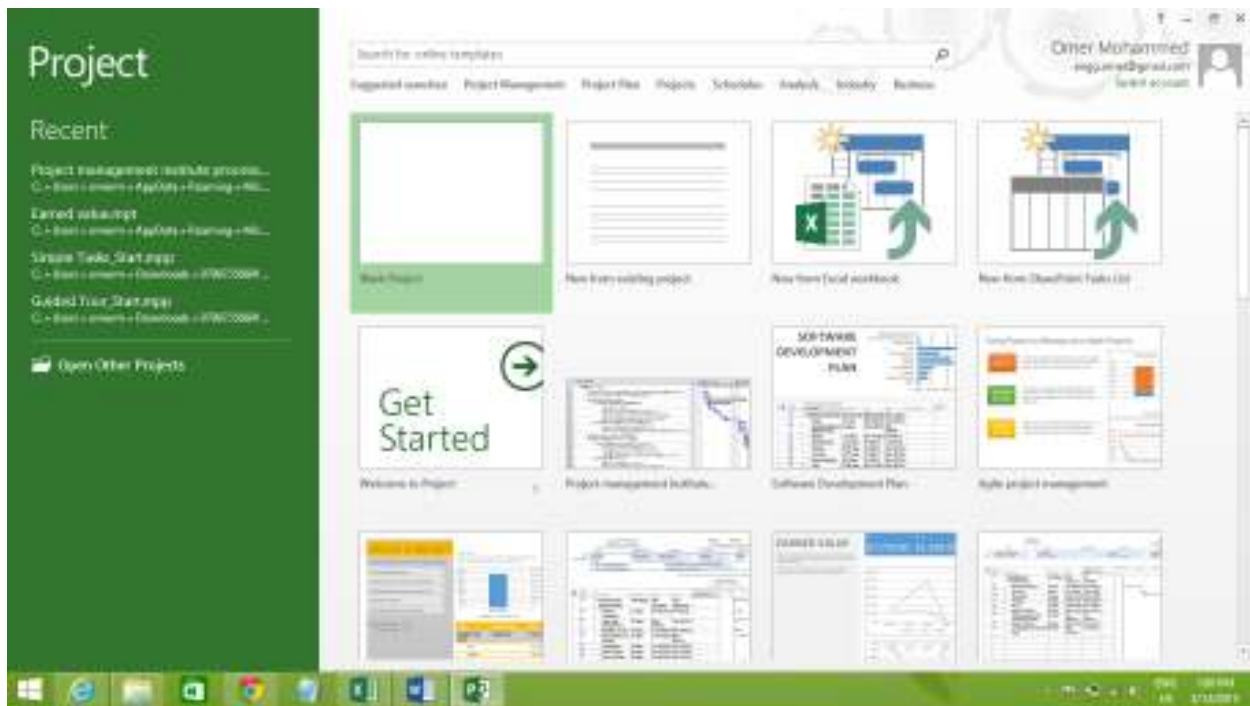


Fig.1.19.ms office project

Self-check-1

Test-I Matching

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Instruction: select the correct answer for the give choice. You have given 1 Minute for each question. Each question carries 2 Point.

- | A | B |
|-------------------|---------------------------------|
| -----1. AutoCAD | A. To produce paper |
| -----2. Printer | B. Type writer |
| -----3. Moues | C. Many line |
| -----4. Monitor | D. Computer screen |
| -----5. Key board | E. Control the movement pointer |
| | F. to create design and models |

Test II: short Answer writing

Instruction: write short answer for the given question. You are provided 3 minute for each question and each point has 5Points.

1. What is Occupational Health?
2. Write down at least three equipment used for CAD and MS Project?
3. What is the difference between CAD and MS project soft wear?

Part III: Short answer writing

Direction: Give short answer to the following questions. Time allotted for each item is 2mniut and each question carry 4 point.

1. Desktop
2. MS project

Note: Satisfactory rating – above 60% Unsatisfactory - below 60%

You can ask you teacher for the copy of the correct answers

Operation sheet 1.1: CAD and micro soft office project environment

- **Operation title:** installing CAD soft wear
- **Purpose:** To know how installing CAD soft wear
- **Instruction:** Using the auto cad 2007 install to new computer.

- **Tools and requirement:**
 1. Computer full accessory
 2. CAD soft wear

Procedures

Step 1: Access the Autodesk website

Use web browsers like Google Chrome, Mozilla Firefox, etc. Then Go to the AutoCAD official website by using this link: <https://www.autodesk.com>

Step 2: Select Students and Educators from Drop down list of the Menu.

It will give you three options, i.e. free trials, students and educators, and worldwide sites. Here I am selecting the students and educators option.

Step 3: Then, you will see Get set up for career success with the Autodesk tab. From that tab, click on Start now under Download free software option.

Step 4: It will give a list of Autodesk products like 3DS Max, Maya, AutoCAD, etc. Under that, click on the AutoCAD option from the list.

Step 5: If you have already registered, then click on Sign in, and you will be forwarded to your Autodesk Login information. Otherwise, click on Create Account and create a new account using your email ID.

Step 6: Select version After signing in, you can select the version of AutoCAD you want to download and install and Operating System: 32 bit or 64 bit.

Step 7: License and Services Agreement After that, you will see the “License and Services Agreement” Prompt. Read it carefully, and then click on the “I Accept” option, then click the next button to install AutoCAD on your Windows System

Step 8: After the installation of the manager, you will see an “Autodesk Download Manager” window. Specify the desired path where you want to save that file and click on OK.

The Autodesk Download manager will be loading.

Step 9: After that, you will see a window where you can configure the Autocad installation process. Here give the path where you want to save the files

Step 10: In the next window, select the Custom Option. Make sure all the features under the drop-down are checked.

Step 13: After finishing the installation, you have to provide a Product Key to further the use of AutoCAD.

Lap Test-1

LAP Test-1	Practical Demonstration
-------------------	--------------------------------

Name: _____

Date: _____

Time started: _____

Time finished: _____

Instruction I: Given necessary templates, tools and materials you are required to perform the following tasks within 3 hours.

Task 1: install MS project software

Unit Two: Open software application and manipulate desktop

This unit to provide you the necessary information regarding the following content coverage and topics:

- software icons
- Open, close and access software features for CAD and MS project
- Basic function tool for CAD and MS project software.

This guide will also assist you to attain the learning outcomes stated below. Upon completion of this learning guide, you will be able to:

- Perform application software icons.
- Perform open, close and access software features for CAD and MS project.
- Identify basic function to CAD and MS project software.

2.1. Software icons

2.1.1. CAD

Long ago when people were building pyramids, they required a lot of measuring skills. It is interesting to look at how people developed a system of measures. They started by comparing two quantities, which led to phrases such as ‘taller than’, ‘longer than’, ‘heavier than’, ‘holds more than’, etc. People still do this by themselves when they are working on the land.

Measurement is how we determine the exact capacity of something that is in solid, liquid or gas form.

2.1.2. CAD icons

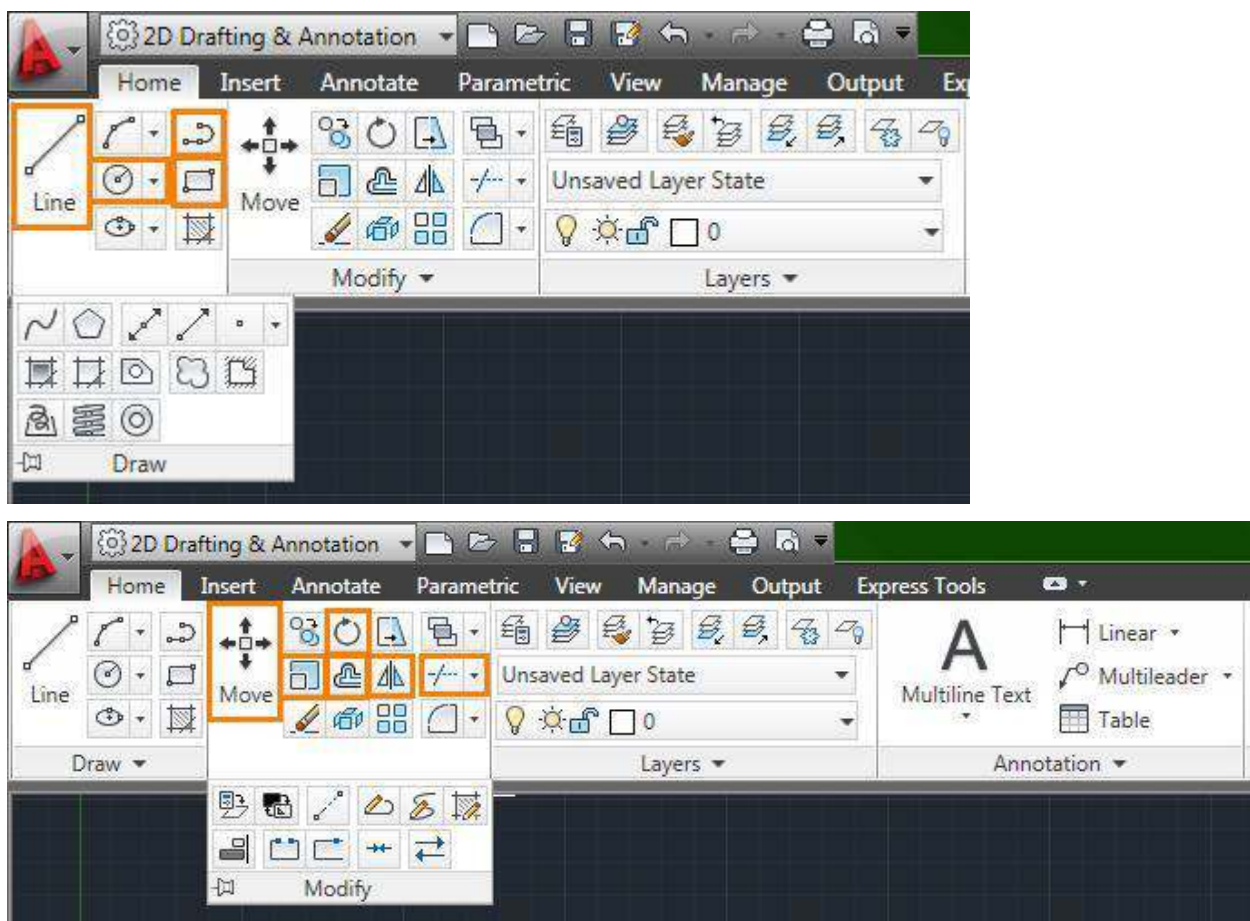


Fig.2.1.Tool

Architecture of AutoCAD

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Here are some special features added which are related to architecture as stated below:

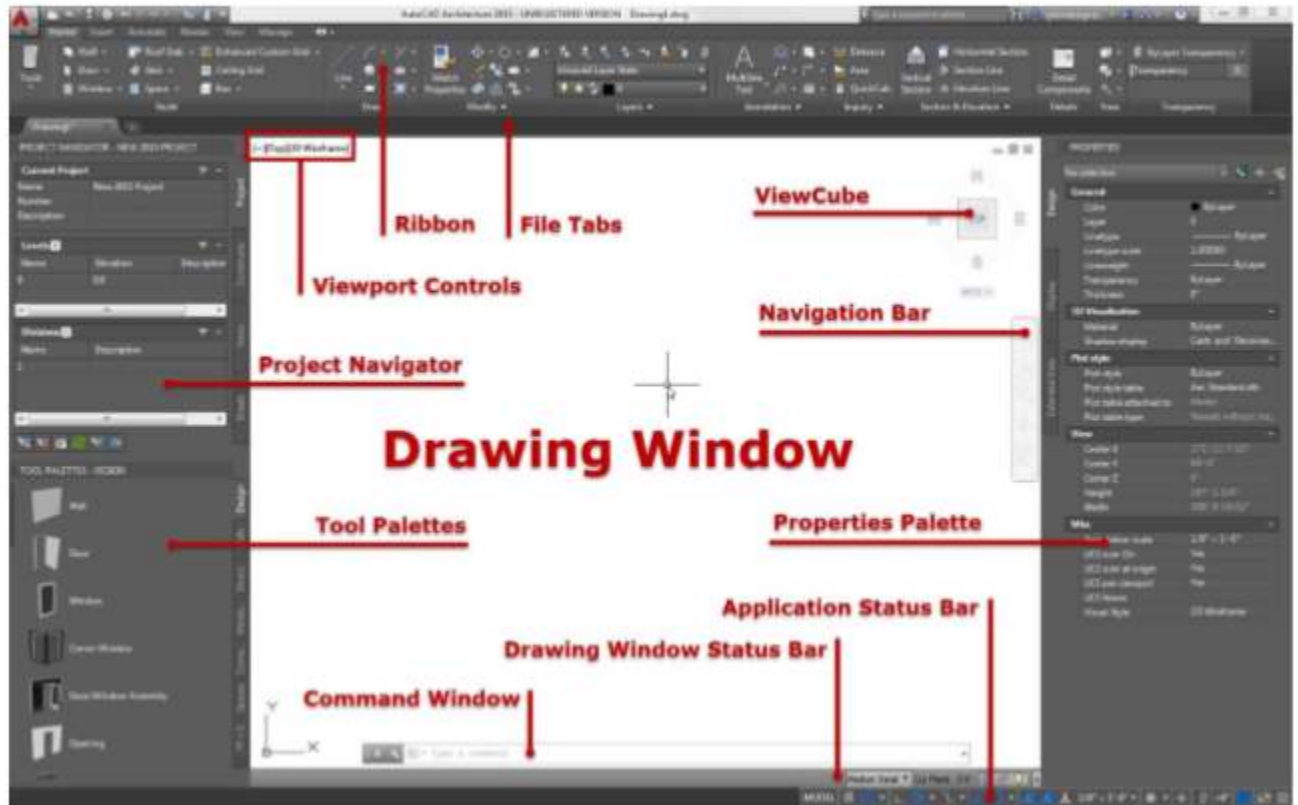


Fig.2.2.drawing window

2.1.3. MS project

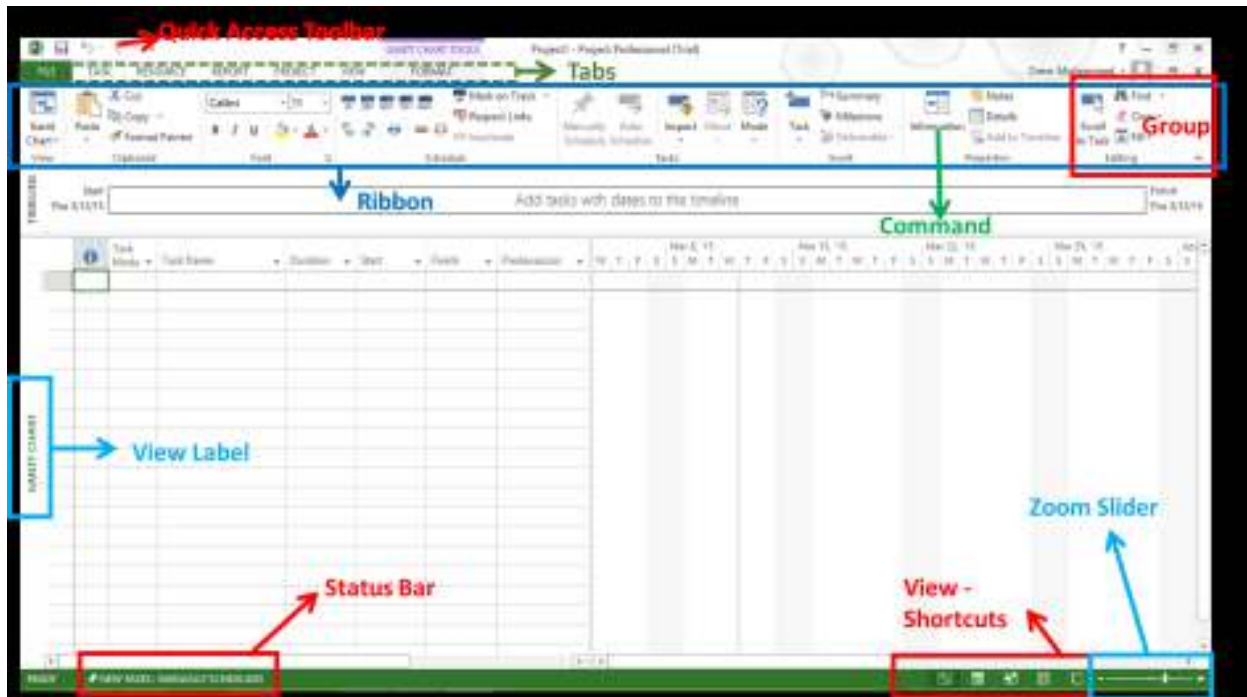


Fig.2.3.tool bar

2.2. Open, close and access features for CAD and MS project.

2.2.1 Start a Program

To start a program, do the following;

1. Click on the **Start** Button.
2. Click on the **All Programs**, you will see a list of all the program icons and program folders.
3. Point to the desired folder say **Accessories** and select the desired program to run such as **Paint**.

2.2.2. Opening AutoCAD 2007

AutoCAD 2007 is designed to work in a Windows operating system. In general, to open AutoCAD 2007, either double-click on the AutoCAD 2007 shortcut in the Windows desktop or right-click on the icon, followed by a left-click on Open in the menu which then appears

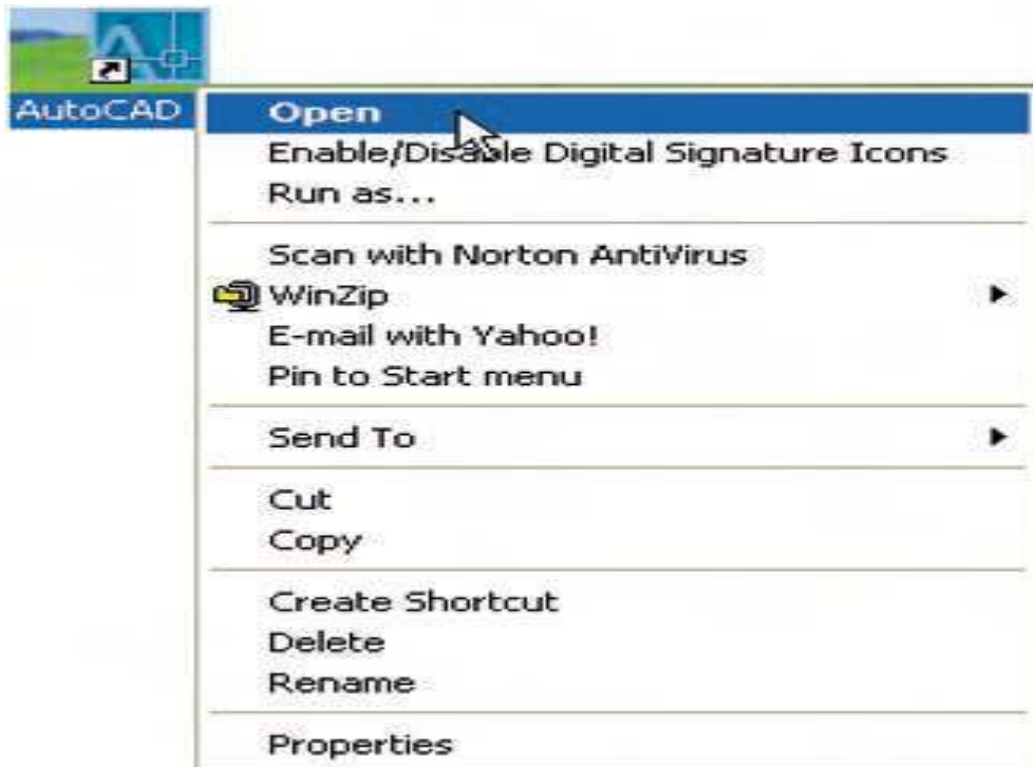


Fig.2.4.auto cad icon

2.2.3. Opening of MS project

Windows 7: Click on Start menu, point to All Programs, click Microsoft Office, and then click Project 2013.

- Windows 8: On the Start screen, tap or click Project 2013.
- Windows 10: Click on Start menu -> All apps -> Microsoft Office -> Project 2013.

The following screen is the Project's start screen. Here you have options to open a new plan, some other plans, and even a new plan template.

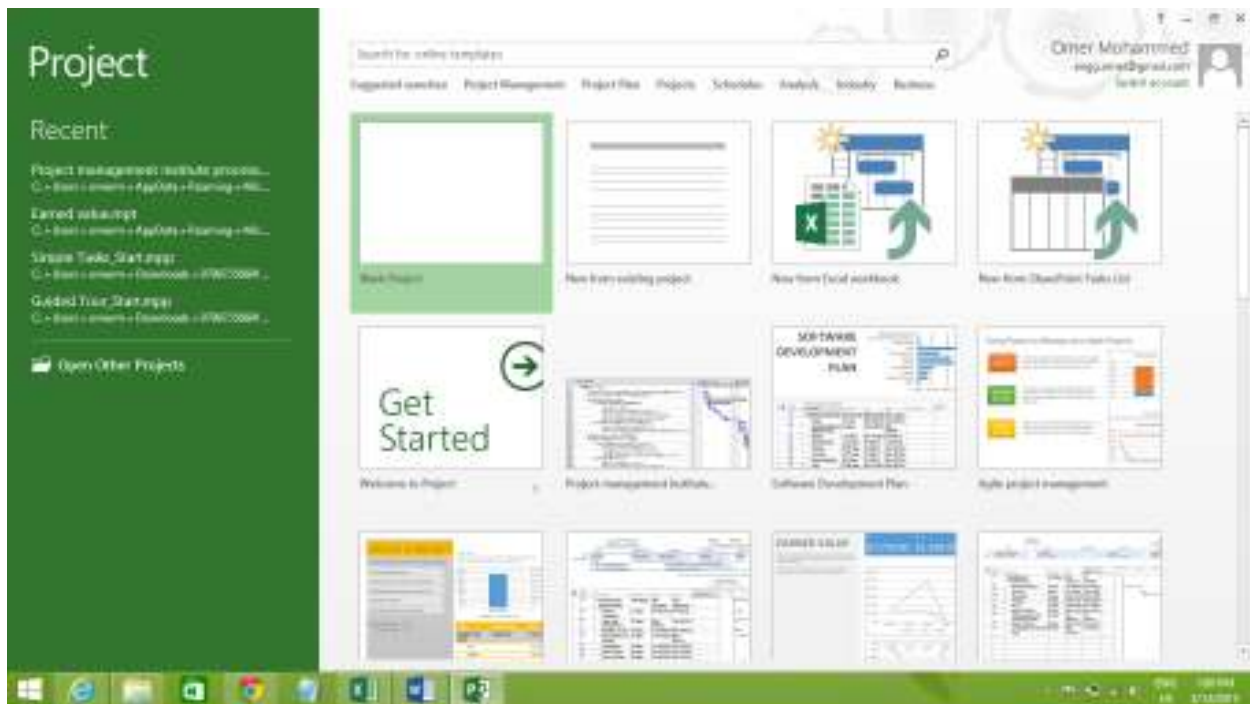


Fig.2.5.ms project temple

2.3. Function tools for CAD and MS project software.

2.3.1. CAD tool

. Various AutoCAD Tools

Here are the various AutoCAD Tools which are given below

1. Line

You can invoke the LINE command by choosing the LINE tool from the Draw panel, or you can also invoke the LINE tool by entering LINE or L at the Command Prompt. You will have to specify the starting point of the line by clicking the mouse then you will be prompted to specify the second point. You can terminate the LINE command by pressing ENTER, ESC or SPACEBAR.

2. Circle

A circle is drawn by using the CIRCLE command. You can draw a circle by using six different tools, i.e., by specifying center and radius, by specifying center and diameter, by specifying two diametrical ends, by specifying three points on a circle, tangent to two objects, tangent to three objects.

3. Rectangle

You can draw rectangles by specifying two opposite corners of the rectangle, specifying the area and the size of one of the sides, or specifying the rectangle's dimensions.

4. Polyline

Polylines means many lines. To draw a polyline, you need to invoke the PLINE command. After invoking the PLINE command and specifying the start point, the following prompt is displayed: Specify start point: specify the starting point or enter its coordinate

5. Trim

When creating a design, you may need to remove the unwanted and extending edge. In such cases, you can use the Trim tool. On invoking the Trim tool, you will be prompted to select the cutting edges. These edges can be lines, polylines, circles, arcs, ellipses, rays, splines, text, blocks, x lines or even viewports. After the cutting edge/edges are selected, you must select each object to be trimmed.

6. Extend

The Extend tool may be considered as the opposite of the Trim tool. You can extend lines, polylines, rays, and arcs to meet the other objects using the Extend tool. You can use this option whenever you want to extend the objects that do not actually intersect the boundary edge but would intersect its edge if the boundary edges were extended.

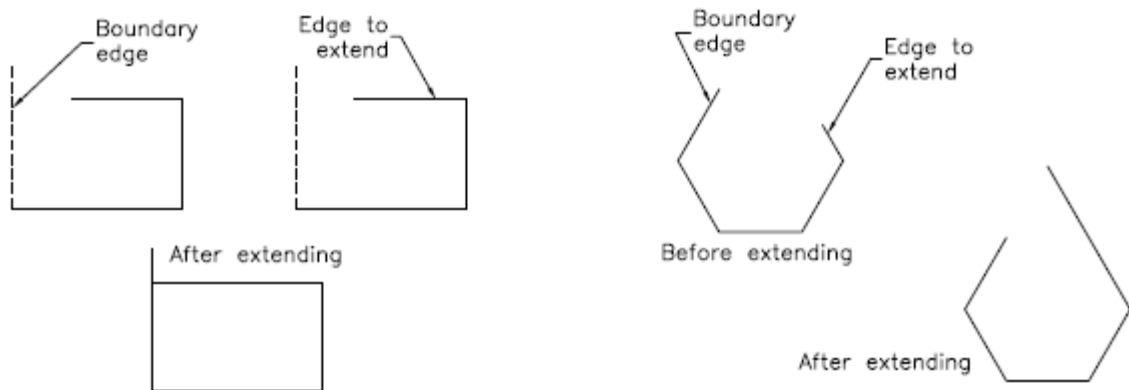


Fig.2.6.Extend

7. Copy

This tool is used to make the copies of the selected objects and place them at the specified location. On invoking this tool, you need to select the objects and then specify the base point. Next, you need to specify the second point where the copied objects have to be placed. You can continue specifying the second point for creating multiple copies of the selected entities.

8. Mirror

This tool is used to create a mirror copy of the selected objects. The objects can be mirrored at any angle. This tool is helpful in drawing symmetrical figures. On invoking this tool, you will be prompted to select objects. On selecting objects to be mirrored, you will be prompted to enter the first point of the mirror line and the second point of the mirror line. A mirror line is an imaginary line about which the objects are mirrored.

9. Rotate

On invoking this tool, you will be prompted to select the objects and the base point about which the selected objects will be rotated. By default, a positive angle results in counterclockwise rotation, whereas a negative angle results in a clockwise rotation. The Rotate tool can also be invoked from the shortcut menu by selecting an object and right-clicking in the drawing area, and choosing Rotate from the shortcut menu.

10. Erase

Sometimes, you need to erase the unwanted objects from the objects drawn. To erase an object, choose Erase tool from the Modify panel. To invoke the Modify toolbar, choose View>Windows>Toolbars>AutoCAD>Modify from the ribbon. A small box, known as a pick box, replaces the screen cursor on invoking the Erase tool. To erase the object, select it by using the pick box; the selected object will be displayed in dashed lines, and the Select objects prompt will be displayed again. You can either continue selecting the objects or press ENTER to terminate the object selection process and erase the selected objects.

11. Offset

You can use the Offset tool to draw parallel lines, polylines, concentric circles, arcs, curves, etc., While offsetting an object, you need to specify the offset distance and the side to offset.

12. Move

The Move Tool is used to move one or more objects from their current location to a new location without changing their size or orientation.

13. Array

You may need to create an object multiple times in a rectangular or circular arrangement in some cases. This type of arrangement can be obtained by creating an array of objects. In Rectangular Array, you need to mention the number of rows and columns along with the Row offset distance and Column offset distance. Whereas in Polar Array, you need to specify the Center point around which you need the number of objects.

14. Scale

Sometimes you need to change the size of objects in a drawing. For this purpose, the Scale tool comes in handy.

15. Fillet

The edges in a model are generally filleted to reduce the area of stress concentration. The fillet tool helps form round corners between any two entities that form a sharp vertex.

16. Explode

This tool is useful when you have inserted an entire drawing, and you need to alter a small detail. After you invoke the Explode tool, you are prompted to select the objects you want to explode. After selecting the objects, press ENTER or right-click to explode the selected objects and then end the command

2.3.2. MS project tool

The screen should have the MS Project interface displayed. The major part of this interface are:

- **Quick Access Toolbar:** A customizable area where you can add the frequently used commands.
- **Tabs on the Ribbon, Groups:** With the release of Microsoft Office 2007 came the "Fluent User Interface" or "Fluent UI", which replaced menus and customizable toolbars with a single "Office menu", a miniature toolbar known as "quick-access toolbar" and what came to be known as the ribbon having multiple tabs, each holding a toolbar bearing buttons and occasionally other controls. Toolbar controls have

heterogeneous sizes and are classified in visually distinguishable Groups. Groups are collections of related commands. Each tab is divided into multiple groups.

- **Commands:** The specific features you use to perform actions in Project. Each tab contains several commands. If you point at a command you will see a description in a tooltip.
- **View Label:** This appears along the left edge of the active view. Active view is the one you can see in the main window at a given point in time. Project includes lots of views like Gantt chart view, Network Diagram view, Task Usage view, etc. The View label just tells you about the view you are using currently. Project can display a single view or multiple views in separate panes.
- **View Shortcuts:** This lets you switch between frequently used views in Project.
- **Zoom Slider:** Simply zooms the active view in or out.
- **Status bar:** Displays details like the scheduling mode of new tasks (manual or automatic) and details of filter applied to the active view.

Self check-2

Test-I Matching

Instruction: select the correct answer for the give choice. You have given 1 Minute for each question. Each question carries 2 Point.

A	B
-----1. Trim	G. Remove unwanted edge
-----2. Extend	H. Draw parallel line
-----3. Offset	I. Create object multiple time
-----4. Array	J. Reduce the area
-----5. Fillet	K. Opposite of trim
	L. Line

Test II: short Answer writing

Instruction: write short answer for the given question. You are provided 3 minute for each question and each point has 5Points.

4. What is the purpose of AutoCAD and MS project?

5. Write the function of MS project?

Part III: Short answer writing

Direction: Give short answer to the following questions. Time allotted for each item is 2 minutes and each question carry 4 points.

6. Copy
7. mirror
8. erase
9. scale
10. explode
11. command

Note: Satisfactory rating – above 60% Unsatisfactory - below 60%

You can ask your teacher for the copy of the correct answers

Operation sheet 2.1 AutoCAD operation

- **Operation title: drawing floor plan**
- **Purpose:** using bar tools draw floor plan
- **Instruction:** You have given length-4m and width -3m width -20cm
- **Tools and requirement:**
 1. Computer
 2. AutoCAD software

Procedures in doing the task

1. Floor Plans

- Start a drawing using QNEW or choose the + tab.
- In-home Ribbon menu, launch the content browser.
- Select-create a cataloging tool, then browse it and choose the design.
- Then open it and click OK.
- Now the catalog is listed in a content browser.

- To add tools from the content palette.
- Launch the content browser, choose the design tool palette.
- In that, click on a new palette and rename it as walls.
- Now left-click on the Design tool catalog– Imperial on a content browser to open.
- In those categories, select walls.
- Then search for stud-4 and click on Go.
- Now select common wall type Stud-4 Rigid-1.5 Air-1 Brick-4. Then click on the left mouse button and adjust it to fit the screen.
- Now the designed wall is added to the wall tool palette.
- To have three wall style search CMU-8.
- Then locate CMU-8 Stud-4 Rigid-1.5 Air-1 Brick-4.

The floor, which is the main part of the architecture, is ready. Because with the help of floor measurements, only it can depict the room size, furniture, wiring system, etc.

LAP Test-2	Practical Demonstration
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Name: _____

Date: _____

Time started: _____

Time finished: _____

Instruction I: Given necessary templates, tools and materials you are required to perform the following tasks within 3 hours.

Task 1: draw floor plan

Unit Three: Print

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Print from installed software.
- view progress of print

This guide will also assist you to attain the learning outcomes stated below. Upon completion of this learning guide, you will be able to:

- Perform print from installed software.
- Perform view progress of print

3.1. Print from installed software.

3.1.1. Printing CAD Drawings from the Printer Driver

1. Open the file you want to print in your CAD software.
2. Click Plot and select your product as the printer
3. Click Properties.
4. On the Device and Document Settings tab, click Custom Properties. ...
5. Select the Document Size and Output Size settings as necessary

3.1.2. Printing CAD Drawings from the Printer Driver

You can print CAD drawings using your printer driver. This printing method is best for high quality views and drawings.

Note: If lines in your drawing are not printed properly, print the drawing using HP-GL/2 or HP RTL mode using the product control panel.

1. Open the file you want to print in your CAD software.
2. Click **Plot** and select your product as the printer.
3. Click **Properties**.
4. On the **Device and Document Settings** tab, click **Custom Properties**. You see the printer driver window:

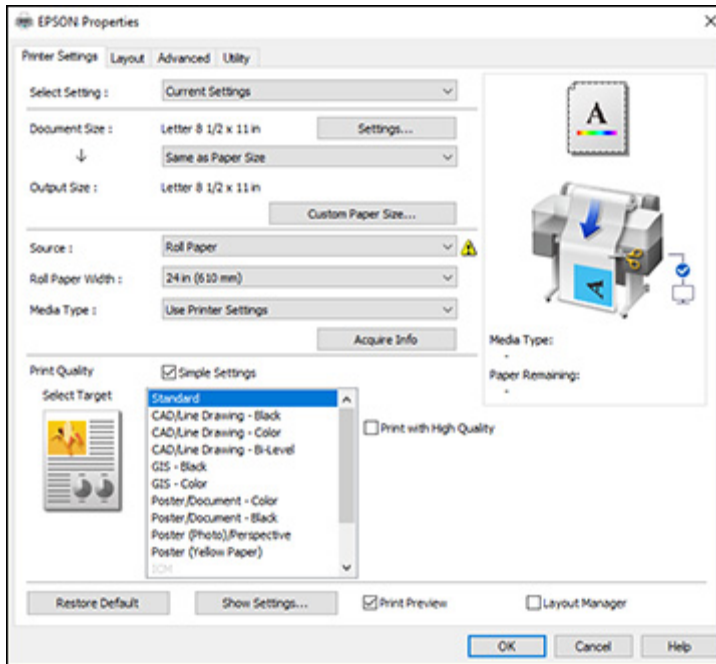


Fig.3.1.printer properties

5. Select the **Document Size** and **Output Size** settings as necessary.
6. Select the **Source** setting.
7. Select the **Media Type** setting.
8. Choose one of the CAD/Line Drawing options as the **Select Target** setting.
Select any other printing settings as necessary and click **OK**.
9. Start printing your drawing from the CAD software

3.2. View progress of Print

- You can apply a page setup to your layout to make the printing process quicker every time

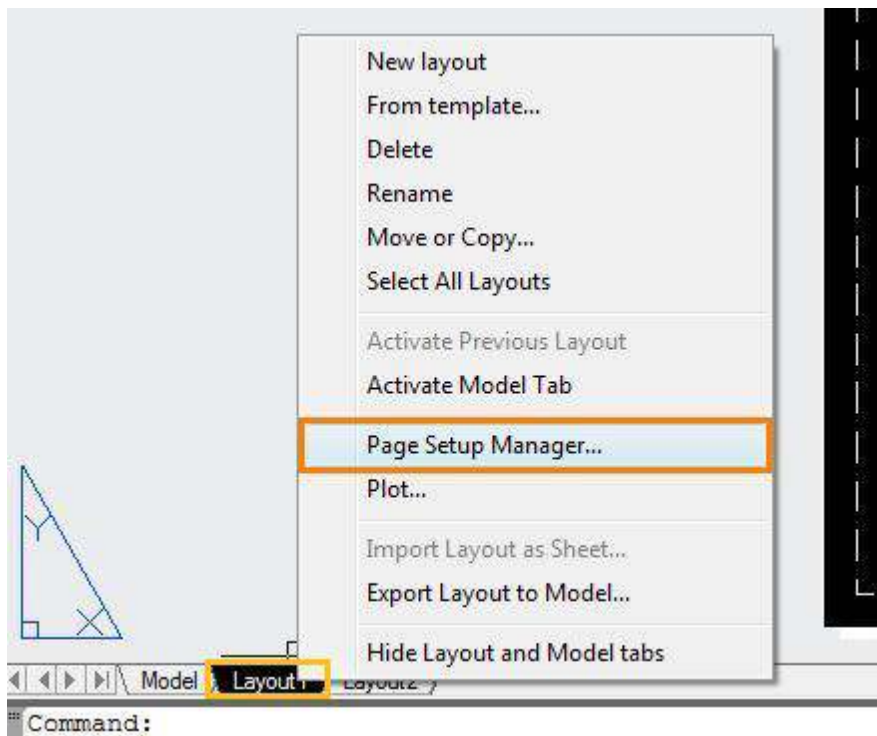
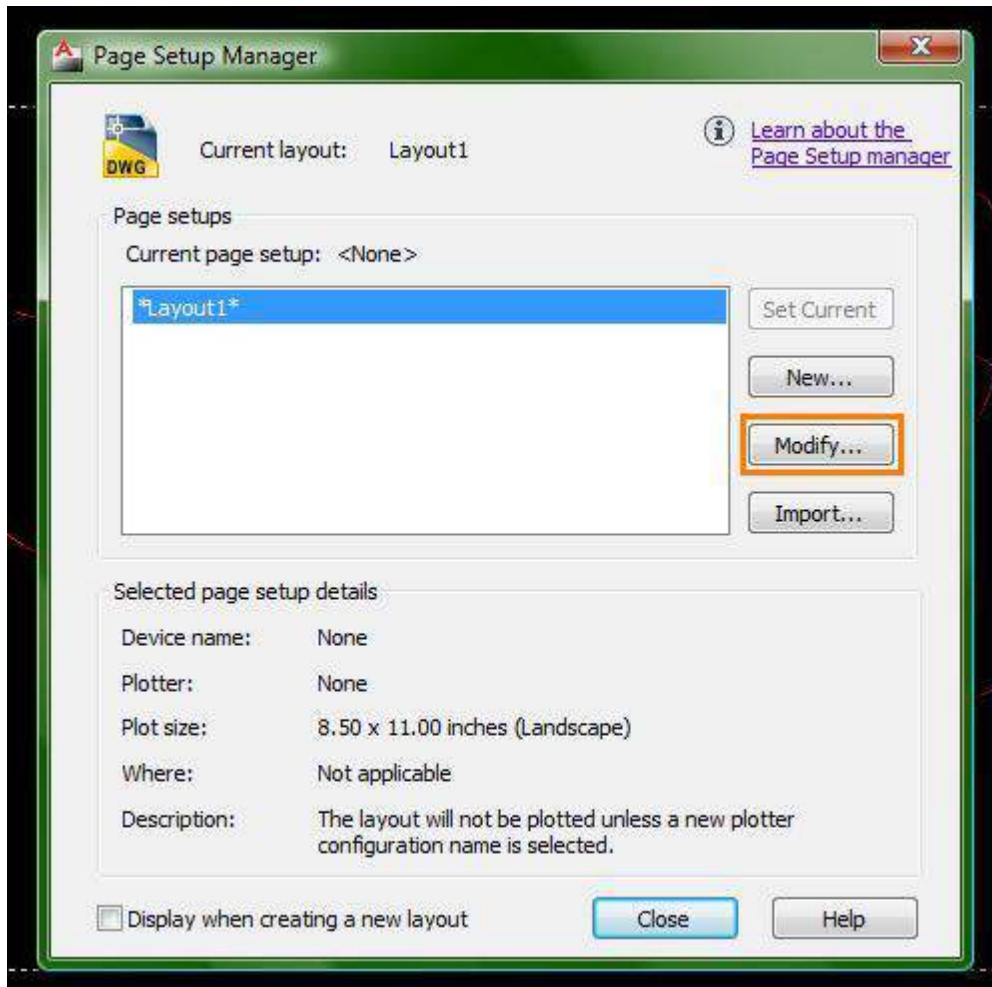


Fig.3.2.page setup manager



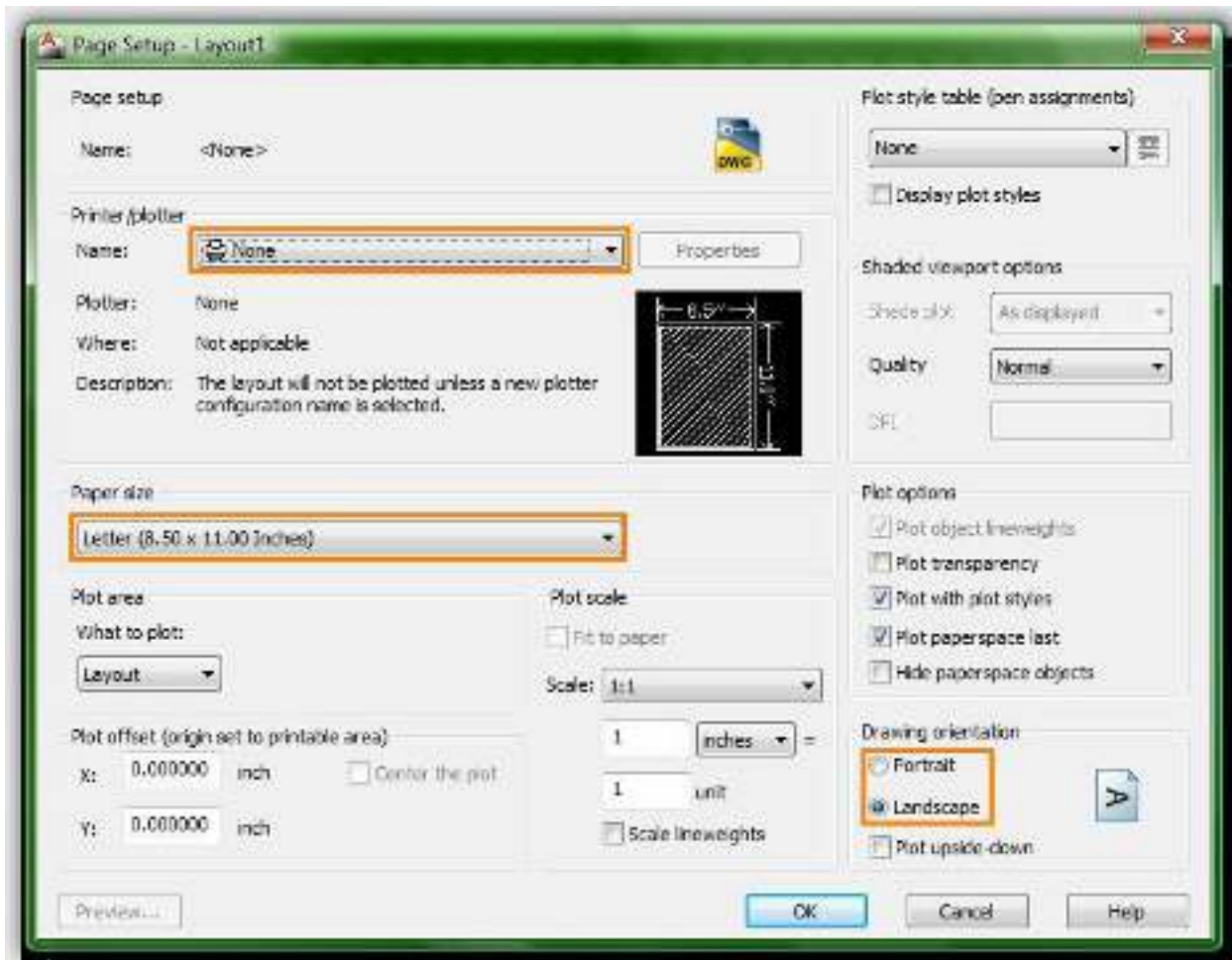


Fig.3.3.print lay out

Self check-3

Test-I Matching

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Instruction: select the correct answer for the give choice. You have given 1 Minute for each question. Each question carries 2 Point.

- | A | B |
|--------------------|--------------------------------|
| -----1. A4 size | M. Showing print document size |
| -----2. printer | N. Selecting printer and size |
| -----3. Plot | O. 8,27"*11.69" |
| -----4. Print view | P. 8"*12" |
| | Q. A device used for print |

Test II: short Answer writing

Instruction: write short answer for the given question. You are provided 3 minute for each question and each point has 5Points.

12. What is the functions of print?
13. Write the step of printing document?

Part III: Short answer writing

Direction: Give short answer to the following questions. Time allotted for each item is 2mniut and each question carry 4 point.

14. print
15. plotter
16. print view

Note: Satisfactory rating – above 60% Unsatisfactory - below 60%

You can ask you teacher for the copy of the correct answers

Operation sheet 3.1 printing.

- **Operation title:** printing of AutoCAD drawings
- **Purpose:** select the correct paper size and printer

- **Instruction:** You have given AutoCAD drawing in computer document
- **Tools and requirement:**
 3. Computer
 4. AutoCAD software

Procedures in doing the task

1. Either select Plot . . . with a click on its tool icon in the Standard New toolbar or from the File drop-down menu. The Plot dialog appears
2. There are two parts in the Plot dialog. Fig. A.6 shows both the parts. A click on the arrow at the bottom right-hand corner of the dialog closes to reveal only the left-hand part and vice versa.
3. Select an appropriate printer or plotter from the Printer/Plotter list. Then select the correct paper size from the Paper size popup list. Then select what is to be printed/plotted from the what to plot popup list – in the example shown this is Display. Make sure the Landscape button is showing a dot (on). Then click the Preview button.
4. A preview of the drawing to be printed/plotted appears (Fig. A.7). If satisfied with the preview, right-click and in the menu which appears click Plot. If not satisfied click Exit. The preview disappears and the Plot dialog reappears. Make changes as required from an inspection of the preview and carry on in this manner until a plot can be made.

LAP Test-3	Practical Demonstration
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Name: _____

Date: _____

Time started: _____

Time finished: _____

Instruction I: Given necessary templates, tools and materials you are required to perform the following tasks within 1 hours.

Task 1: print drawing

Unit Four: Shut down

This unit is developed to provide you the necessary information regarding the following content coverage and topics:

- close on open application
- Shut down computer.

This unit will also assist you to attain the learning outcomes stated below. Upon completion of this learning guide, you will be able to:

- Perform close on open application
- Apply shut down computer.

4.1. Close on open application

Quit a Program

To quit a program, select the close button (×) in the upper right corner of the window OR

Click on File menu and select Close option

To Close All Project Files

- Click Close All Project Drawings. ...
- On the Project Navigator palette, right-click below the file tree, and click Close All Project Files. ...
- On the Project tab of the Project Navigator palette, click, then specify your preferences in the Project Browser - Close Project Files dialog box.

4.2. Shut down

Step of shut down

1. Press start button
2. Press power
3. Press shut down



Self-check-4

Test-I Matching

Instruction: select the correct answer for the give choice. You have given 1 Minute for each question. Each question carries 2 Point.

- | | |
|-------------------|----------------------------|
| A | B |
| -----1.close | R. Using “X” singe |
| -----2. Shut down | S. Total computer close |
| | T. Document or application |

Test II: short Answer writing

Instruction: write short answer for the given question. You are provided 3 minute for each question and each point has 5Points.

17. What is the functions of close out?
18. Write the step of shout down?

Part III: Short answer writing

Direction: Give short answer to the following questions. Time allotted for each item is 2mniut and each question carry 4 point.

19. Shout down
20. close

Note: Satisfactory rating – above 60% Unsatisfactory - below 60%

You can ask you teacher for the copy of the correct answers

Operation sheet 4.1 Shut down

- **Operation title:** Closing on open application
- **Purpose:** close application
- **Instruction:**. You have given document and application clos out

- **Tools and requirement:**

5. Computer
6. Open application

Procedures in doing the task

To quit a program, select the close button (×) in the upper right corner of the window OR

Click on File menu and select Close option

LAP Test-4	Practical Demonstration
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Name: _____

Date: _____

Time started: _____

Time finished: _____

Instruction I: Given necessary templates, tools and materials you are required to perform the following tasks within 1 hours.

Task 1: close application

Reference

Introducing AutoCAD 2007 First edition 2007

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