



COMSATS University Islamabad, Lahore Campus

Software Project Management Lab Manual



Lab 1

Introduction: Introduction to Software Project Management and its Tools

Problem Statement: In this 1st lab we will learn different type of **software projects** and their **constraints**. What are different **tools** being used professionally for software project management. In the end we will **install** MS Project 2013.

Software Project Management

Software project management refers to the branch of project management dedicated to the **planning, scheduling, resource allocation, execution, tracking** and **delivery** of software projects.

Software Projects

- Mobile Patient Tracker App.
- Online Learning Management Systems / e-learning system.
- Fingerprint voting system.
- Home automation system.
- Game development for mobile users.
- Ecommerce store.



Project Constraints

Projects are executed in constraints. **PMBOK's 5th ed** recognizes many constraints:

- Scope: What is the project trying to accomplish?
- Time: How long should it take to complete?
- Cost: What should it cost?
- Quality: What are the quality specifications to be delivered?
- Resource: What man, material, equipment is required?
- Risk: What are the potential risks?

Project Management Tools

Tools	Features
Asana	Combines elements of project management, file storage, and collaboration and helps to manage projects across a team without email.
JIRA	It is a cross-platform issue and bug tracking software with advanced project management capabilities and features.
Trello	Is known for visualizing project tasks on a cardboard-like dashboard that's great for managing short and quick everyday assignments.
Zoho Projects	is one of the best-known tools for simple project management , that can help teams streamline their upcoming work and tasks.
MS Project	Helps to track the information about Project goals, cost, deadlines, and resources.

In this course we will work using MS Project. We might put light on other tools if we get time.



Lab Task:

Install MS Project 2013 into your laptops.

Link : <https://getintopc.com/softwares/development/microsoft-project-2013-free-download-6366710/>

Link to the video to follow the steps: <https://www.youtube.com/watch?v=02ncvGsp9yw>

Lab 2

Introduction: Getting Started with MS Project

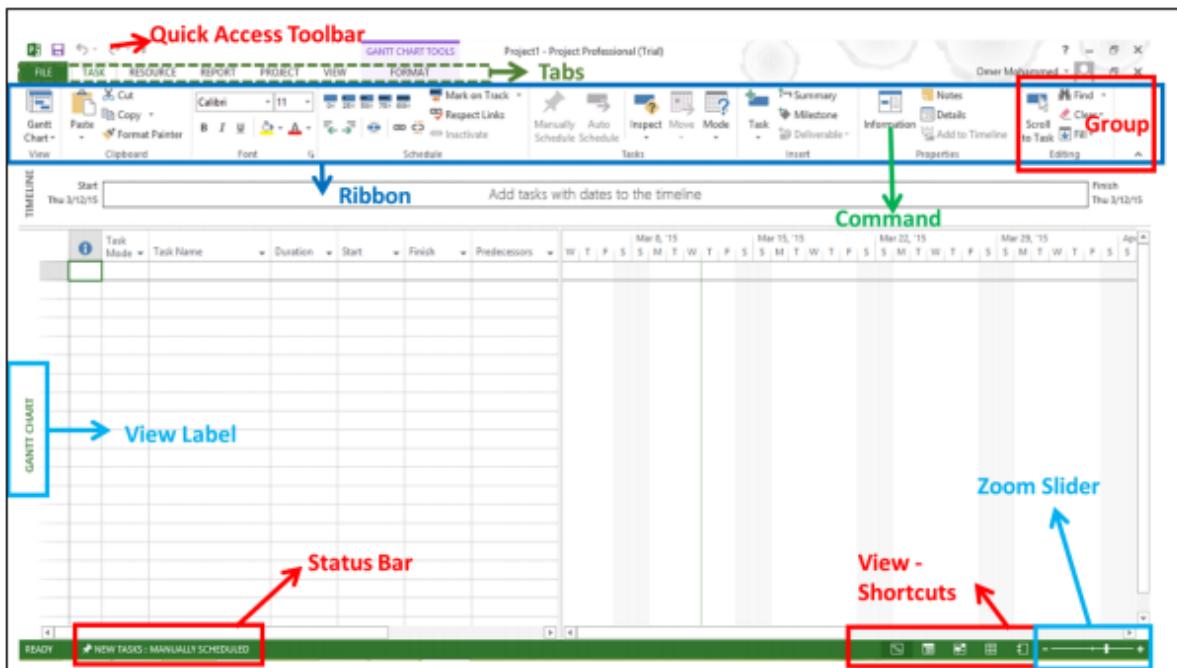
Problem statement:

- Learning how to get started with MS Project 2013
- Understanding User Interface of MS Project
- Learning and implementing different views in MS Project.

Windows 7 – Click on Start menu > 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.



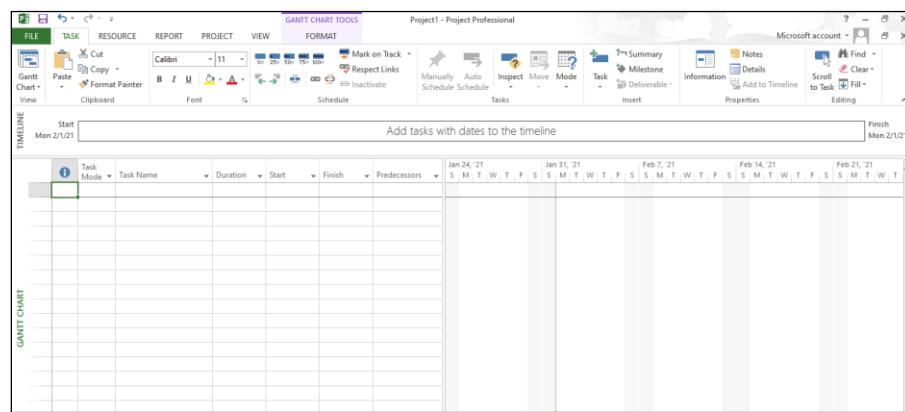
Major part of this interface are:

- **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.

Learning About Different Views in MS Project

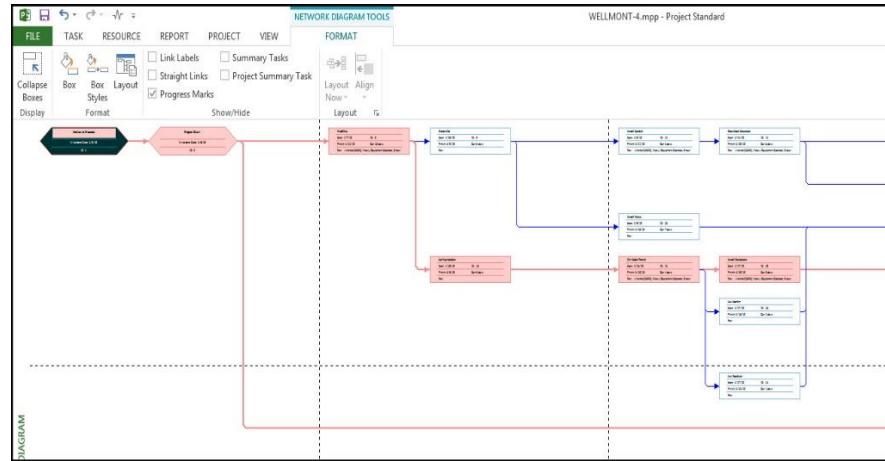
Project uses three types of views: task views, resource views, and assignment views. Let's explore them.

- **Gantt Chart View:** It is the default view of MS Project. It lists the tasks in your project, and illustrates their relationship to one another and the schedule using Gantt bars.

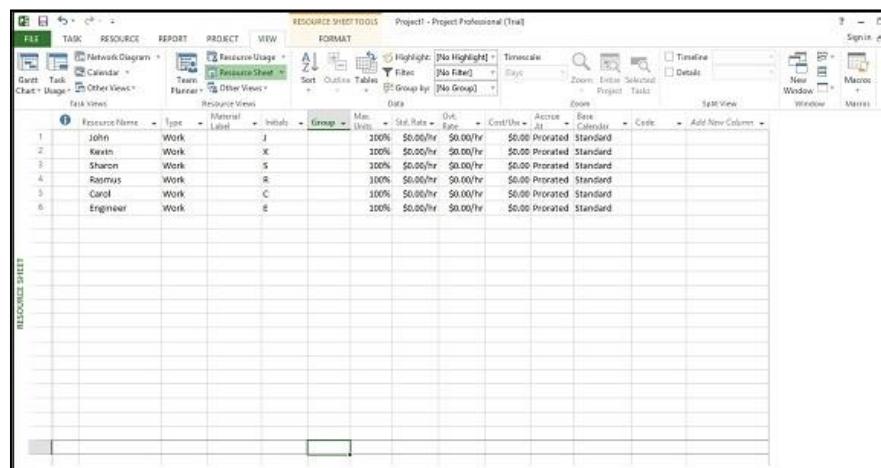


- **Network Diagram View:** A Network Diagram is a graphical way to view tasks, dependencies, and the critical path of your project.

The Network Diagram view was called the PERT Chart in earlier versions of Project. This view shows the dependencies between tasks in a graphical manner. Gantt chart is primarily meant to view the schedule time line, whereas Network diagram to view the all type of dependencies in the project.



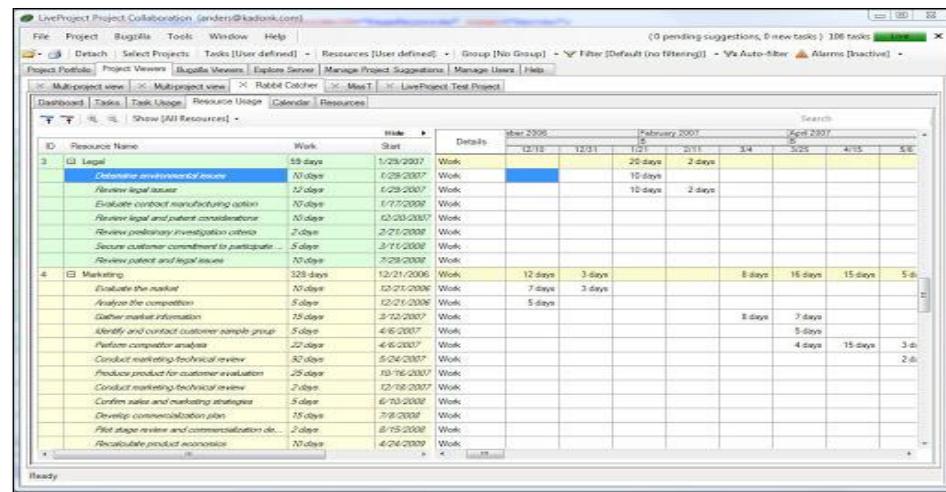
- **Resource Sheet View:** is a view within Project that allows the user to view, create, and edit resources and resource information.



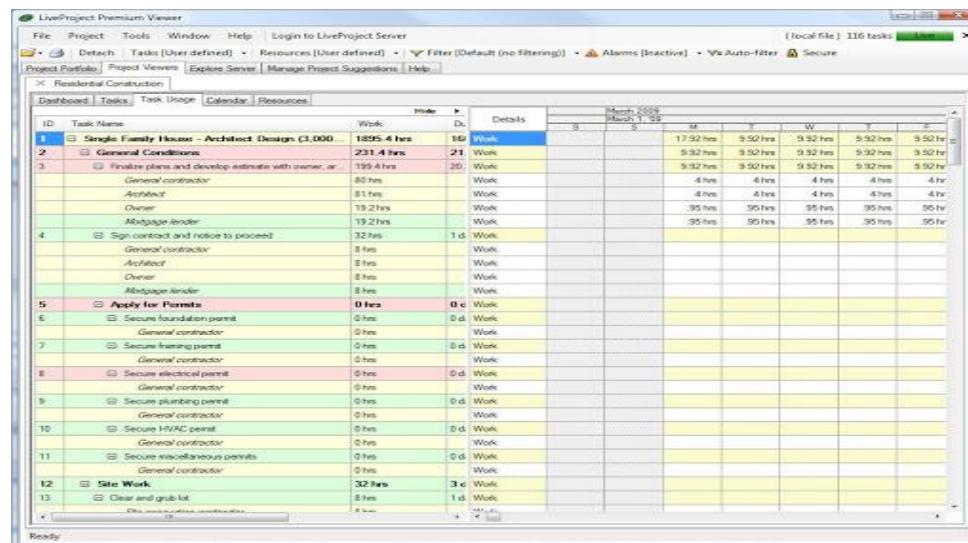
The screenshot shows a Microsoft Project Resource Sheet view. The table lists resources and the tasks they are assigned to. The columns include Resource Name, Type, Label, Group, and various work-related metrics like Man. Units, Start Date, End Date, Cost/Bu, Accrue At, and Basis.

	Resource Name	Type	Label	Group	Man. Units	Start Date	End Date	Cost/Bu	Accrue At	Basis	Code	Add New Column
1	John	Work	J		100%	\$0.00/hr	\$0.00/Yr	\$0.00	Prioritized	Standard		
2	Karen	Work	K		100%	\$0.00/hr	\$0.00/Yr	\$0.00	Prioritized	Standard		
3	Sharon	Work	S		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prioritized	Standard		
4	Rasmus	Work	R		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prioritized	Standard		
5	Carol	Work	C		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prioritized	Standard		
6	Engineer	Work	E		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prioritized	Standard		

- **Resource usage view:** Resource Usage view is a functionality that lists for each resource the assigned tasks and the total amount of work that the resource is scheduled to perform on each task. Basically it groups the tasks against each resource.



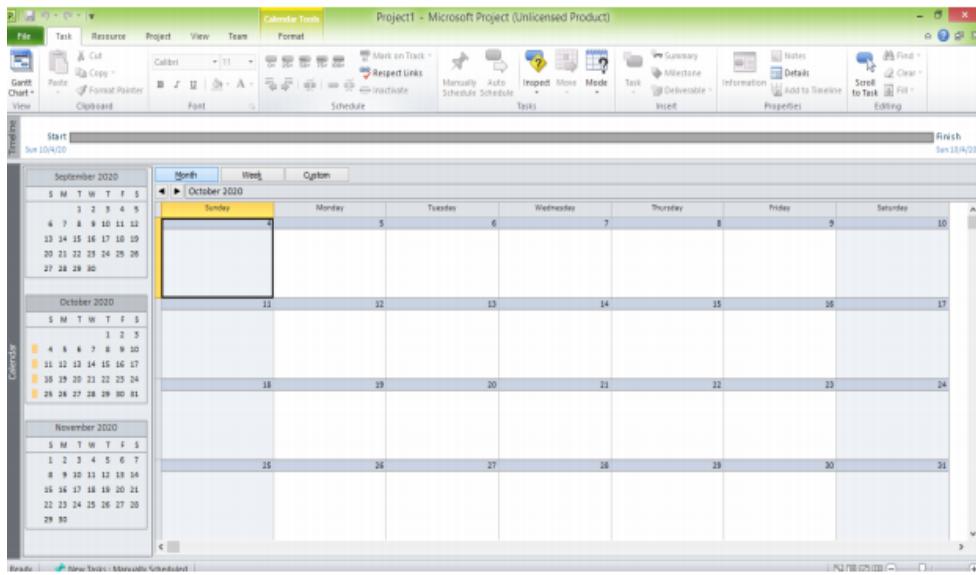
- **Task Usage View:** shows details about each task that which task is assigned to whom and working schedule of each resource.



- **Calendar view:** It assists you in showing which tasks are scheduled for which days in a calendar layout.



COMSATS University Islamabad, Lahore Campus





Lab 3 & 4

Project Plan

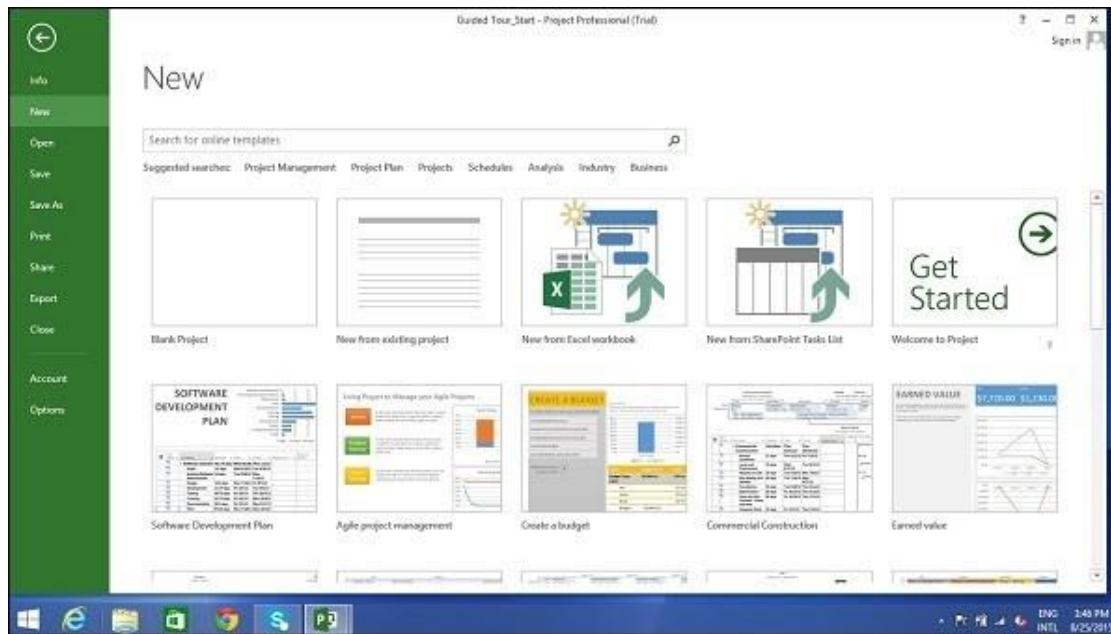
Introduction: Create A New Project Plan

Problem Statement:

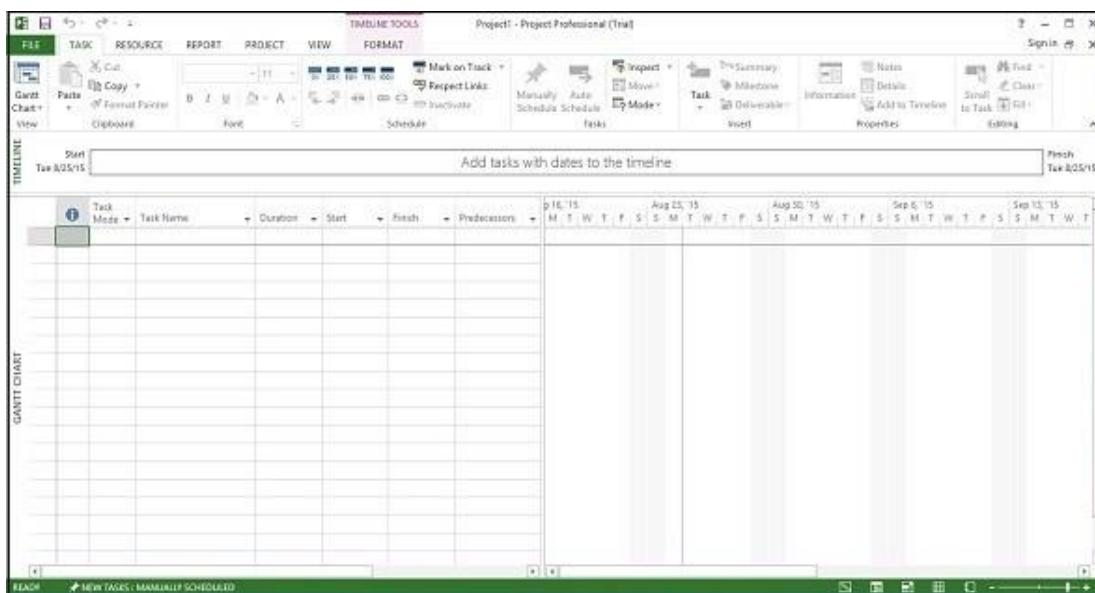
- Learn how to create a new project plan
- Learn how to set calendar
- Add exception to the calendar
- Set resource calendar
- Add working and non-working days.
- Learn to build task list
- Learn what is a duration and different ways to enter duration in MS Project
- Learn how to change default time dimensions
- Learn what is elapsed duration

Create Blank Project

MS Project 2013 will display a list of options. In the list of available templates, click Blank Project.



Project sets the plan's start date to current date, a thin green vertical line in the chart portion of the Gantt Chart



View indicates this current date.



Project Information

Let us change the project start date and add some more information.

Step 1: Start Date

Click Project tab → Project Information.

A dialog box appears. In the start date box, type the date, or click the down arrow to display the calendar, select any date of your choice.

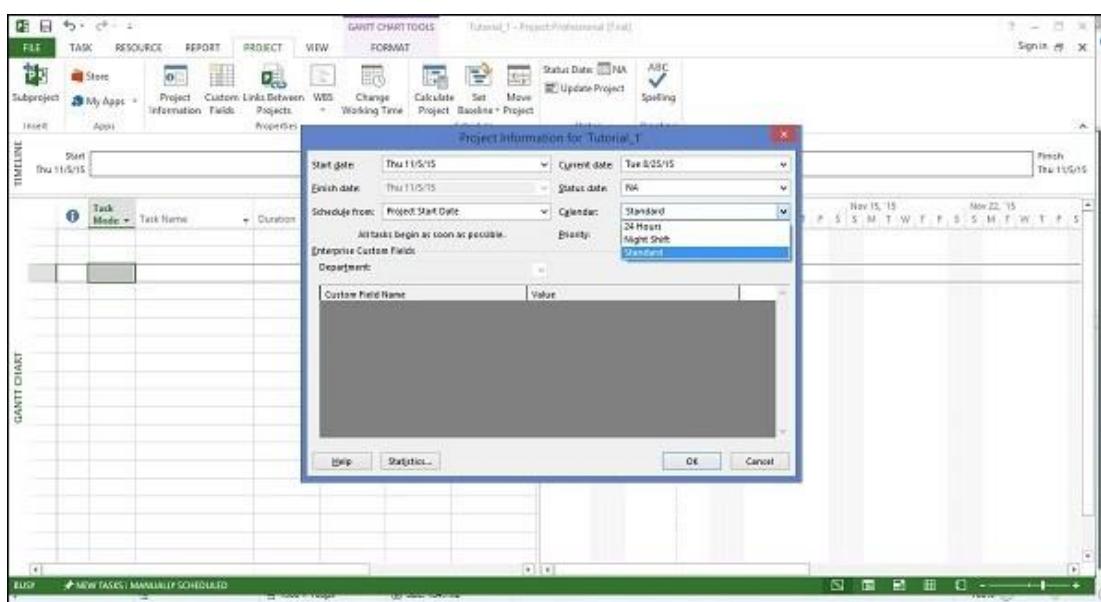
Click OK to accept the start date.

Step 2: Set Up Calendar

Click Project tab → Project Information.

Click the arrow on the Current Date dropdown box. A list appears containing three base calendars.

- 24 Hour – A calendar with no non-working time.
- NightShift – Covers 11PM to 8 AM, night shifts covering all nights from Monday to Friday, with one hour breaks.
- Standard – Regular working hours, Monday to Friday between 8 AM to 5 PM, with one hour breaks.





Select “Standard Calendar” as your project Calendar.

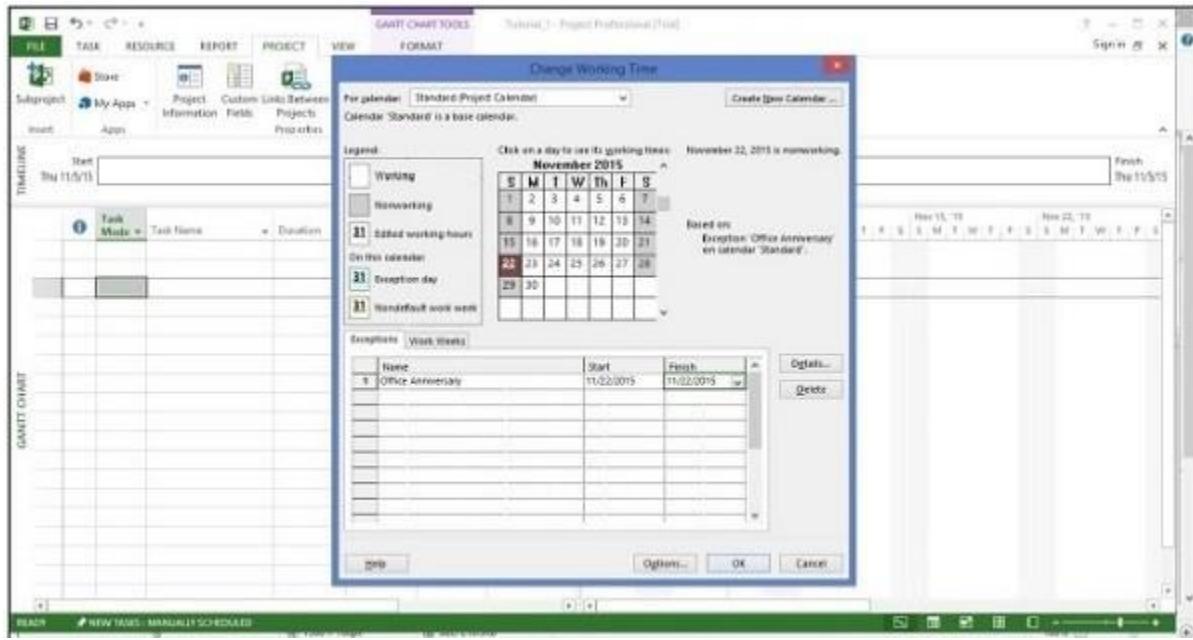
Step 3: Adding Exceptions to Calendar

Exceptions are used to modify a Project calendar to have a non-standard workday or a non-working day. You can also allot unique working hours for a particular resource as well.

Here is an example to create a non-working day, which could be because of a holiday or office celebrations or events other than the standard office work effort.

Click Project tab → Change Working Time.

Change Working Time dialog box appears. Under Exceptions Tab click on the Name Field, enter event as “Office Anniversary”. In the Start field enter the date, and then enter the same date in the Finish field. This date is now scheduled as a non-working day for the project. You can also verify the changed color indicated in the calendar within the dialog box as below. Click Ok to close.





Step 4: Setting up Resource Calendar

Just like you can change a Standard Base Calendar, you can change the work and non-working time for each resource. You can modify the resource calendar to accommodate vacation time, training time, etc.

Also remember, Resource Calendar can only be applied to work resources and not to material and cost resources.

By default, when we create the resources in a plan, the resource calendar matches the Standard base calendar. And any changes you make to the Project Calendar, gets reflected automatically in resource calendars, except when you create an exception in the resource calendar. In that case even if you update the project calendar, the exception in resource calendar is not affected.

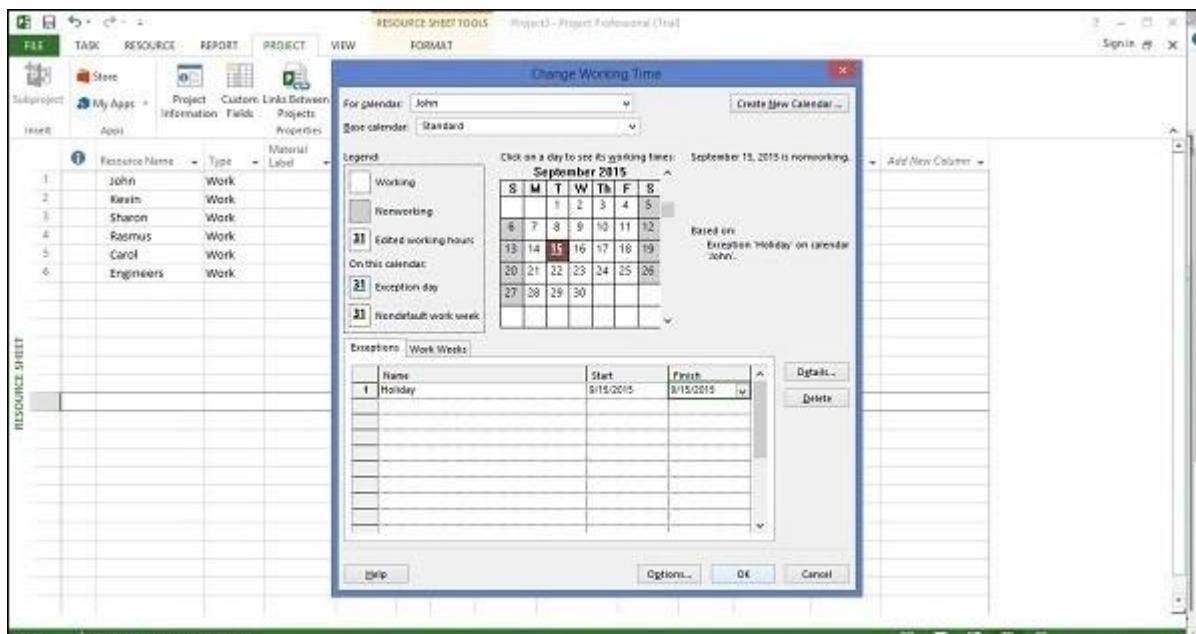
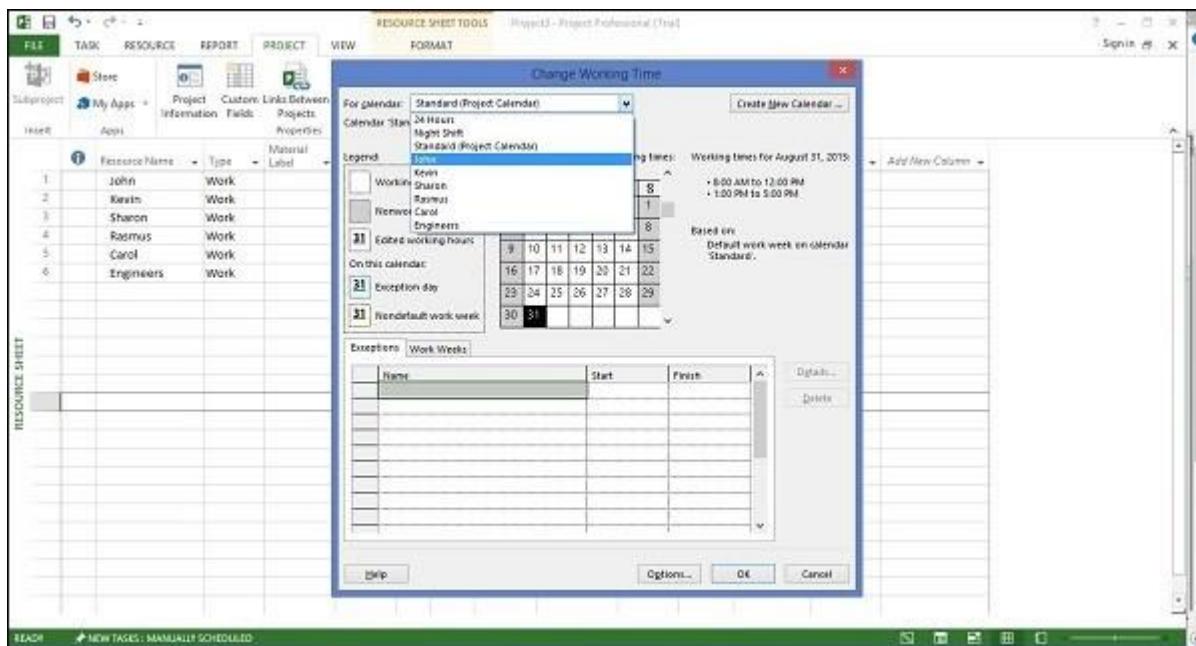
Click Project tab → Click Change Working Time Change Working

Time dialog box appears.

Click the down arrow **for** the “**For Calendar**” drop-down box.

Select the resource **for** whom you want to create an exception. **In** example below I have chosen John

Under Exceptions Tab click on the Name Field, enter events as “Personal holiday”. In the Start field enter the date and then enter the same date in the Finish field.





Step 5: Change Working times for Each Resource

Click Project tab → Click Change Working Time.

The Change Working Time dialog box appears.

Click the down arrow for the “For Calendar” dropdown box.

Select the resource for whom you want to change work schedule.

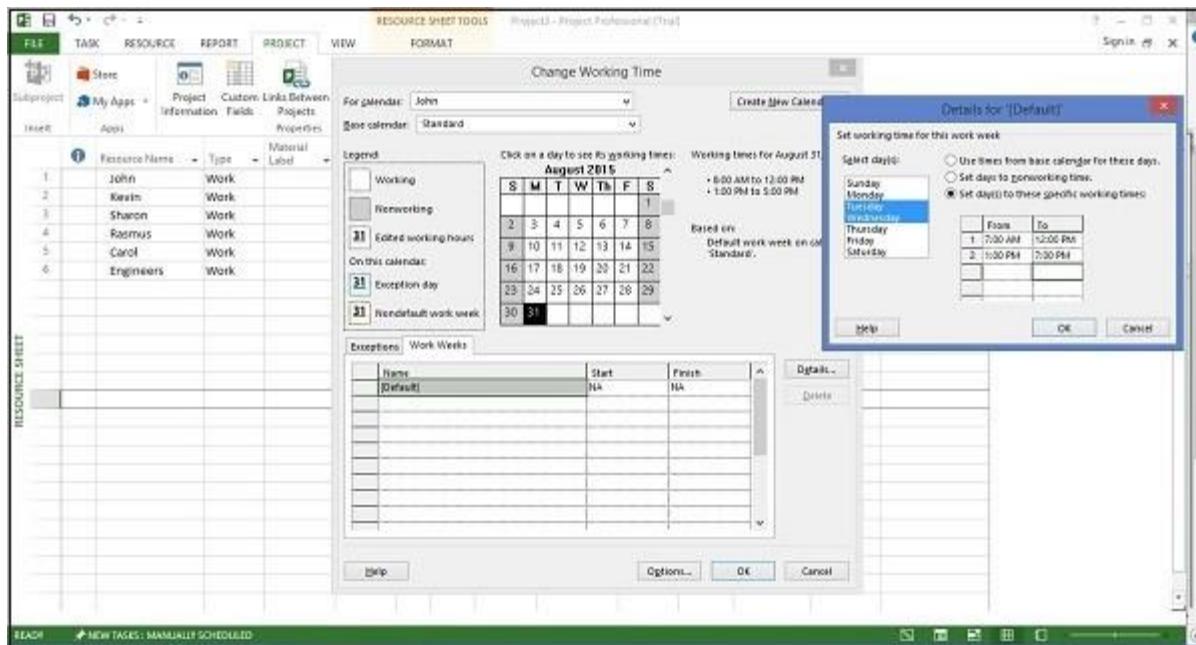
In the following screen you can see we have chosen John.

Click “Work Weeks” tab.

Double-click the [default] cell below the Name column heading.

Under “Selected Day(s)” choose any day you want to change the work schedule. We have chosen Tuesday and Wednesday.

Click Set day(s) to these specific working times. Change the time.



Step 6: Create Non-working Days

Click Project tab → Click Change Working Time.

The Change Working Time dialog box appears.

Click the down arrow for the “For Calendar” dropdown box.

Select the resource for whom you want to change work schedule. We have chosen John again.

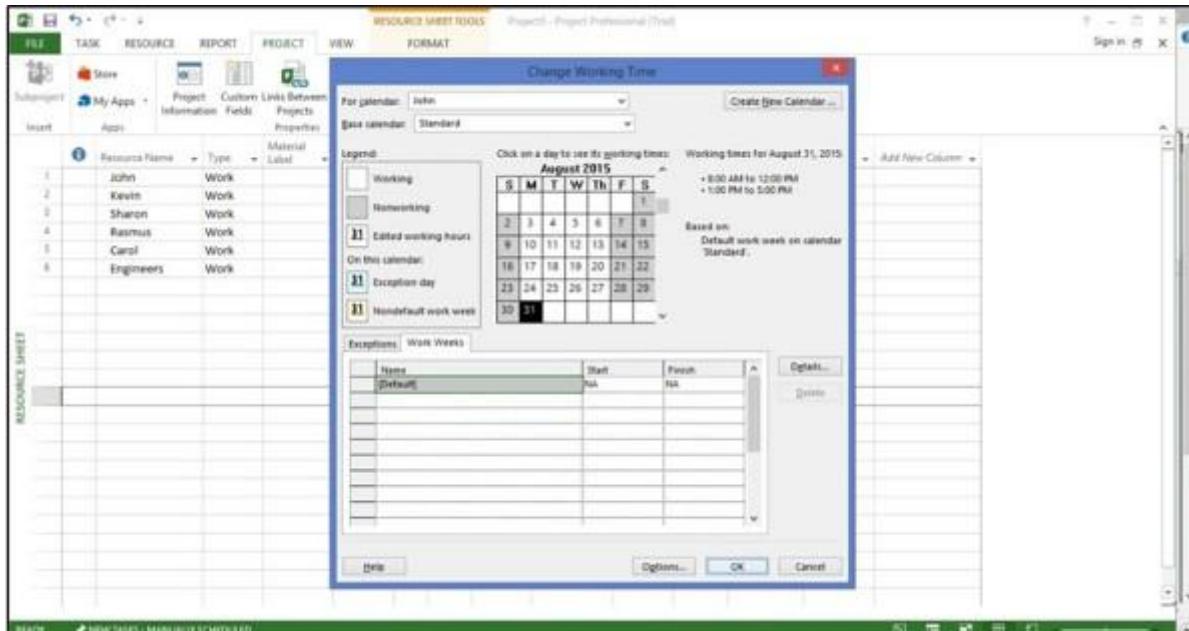
Click “Work Weeks” tab.

Double-click the [default] cell below the Name column heading.

Under “Selected Day(s)” choose any day you want to change the work schedule.

Click any day (we have chosen Friday) and use the radio button “Set days to nonworking time”.

Click OK to close the Dialog box. You will now see all Fridays are greyed out in the calendar.



Enter Task

This is simple. In Gantt Chart View, just click a cell directly below the Task Name column. Enter the task name. In the following screen, we have entered 5 different tasks.

Task	Task Name	Duration	Start	Finish	Predecessors
1	Test Task 1				
2	Test Task 2				
3	Test Task 3				
4	Test Task 4				
5	Test Task 5				



Enter Duration

A duration of the task is the estimated amount of time it will take to complete a task. As a project manager you can estimate a task duration using expert judgment, historical information, analogous estimates or parametric estimates.

You can enter task duration in terms of different dimensional units of time, namely minutes, hours, days, weeks, and months. You can use abbreviations for simplicity and ease as shown in the following table.

Value you want to enter	Abbreviation	Appearance
45 minutes	45 m	45 mins
2 hours	2h	2 hrs
3 days	3d	3 days
6 weeks	6w	6 weeks
2 months	2mo	2 mons

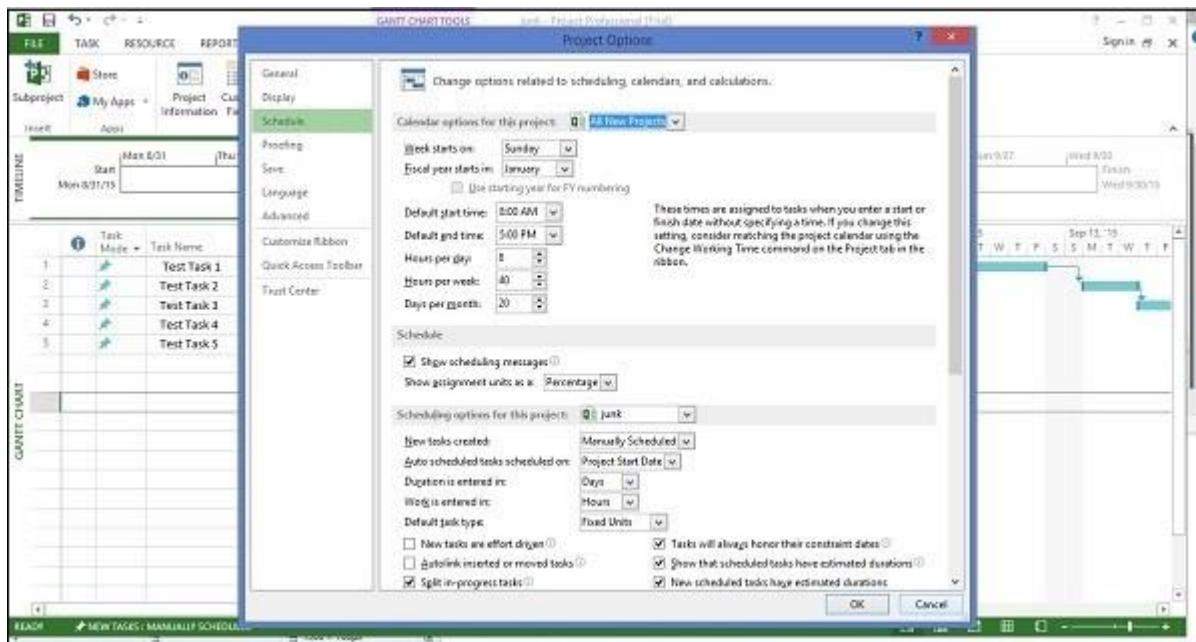
Remember, Project default values depend on your work hours. So 1 day is not equivalent to 24 hours but has 8 hours of work for the day. Of course, you can change these defaults anytime you want.

Value entered	Value	Project default Value
1 minute	60 seconds	60 seconds
1 hour	60 minutes	60 minutes
1 day	24 hours	8 hours (1 workday)
1 week	7 days	40 hours (5 workdays)
1 month	28 to 31 days	160 hours (20 workdays)



Change Default Time Dimensions

Click Project tab → Properties Group → Click Change Working Time → Click Options. You can apply this to all projects or a specific project that you are working on currently.



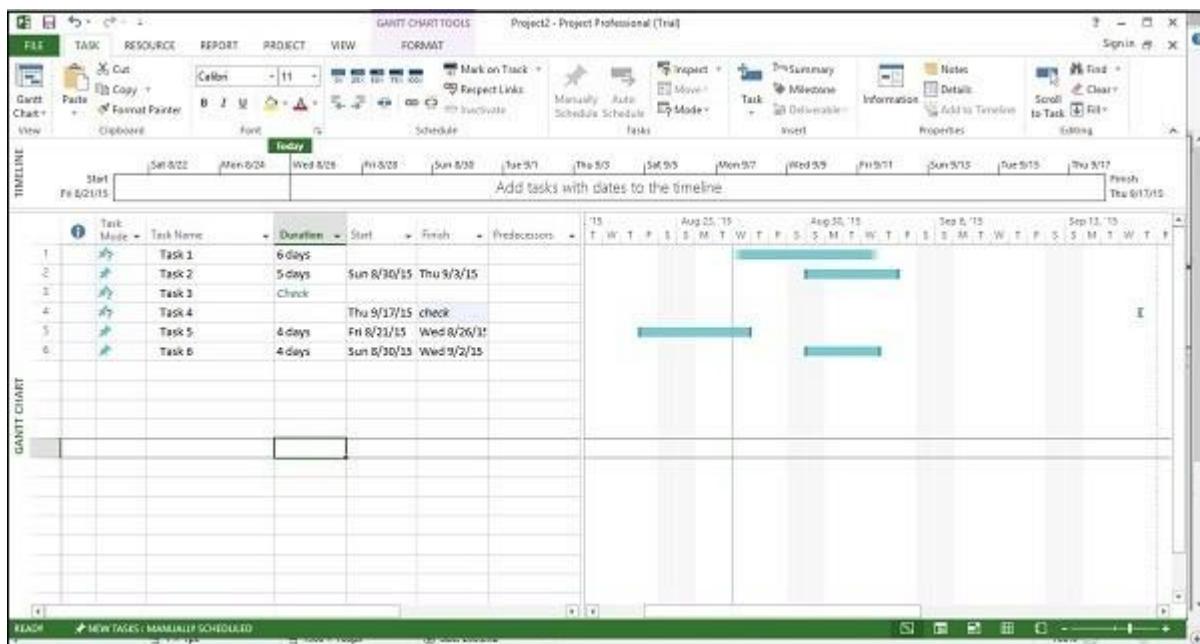
One of the neat tricks MS Project possesses is, it considers duration of the task in workday sense. So if you have a non-working day in between, it accommodates this and ensures a task that takes 16 hours to complete to end on the 3rd day. In other words, if you have a task that needs 16 hours to complete starting on Monday 8:00 AM (if this is the time your work day starts, and 8 hours being total work hours in a day), and Tuesday being a holiday, the task will logically end on the evening of Wednesday.

Tip – With manually scheduled tasks, if you are not sure about a task duration, you can just enter text such as “Check with Manager/Engineer” to come back to this later.



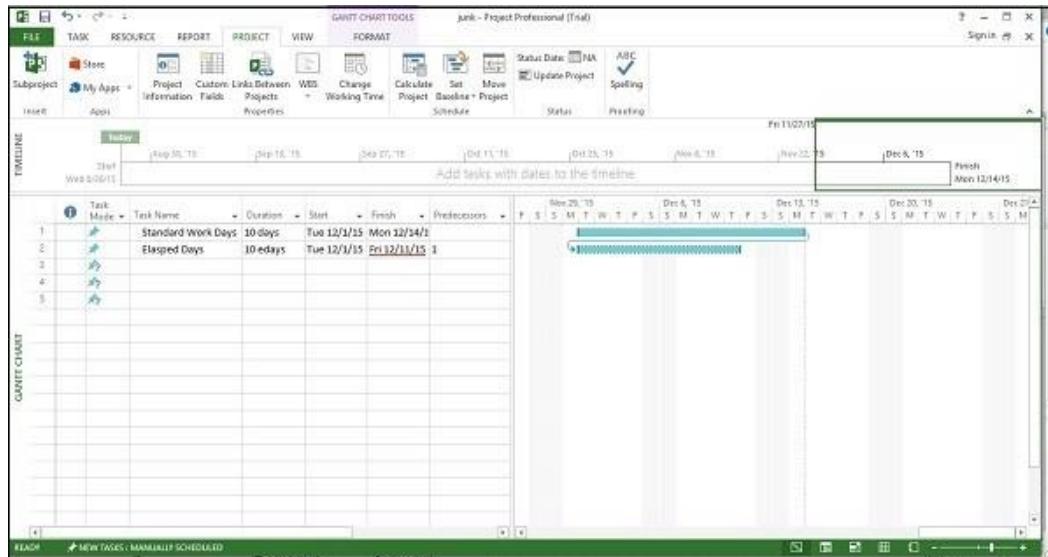
Enter Task Duration

- This is simple in Gantt Chart View, click the cell below Duration column heading. Enter the duration. (Task 1 in the following screenshot)
- You can also enter Start and Finish date and MS Project will calculate the duration on its own. (Task 2 in the following screenshot)
- You can enter text as well when you don't have a duration metric currently. (Task 3 and Task 4 in the following screenshot)



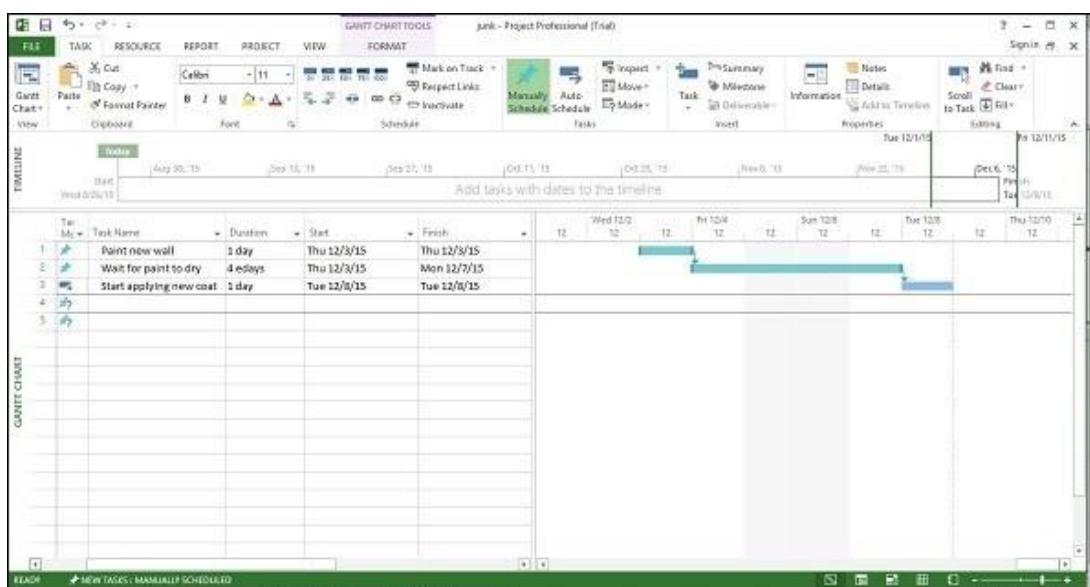
Elapsed Duration

Elapsed Duration is the time that elapses while some event is occurring which does not require any resources. Elapsed duration for a task can be used in instances where a task will go on round-the-clock without any stoppage. A normal workday has 8 hours, and an elapsed day duration will have 24 hours. The task also continues over non-working (holidays and vacations) and working days.



You can enter elapsed duration by preceding any duration abbreviation with an “e”. So 1ew is seven 24-hour days.

For example, when you are ‘Waiting for the paint to dry’. And it takes 4 days for this to happen. It does not need a resource or a work effort, and all you are doing is waiting for it to dry. You can use 4ed as the time duration, which signifies 4 elapsed days, the paint can dry regardless of whether it is a weekend or if it falls on a holiday. Here in this example, the drying occurs over 24 hours over the weekend.





Lab Task

Implement above explained steps on the Gantt chart view created in the previous lab, set up your calendar add exception, set up resource calendar and add working and non-working days.

Lab 5

Build Tasks

Introduction: Learn to build task lists and links between tasks.

Problem Statement:

- Learn to create milestones
- Learn different types of task dependencies and how to implement them
- Learn how to create respect links for your tasks.



Create Milestones

In Project Management, Milestones are specific points in a project timeline. They are used as major progress points to manage project success and stakeholder expectations. They are primarily used for review, inputs and budgets.

Mathematically, a milestone is a task of zero duration. And they can be put where there is a logical conclusion of a phase of work, or at deadlines imposed by the project plan.

- Simply put, it's a reference point that marks a major event
- Milestones do not impact project duration

There are two ways you can insert a milestone.

Method 1: Inserting a Milestone

Click name of the Task which you want to insert a Milestone

Click Task tab → Insert group → Click Milestone.

MS Project names the new task as <New Milestone> with zero-day duration.

Click on <New Milestone> to change its name.

You can see the milestone appear with a rhombus symbol in the Gantt Chart View on the right.

Method 2: Converting a Task to a Milestone

Click on any particular task or type in a new task under the **Task Name** Heading.

Under **Duration** heading type in “0 days”.

MS Project converts it to a Miles



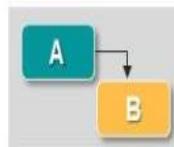
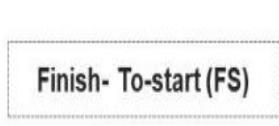
Link Tasks

Once you have a list of tasks ready to accomplish your project objectives, you need to link them with their task relationships called dependencies. For example, Task 2 can start once Task 1 has finished. These dependencies are called Links.

- In MS Project, the first task is called a predecessor because it precedes tasks that depend on it.
- The following task is called the successor because it succeeds, or follows tasks on which it is dependent.

There are only four types of task dependencies, here we present them with examples.

- Finish to Start (FS) – Finish the first floor before starting to build the second floor. *Most used.*



- Task (B) Cannot Start Until Another Task (A) Finishes.

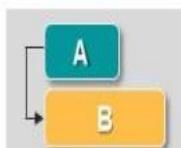
- Finish to Finish (FF) – Testing for S/W module will finish only once you have finished writing code for



- Task (B) Cannot finish Until Another Task (A) Finishes.

that module.

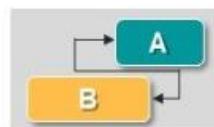
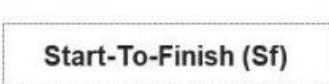
- Start To Start (SS) – When doing a survey, we would seek survey responses but will also start tabulating the responses. One does not have to finish collecting survey response before starting the tabulation.



- Task (B) Cannot Start Until Another Task (A) Starts.

- Start to Finish (SF) – Exam preparation will end when exam begins. *Least used.*

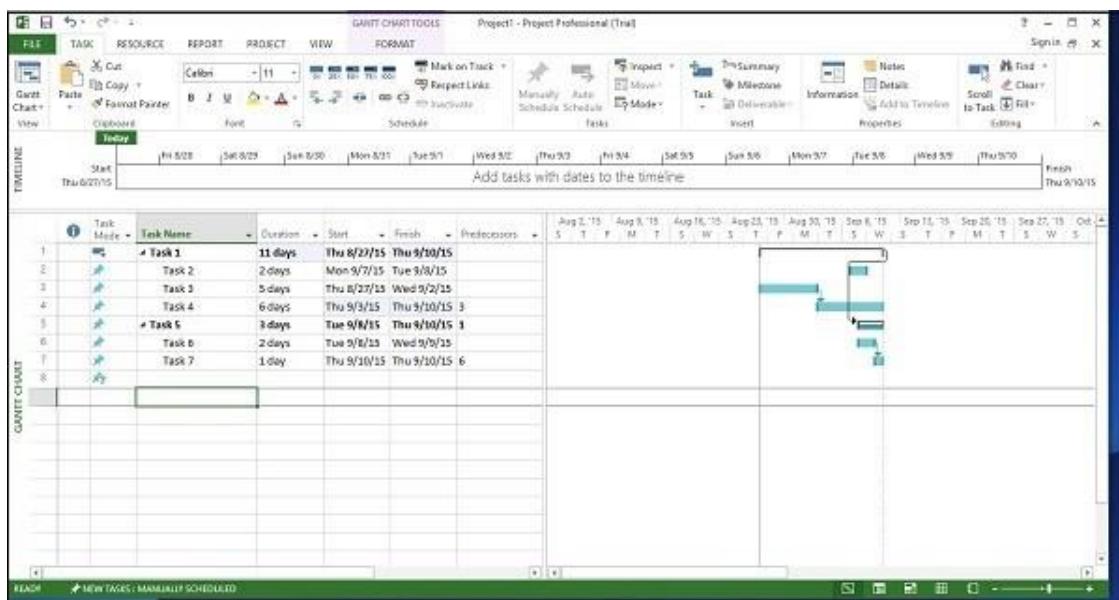
- Duty of morning guard cannot finish until duty of evening guard starts.



- Task (B) Cannot finish Until Another Task (A) Starts.

Respect Links

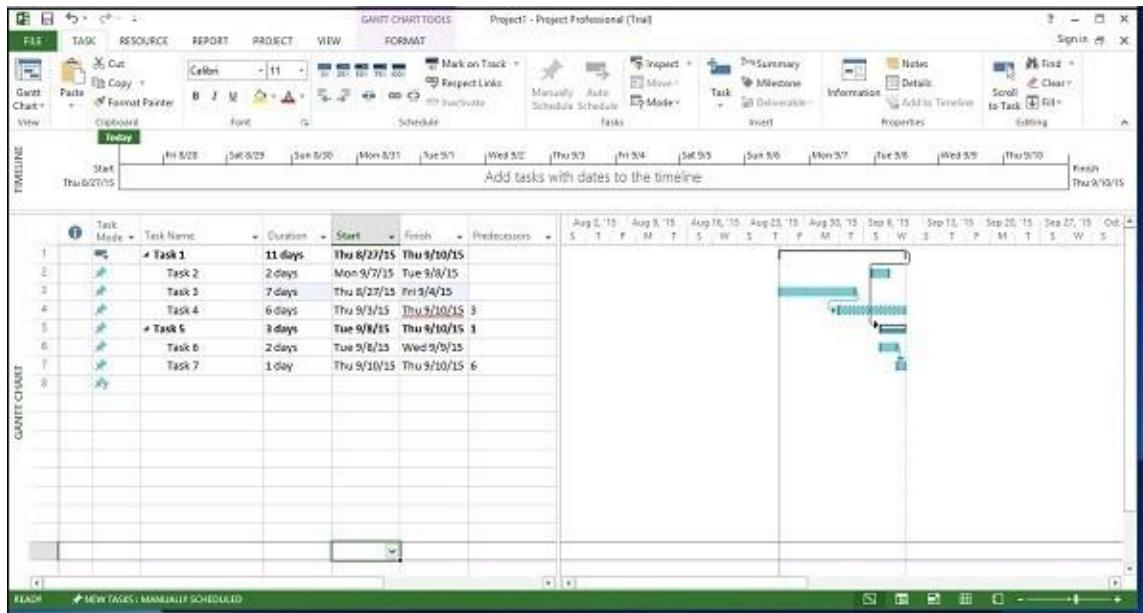
If you are in Manually Scheduled mode, any change in duration of the predecessor task will not reflect on Start date of Task 4. For example, Task 4 starts on 9/3/20 which is the next day of Finish date of Task 3.



Now when we change the Duration of Task 3 from 5 to 7 days, the start date is not automatically updated for Task 4 in Manual Scheduling.

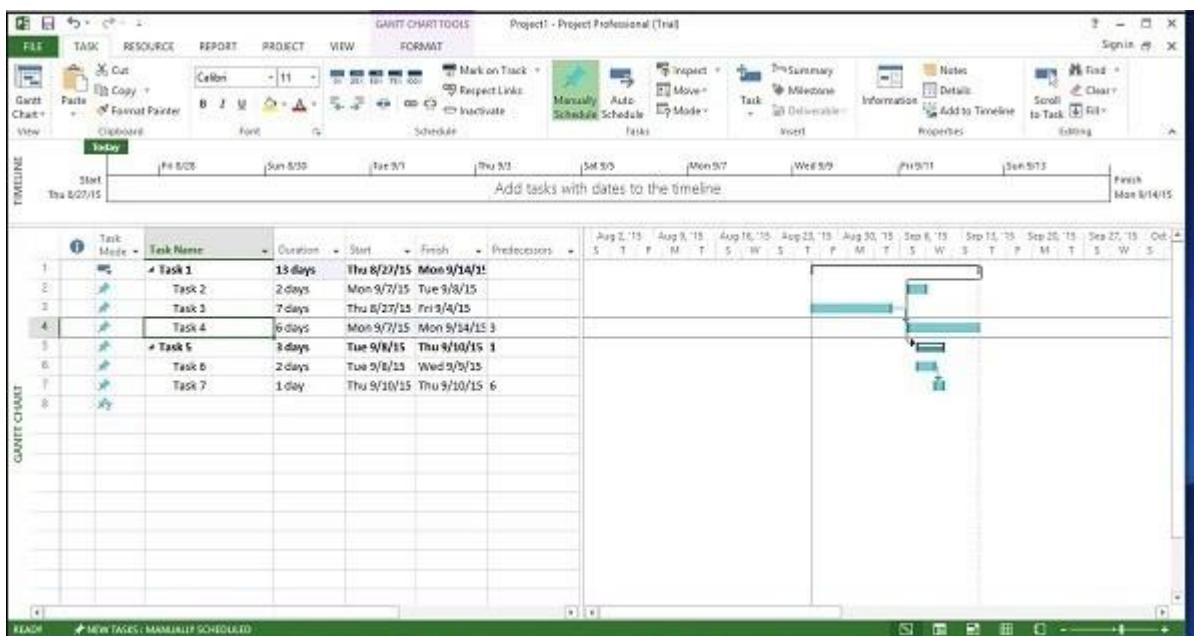


COMSATS University Islamabad, Lahore Campus



You can force MS Project to respect the link (dependency) by doing the following –

- Select task 4
- Click Task tab → Schedule group → Respect Links.





Lab Tasks

Create milestones for your Project.

Try out different dependency links, implement wherever you think is appropriate.

Create Respect links.

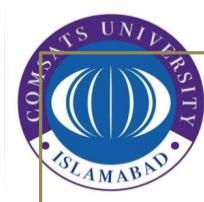
Lab 6 & 7

Setup Resources

Introduction: set up resources in MS Project.

Problem Statement:

- Learn what are different types of resources and how to enter their names
- Learn what is max capacity
- Learn resources as group and as part time
- Learn how to add notes to resources
- Learn how to set up cost



Resource Types

Work resources – People and equipment to complete the tasks.

- Cost resources – Financial cost associated with a task. Travel expenses, food expenses, etc.
- Material resources – Consumables used as project proceeds. For example, paint being used while painting a wall, office stationery

Note – *Be aware of the crucial difference between People and Equipment resources. People resources will have limited work hours, say 6, 8 or 12 hours. Equipment resources have different working capacities of 2, 8 or 24 hours and could have maintenance breaks as well. Also note, that it is possible multiple people resources might be using one equipment resource, or one equipment might be accomplishing multiple tasks.*

Task1-Enter Work Resource Names

You can enter resource names according to your convenience.

Resource	Example
Work resource as an identified person	John, Kevin
Work resource as a job function or group	Engineer, Coordinator, Typist
Work resource as an equipment	Computers, cpu, hard-drive

Steps involved

Click View tab → Resource Views group → Click Resource Sheet.

Click the cell directly below the Resource Name heading column.

Enter Resources as an individual person, job function or group.



By default, the Max Units field is set to 100%.

A screenshot of the Microsoft Project Professional software interface. The window title is "RESOURCE SHEET TOOLS Project1 - Project Professional (Trial)". The ribbon tabs include FILE, TASK, RESOURCE, REPORT, PROJECT, and VIEW. The "VIEW" tab is selected, showing "Resource Views" like Network Diagram, Resource Usage, Resource Sheet (which is highlighted in green), Team Planner, and Other Views. The main area displays a resource sheet table with the following data:

	Resource Name	Type	Material Label	Initials	Group	Max Units	Std. Rate	Dvt. Rate	Cost/Hr	Actual	Base Calendar	Code	Add New Column
1	John	Work	J			100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard		
2	Karim	Work	K			100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard		
3	Sharon	Work	S			100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard		
4	Rasmus	Work	R			100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard		
5	Carol	Work	C			100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard		
6	Engineer	Work	E			100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard		



Resource Max Capacity

Max Units field represents the maximum capacity of a resource to work on assigned tasks. 100% stands for 100 percent of resource's working time is available for work on task assigned. The resource is available full-time on each workday. If the resource gets allocated to task or tasks that would require more than his/its work hours, the resource is over allocated and MS Project will indicate this in red formatting.

If a resource does not represent an individual person but a job function, where a group of people with the same skill set can work on the task, we can enter larger Max Units to represent the number of people in the group. So 400% would indicate, 4 individual people working full-time every workday.

Work Resources as a Group

Click View tab → Resource Views group → Click Resource Sheet

Click the cell directly below Resource Name heading column

Enter Resources as group, here we take an example of Engineers.

Click the Max. Units field for the Engineers resource.

Type or select 400%. Press Enter.



The screenshot shows the Microsoft Project Professional interface with the 'RESOURCE SHEET' tab selected. The timeline at the top indicates a start date of Feb 28, '21 and an end date of Mar 7, '21. A message 'Add tasks with dates to the timeline' is displayed. The resource sheet table below lists ten resources with their details:

	Resource Name	Type	Material	Initials	Group	Max. Units	Std. Rate	Ovt. Rate	Cost/Unit	Accrue	Base
1	ahmad	Work		a		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
2	hamza	Work		h		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
3	asad	Work		a		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
4	amy	Work		a		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
5	hafsa	Work		h		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
6	anum	Work		a		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
7	zainab	Work		z		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
8	abdullah	Work		a		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
9	Engineer	Work		E		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
10	development team	Work		d		400%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard

Work Resource as Part-time

Entering a value less than 100% in Max.Units would mean you expect the resource capacity to be lower than a full-time resource. So 50% would mean the individual works for half of the normal full capacity, so if a normal work week is 40 hours, this equals 20-hour capacity.

Click View tab → Resource Views group → Click Resource Sheet.

Click the cell directly below Resource Name heading column.

Enter Resource as an individual or job function. Here let's take an example. For Ramsus I have entered 50%.

The screenshot shows the Microsoft Project Professional interface with the 'RESOURCE SHEET' tab selected. The 'Highlight' dropdown is set to 'No Highlight'. The table below lists six resources with their details:

	Resource Name	Type	Material	Initials	Group	Max. Units	Std. Rate	Ovt. Rate	Cost/Unit	Accrue	Base
1	John	Work		J		200%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
2	Karim	Work		K		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
3	Sharon	Work		S		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
4	Rasmus	Work		R		50%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
5	Carol	Work		C		100%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard
6	Engineers	Work		E		400%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard



Task2-Enter Resource Cost

You can enter standard rates and costs per use for work and material resources. You can also enter overtime rates for work resources. Standard rates are calculated on per hour basis. Costs per use on the other hand are costs that do not vary with task. Cost per use is a set fee used up to complete a task. There are three types of resources – work, material, and cost.

- Work resources – People and equipment to complete the tasks.
- Costresources – Financial cost associated with a task. Travel expenses, food expenses, etc.
- Material resources – Consumables used as project proceeds. Like paint being used while painting a wall.

Cost resources do not use pay rates. Remember cost per use and cost resources are two different things. Cost resources are financial cost associated with a task, like travel expenses, food expenses, etc. The cost value of cost resource is only assigned when you assign cost resource to a task.

Project calculates the cost of a task by using this formula –

Cost of Task = Work Value (in number of hours) x Resource's Pay Rate.

To enter standard and overtime pay rates for work resources –

Click View tab → Resource Views group → **Resource Sheet**.

Click the cell directly below Resource **Name** heading column to **create** Resources.

Click the **Std. Rate field** for each resource to costs in **hourly (default), daily, weekly, monthly and yearly rates**.

In the following example, the resource Rasmus is left at zero. This is useful when you don't have to track rate-based costs for some resources.



Click the Ovt. Rate field to enter overtime rates.

	Resource Name	Type	Last	Initials	Max. Units	Std. Rate	Ovt. Rate	Cost/Unit	Accrual	Basis	Calendar	Code	Add New Column
1.	John	Work	J		100%	\$40.00/hr	\$60.00/hr	\$8.00	Prorated	Standard			
2.	Kerstin	Work	K		50%	\$0.00/wk	\$0.00/hr	\$0.00	Prorated	Standard			
3.	Sharon	Work	S		100%	\$60.00/wk	\$0.00/hr	\$0.00	Prorated	Standard			
4.	Rasmus	Work	R		50%	\$0.00/hr	\$0.00/hr	\$0.00	Prorated	Standard			
5.	Carol	Work	C		100%	\$50.00/hr	\$0.00/hr	\$0.00	Prorated	Standard			
6.	Engineers	Work	E		400%	\$40.00/hr	\$0.00/hr	\$8.00	Prorated	Standard			

Add Notes to Resources

Click View tab → Resource Views group → Resource Sheet.

Double-click the Resource, a Resource Information dialog box opens.

Click on Notes tab. Here let's enter a note for Rasmus as "Rasmus will work part time". Click OK.



A screenshot of the Microsoft Project application showing the Resource Sheet view. The ribbon at the top includes FILE, TASK, RESOURCE, REPORT, PROJECT, VIEW, and FORMAT. The RESOURCE tab is selected. A context menu is open over the fourth row, which contains the resource 'Rasmus'. The menu options include Cut, Copy, Paste, Format Painter, and Delete. The Resource Sheet table has columns for Resource Name, Type, Material Label, Initials, On, Max. Units, Std. Rate, Ovt. Rate, Cost/Hr, Accrue At, Base Calendar, and Code. The 'Rasmus' row is highlighted in green. A tooltip window titled 'Resource Information' is displayed, showing the 'Notes' tab with the text 'Rasmus will work part-time'. Buttons for OK and Cancel are visible at the bottom of the tooltip.

A note icon now appears to the left of Rasmus' name in the Resource Sheet view. Hovering over it will make the note appear.

A screenshot of the Microsoft Project application showing the Resource Sheet view. The ribbon at the top includes FILE, TASK, RESOURCE, REPORT, PROJECT, VIEW, and FORMAT. The RESOURCE tab is selected. The Resource Sheet table has columns for Resource Name, Type, Material Label, Initials, On, Max. Units, Std. Rate, Ovt. Rate, Cost/Hr, Accrue At, Base Calendar, and Code. The 'Rasmus' row is highlighted in green and contains a tooltip with the note 'Notes: Rasmus will work part-time'. The status bar at the bottom shows 'READY NOW FASIS: MANUALLY SCHEDULED'.



Lab Task

Case: It's a project where a company is moving to a new office space, and we are in charge of planning the move, including getting office furniture and all office stuff shipped to the new location. And we want to do this without interfering with daily business. People should be able to do their work, then on the weekend all items will be transferred, so that your colleagues can start working from the new office building the following Monday.

Key project data: • Goal: Office relocation • Timeline: March – October • Project phases: Project preparation, Selection of offices, Space design and furnishing, Physical relocation

- Build task list
- Enter task links
- Create sub tasks
- Set up base calendar and resource calendar
- Create milestones

Lab 8 & 9

Assign resources to tasks

Introduction: assign resources to tasks

Problem Statement:

- Learn how to set cost and material resources
- Learn different methods of how to assign material & cost resources to tasks
- Learn how to assign multiple resources to a single task.
- Learn how to assign cost resources to tasks.

Set Up Cost Resources

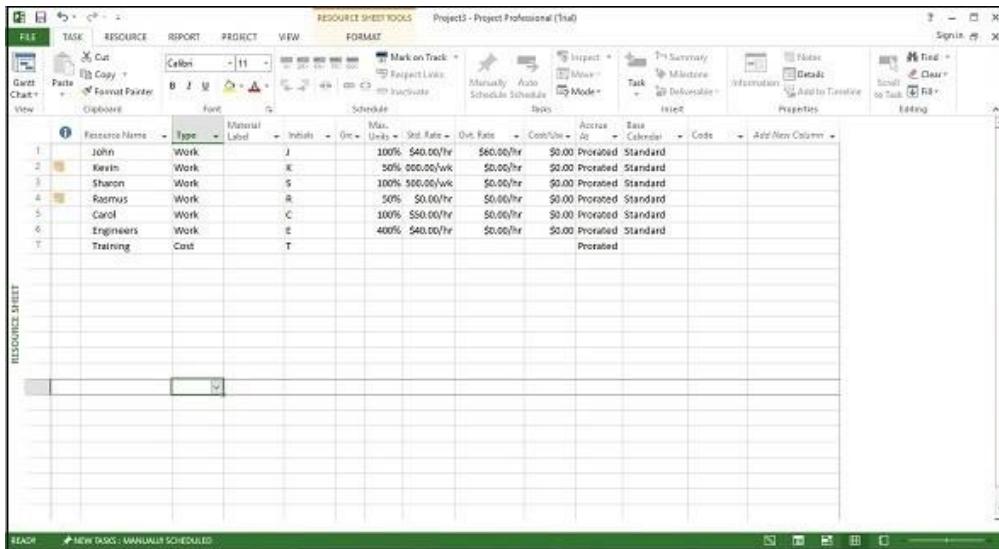
You can use a cost resource to represent a financial cost associated with a task in a plan. Common types of cost resources might include categories of expenses you want to track in a plan for accounting or financial reporting purposes, such as travel, entertainment, or training. **Cost resources do no work and have no effect on the scheduling of a task. The Max. Units, Standard and Overtime pay rate, and Cost per Use fields do not apply to cost resources.** After you assign a cost resource to a task and specify the cost amount per task, you can then see the cumulative costs for that type of cost resource, such as total travel costs in a project. The way in which cost resources generate cost values differs from that of work resources. When you assign a work resource to a task, the work resource can generate a cost based on a pay rate. **However, you enter the cost value of a cost resource only when you assign it to a task.** You do this in the task.

Click View tab → Resource Views group → Resource Sheet.

Click the empty cell in the Resource Name column.

Type Training and press the Tab Key.

In the Type field, click the down arrow to select Cost.



Resource Name	Type	Material	Initials	Max.	Unit	Std. Rate	Ovt. Rate	Cost/Unit	Accrue	Base	Code	Add New Column
John	Work	J		100%	\$40.00/hr	\$40.00/hr	\$0.00	Prorated	Standard			
Kevin	Work	K		50%	\$100.00/wk	\$100.00/wk	\$0.00/hr	Prorated	Standard			
Sharon	Work	S		100%	\$100.00/wk	\$100.00/wk	\$0.00/hr	Prorated	Standard			
Rasmus	Work	R		50%	\$50.00/hr	\$50.00/hr	\$0.00/hr	Prorated	Standard			
Carol	Work	C		100%	\$50.00/hr	\$50.00/hr	\$0.00/hr	Prorated	Standard			
Engineers	Work	E		400%	\$40.00/hr	\$40.00/hr	\$0.00/hr	Prorated	Standard			
Training	Cost	T							Prorated			



Once the task and resource list are complete, resources need to be assigned to tasks in order to work on them. With MS Project you can track task progress, resource and tasks costs.

Assign Cost Resource to Tasks

Click View Tab → Gantt Chart View → Task Name column.

Double-click the Task Name. Task Information dialog box opens.

Click the Resources tab.

Click the cell below the Resource Name column. Select the resource from the dropdown list.

In the following example below, let's choose "Travel" as cost resource and enter the cost at \$800.

The screenshot shows the Microsoft Project application interface. The main window displays a Gantt chart with tasks like Assign_Resources, Phase 1, DT2, DT3, DT4, and Phase 2. Task PT3 is selected. A 'Task Information' dialog box is open over the Gantt chart, specifically on the 'Resource' tab. In the 'Resource' list, 'Travel' is selected, and its cost is set to '\$800.00'. The Gantt chart shows the duration of task PT3 as 7 days, starting on Wednesday, 1/7/15, and ending on Tuesday, 13/7/15.



Assign Material Resource to Task

Method 1

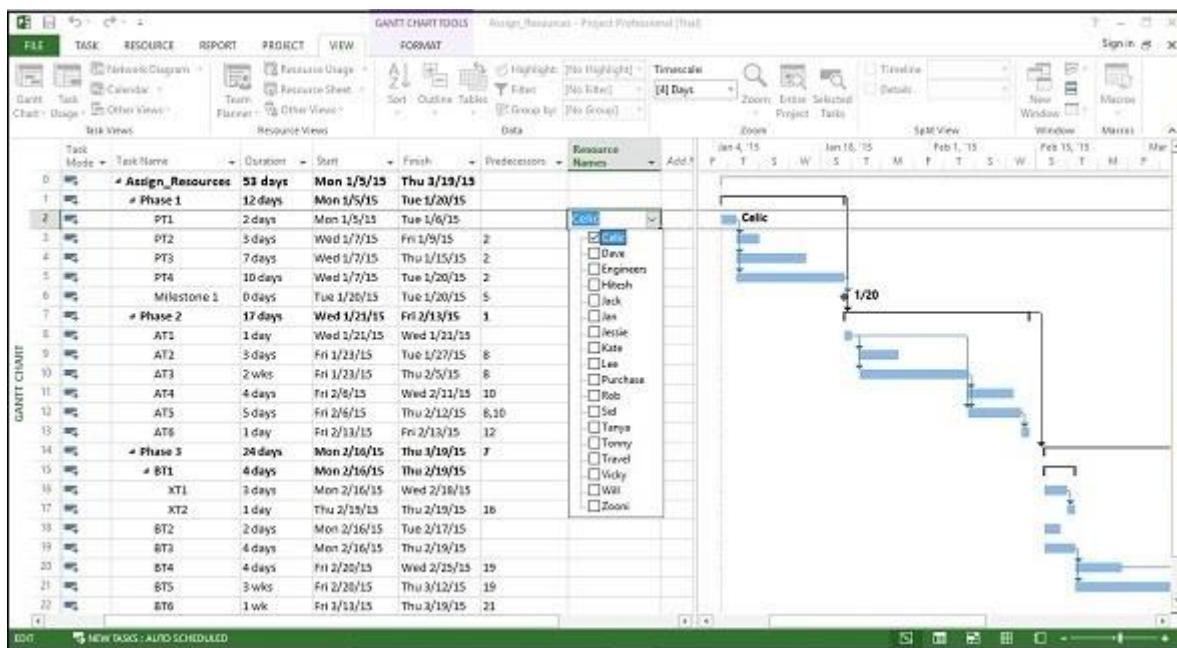
Click View Tab → Gantt Chart View → Resource Name column.

Click the box below the Resource Name column for the task you need the resource to be assigned.

From the dropdown, choose the resource name. In the following screenshot as an

example. For Task 1 "PT1", we have chosen the resource "Celic".

You can also select multiple resources to work on a single task.





Method 2

Click Resource tab → Under Assignments group → Assign Resources.

In the Assign Resources dialog box, click the resource name you like to assign.

Here let's choose "Hitesh". Now click the Assign button.

You can also select multiple resources to work on a single task.

The screenshot shows the Microsoft Project Professional interface. The Gantt Chart view displays tasks from 0 to 22. Task 0, 'Assign_Resources', is selected and has a duration of 53 days, starting on Mon 1/5/15 and ending on Thu 3/19/15. Task 1, 'Phase 1', is a sub-task of 'Assign_Resources'. Task 2, 'PT1', is a child of 'Phase 1'. Task 3, 'PT2', is a child of 'Phase 1'. Task 4, 'PT3', is a child of 'Phase 1'. Task 5, 'PT4', is a child of 'Phase 1'. Task 6, 'Milestone 1', is a child of 'Phase 1'. Task 7, 'Phase 2', is a child of 'Assign_Resources'. Task 8, 'AT1', is a child of 'Phase 2'. Task 9, 'AT2', is a child of 'Phase 2'. Task 10, 'AT3', is a child of 'Phase 2'. Task 11, 'AT4', is a child of 'Phase 2'. Task 12, 'AT5', is a child of 'Phase 2'. Task 13, 'AT6', is a child of 'Phase 2'. Task 14, 'Phase 3', is a child of 'Assign_Resources'. Task 15, 'BT1', is a child of 'Phase 3'. Task 16, 'XT1', is a child of 'Phase 3'. Task 17, 'XT2', is a child of 'Phase 3'. Task 18, 'BT2', is a child of 'Phase 3'. Task 19, 'BT3', is a child of 'Phase 3'. Task 20, 'BT4', is a child of 'Phase 3'. Task 21, 'BT5', is a child of 'Phase 3'. Task 22, 'BT6', is a child of 'Phase 3'. A 'Resource Names' list is visible on the right side of the Gantt chart, showing 'Celic', 'Hitesh', 'Lee', 'Mike', 'Natalie', 'Ravi', and 'Steve'. An 'Assign Resources' dialog box is open over the Gantt chart, showing 'Task: PT2' and a list of resources: Celic, Hitesh, Lee, Mike, Natalie, Ravi, and Steve. The 'Assign' button is highlighted in the dialog box.

Method 3

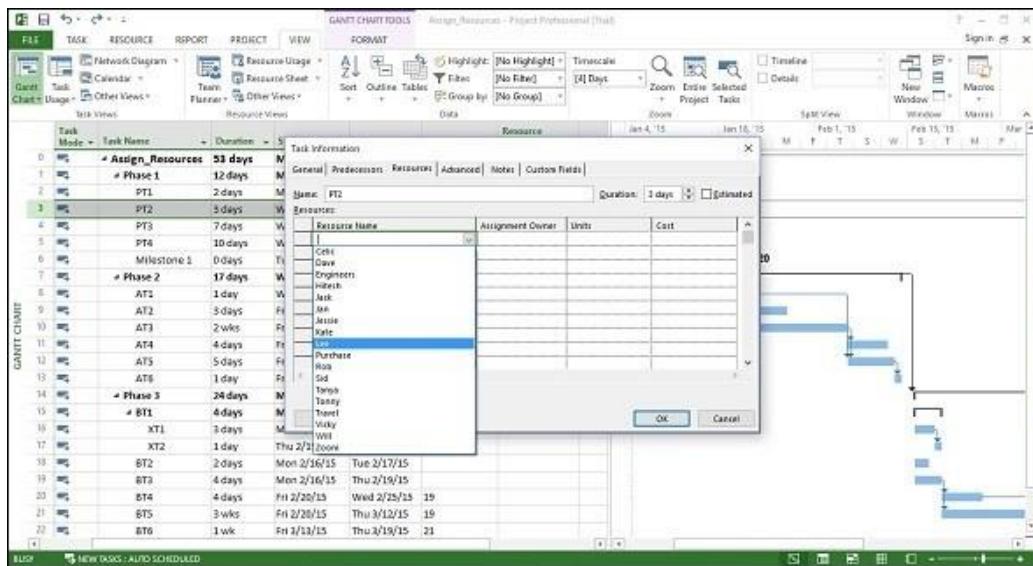
Click View Tab → Gantt Chart → Task Name column.

Double-click the Task Name. Task Information dialog box opens.

Click the Resources tab.

Click the cell below the Resource Name column. Select the resource from the dropdown list.

You can also select multiple resources to work on a single task.



Method 4

Click View Tab → Split View group → Details → Task Form.

The window is split in two, Gantt Chart view and Task Form view below it.



In the Task Form view, click under the Resource Name column and select the resource.

You can also select multiple resources to work on a single task.

The screenshot shows the Microsoft Project Professional interface. The main window displays a Gantt chart and a Task Form view. In the Task Form view, Task 1 (PT1) is selected, and its resource assignment is being edited. A small floating dialog box titled "Assign Resources" is open over the task row, showing the resource "Lee" assigned to it. The Gantt chart on the right shows the timeline from Jan 4, 2015, to Feb 15, 2015, with tasks PT1, PT2, PT3, PT4, and AT1 plotted. PT1 is shown with two bars: one for Lee and one for Celic, indicating dual assignment.

ID	Task Name	Duration	Start	Finish	Precursors	Resource Names
0	Assign_Resources	53 days	Mon 1/5/15	Thu 3/19/15		
1	PT1	2 days	Mon 1/5/15	Tue 1/6/15		Celic
2	PT2	3 days	Wed 1/7/15	Fri 1/9/15	2	Lee
3	PT3	7 days	Wed 1/7/15	Thu 1/15/15	2	
4	PT4	10 days	Wed 1/7/15	Tue 1/20/15	2	
5	Milestone 1	0 days	Tue 1/20/15	Tue 1/20/15	5	
6	Phase 2	17 days	Wed 1/21/15	Fri 2/13/15	1	
7	AT1	1 day	Wed 1/21/15	Wed 1/22/15		
8	AT2	3 days	Fri 1/23/15	Tue 1/27/15	8	



Lab Task

Define work, material and cost resources in your FYP gantt chart and assign them to tasks.

Lab 10

Plan Duration Cost and Time

Introduction: Plan duration cost and time.

Problem Statement:

- Learn how to check plan's cost
- Learn how to check plan's work
- Learn how to check project statistics

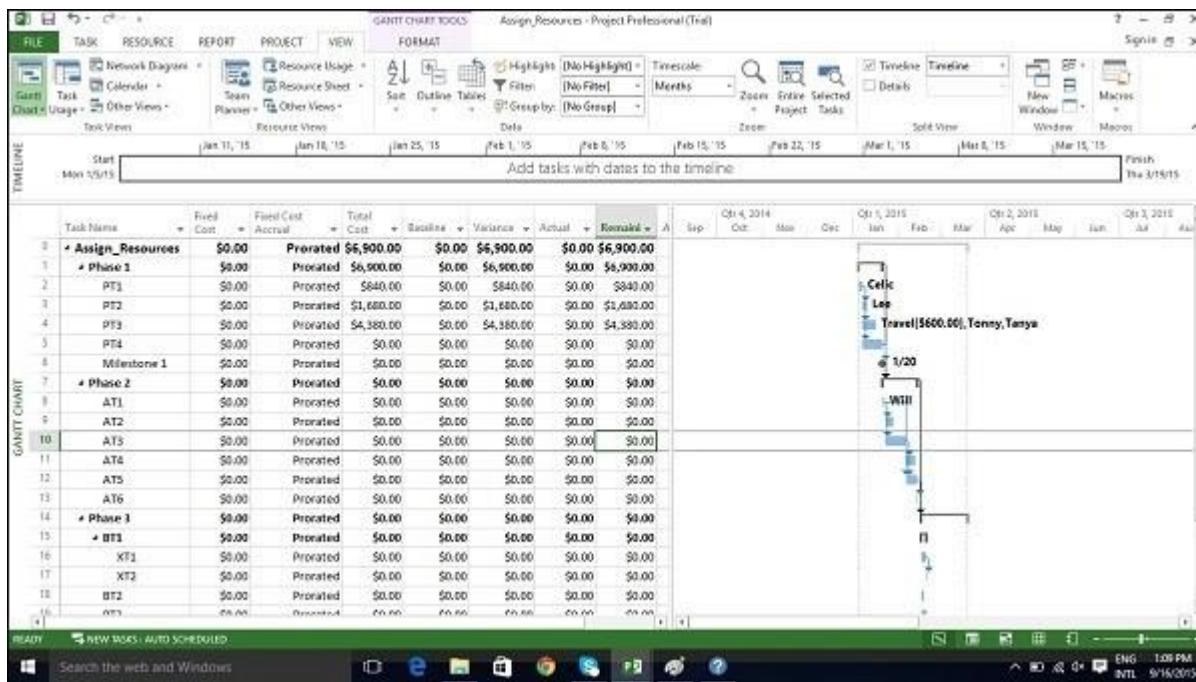


MS Project- Plan Duration Cost & Time

Check Plan's Cost

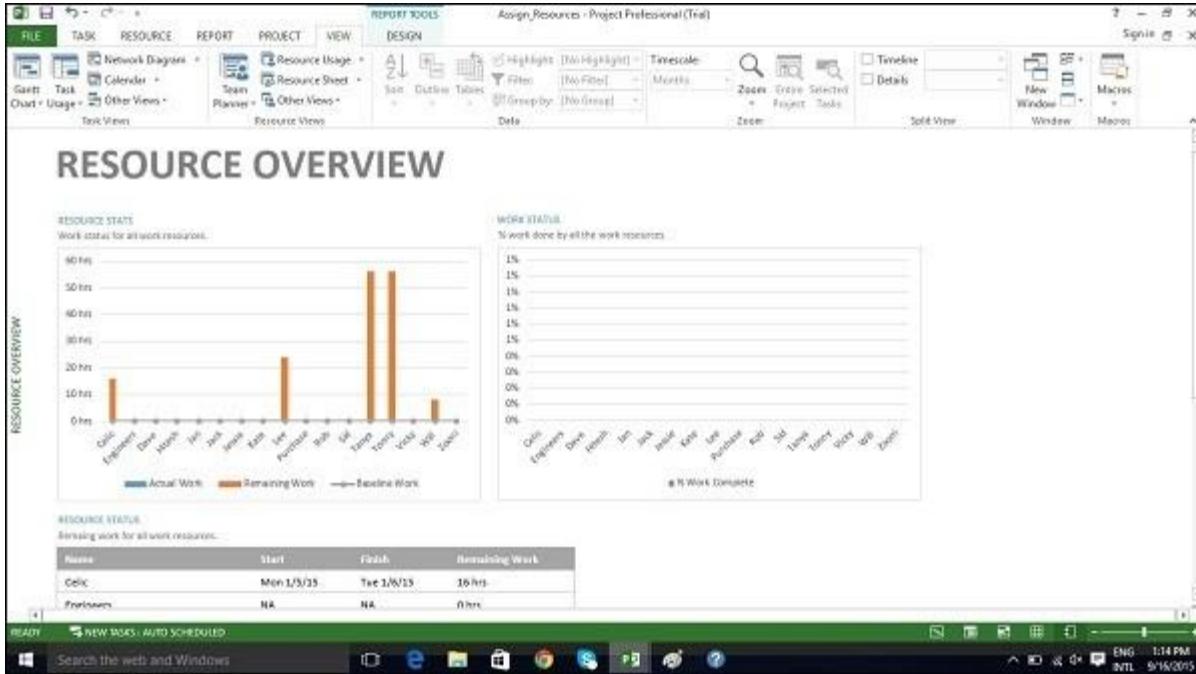
Click View tab → Data group → Tables → Cost.

Cost for each task gets rolled up into summary tasks, and then ultimately to project summary task.



Check Plan's Work

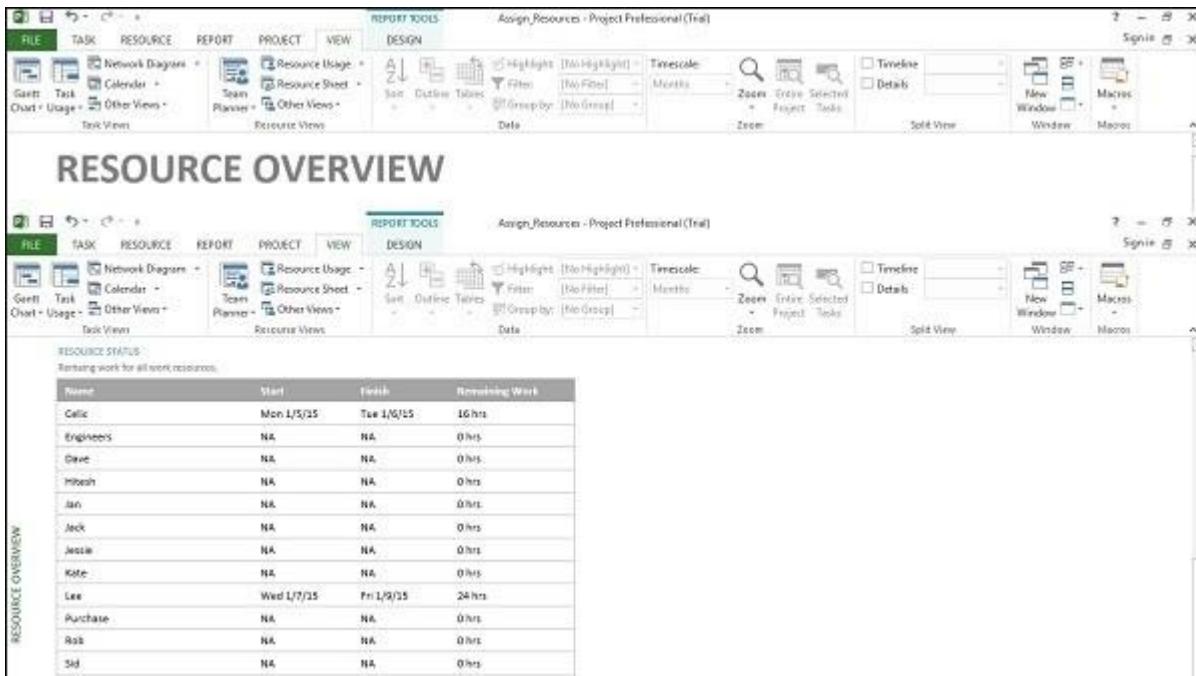
Click Report Tab → View Reports group → click Resources → click Resource overview



The screenshot shows the Microsoft Project Professional interface with the "Resource Overview" report selected. The top ribbon has tabs for FILE, TASK, RESOURCE, REPORT, PROJECT, and VIEW. The REPORT TOOLS tab is active, showing options like DESIGN, HIGHLIGHT, FILTER, GROUP BY, and DATA. The main area displays three charts: a bar chart for Resource State (Actual Work, Remaining Work, Baseline Work), a Gantt chart for Work Status (% Work Complete), and a table for Resource Status (Names, Start, Finish, Remaining Work). The table data is as follows:

Name	Start	Finish	Remaining Work
Calic	Mon 1/5/15	Tue 1/6/15	16 hrs
Engineers	NA	NA	0 hrs
Dave	NA	NA	0 hrs
Mibash	NA	NA	0 hrs
Jan	NA	NA	0 hrs
Jack	NA	NA	0 hrs
Jessie	NA	NA	0 hrs
Kate	NA	NA	0 hrs
Lee	Wed 1/7/15	Fri 1/9/15	24 hrs
Purchase	NA	NA	0 hrs
Rob	NA	NA	0 hrs
Sid	NA	NA	0 hrs

In Resource status table which appears at the bottom, you will get a summary of resource's earliest start dates and latest finish dates as well as remaining work.



The screenshot shows the Microsoft Project Professional interface with the "Resource Overview" report selected. The top ribbon has tabs for FILE, TASK, RESOURCE, REPORT, PROJECT, and VIEW. The REPORT TOOLS tab is active, showing options like DESIGN, HIGHLIGHT, FILTER, GROUP BY, and DATA. The main area displays three charts: a bar chart for Resource State (Actual Work, Remaining Work, Baseline Work), a Gantt chart for Work Status (% Work Complete), and a table for Resource Status (Names, Start, Finish, Remaining Work). The table data is as follows:

Name	Start	Finish	Remaining Work
Calic	Mon 1/5/15	Tue 1/6/15	16 hrs
Engineers	NA	NA	0 hrs
Dave	NA	NA	0 hrs
Mibash	NA	NA	0 hrs
Jan	NA	NA	0 hrs
Jack	NA	NA	0 hrs
Jessie	NA	NA	0 hrs
Kate	NA	NA	0 hrs
Lee	Wed 1/7/15	Fri 1/9/15	24 hrs
Purchase	NA	NA	0 hrs
Rob	NA	NA	0 hrs
Sid	NA	NA	0 hrs



Check Project Statistics

Click Project Tab → Properties group → Project Information → in the new dialog box click Statistics...

Lab Task

You've been asked to build a software to support a low-cost video editing system. The system accepts videotape as input, stores the video on disk, and then allows the user to do a wide range of edits to the digitized video. The result can then be output to a tape.

Estimated duration 1 month

Staff required:

Project manager \$30/hr.

Emma (senior software engineer) \$20/hr.

Austin (junior developer) \$10/hr.

Harry (junior developer) \$10/hr.

Andrew (junior developer) \$10/hr.

Albert (senior graphic designer/ video editor) \$20/hr.

Frank (junior graphic designer/ video editor) \$10/hr.

Jane (Quality assurance engineer) \$10/hr.

Create complete project plan, build tasks, subtasks, create milestones, mention predecessors, write proper costing and duration. Also show your plan's cost.



Lab 11

Introduction: Get better hands on practice with MS Project

Problem Statement:

- Learn to divide a project proposal into tasks
- Learn to create summary tasks and their subsequent sub tasks.
- Learn how to manage resources
- Learn how to add costing

Online Learning Management System

You are a Project Manager in a renowned software company in Lahore. You have been asked to create an Online Learning Management System. The point of this project is to build up an online app that gives instructors and mentors the capacity to communicate easily with their Students. The project will bring about a framework with **dashboards, courses, attendance, grades, report cards, discussions, participation, tasks(quizzes/assignment/exams)**. The application will likewise permit guardians to remain associated with what their youngsters are doing in the university, to see their advancement, on schedule/late entries and so forth.

The application will have three panels:

- Admin
- Teacher
- Student
- Parent

Duration of this Project is 5 months starting from march 2021 till July 2021.

You have a team of software developers consisting of 2 junior developers lead by a senior developer.

There are 2 in house designers; Ahmad and Ali and a senior QA engineer Rabia.

Ali is on leave from 11th to 18th may.

Create a project plan for the Learning management system. Add task dependencies, milestones, resources and costs for each resource. Setup the calendar where required.



Lab 12

Introduction: Advanced Scheduling with MS Project 2013

Problem Statement:

- Learn about recurring tasks
- Learn how to view critical path
- Total float and free float



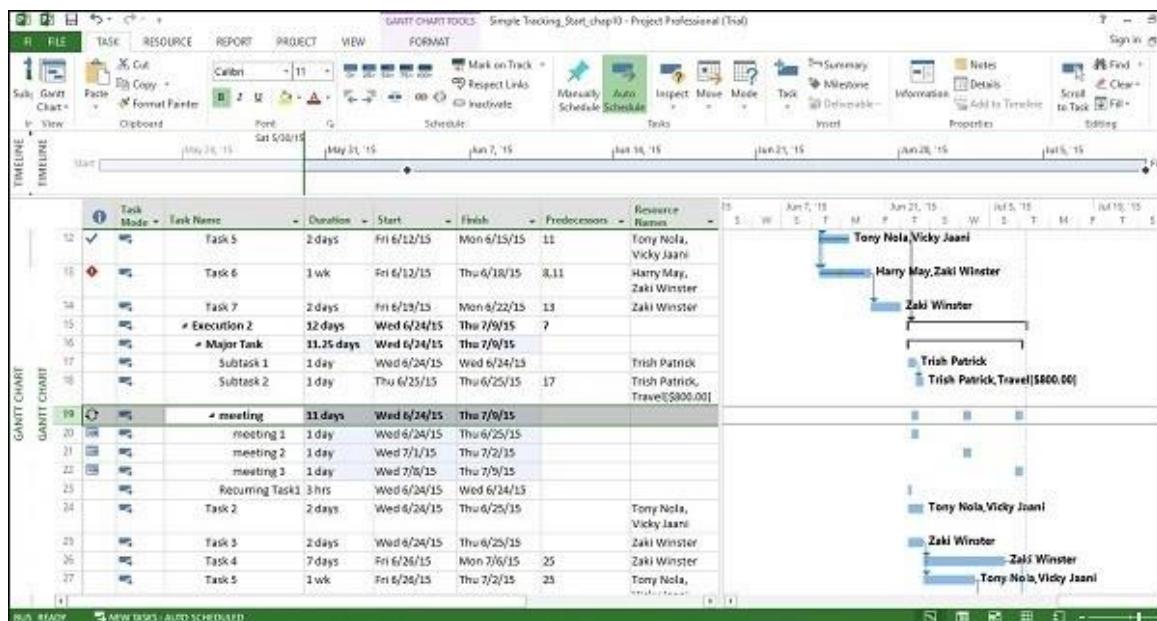
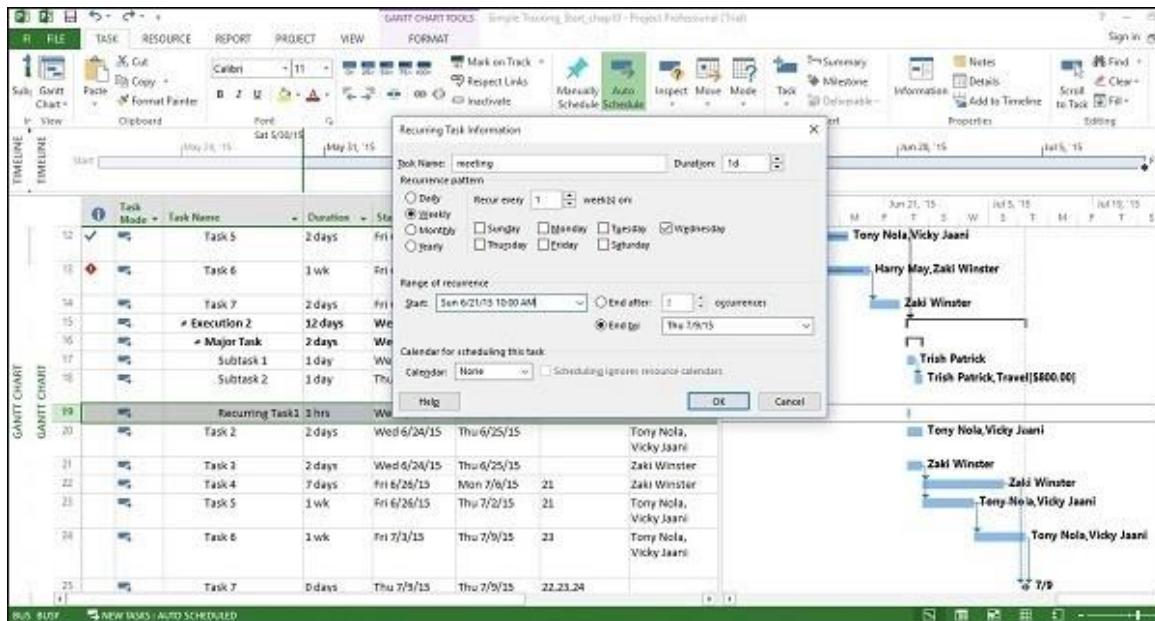
Enter a Recurring Task

Status meetings, status reports, inspection dates can recur with a particular frequency. In MS Project 2013, you can specify recurring tasks without having to assign tasks each time separately. You can also assign resources to these task.

In Gantt Chart View → Task Tab → Insert group → dropdown box for Task → Recurring Task.

Enter Task Name and choose Recurrence pattern.

You can also choose a specific time for the task to start as well. By default Project schedules a recurring task to start on plan's default start time. You can add time value in the Start box for Recurring Task Information dialog box to change this. In the following figure, start time of 10:00 AM is entered.



View Critical Path

Critical Path is the succession of connected tasks that will take the longest to complete. The word "critical" does not mean that the tasks are complex or important or need to be closely monitored, but the focus is on term schedule that will affect the project finish date.

- If you want to shorten the duration of a project, you should first start with activities/tasks on the



critical path.

- Critical path can be a single sequence of tasks (a single critical path) or there can be more than 1 critical paths for a single project.
- While schedule changes are made, it is also likely that the critical path will change from time to time.
- If a task in critical path is late, the project is late.

One needs to always focus on the Critical Path first, when one wants to apply fast-tracking or crashing to shorten the project duration.

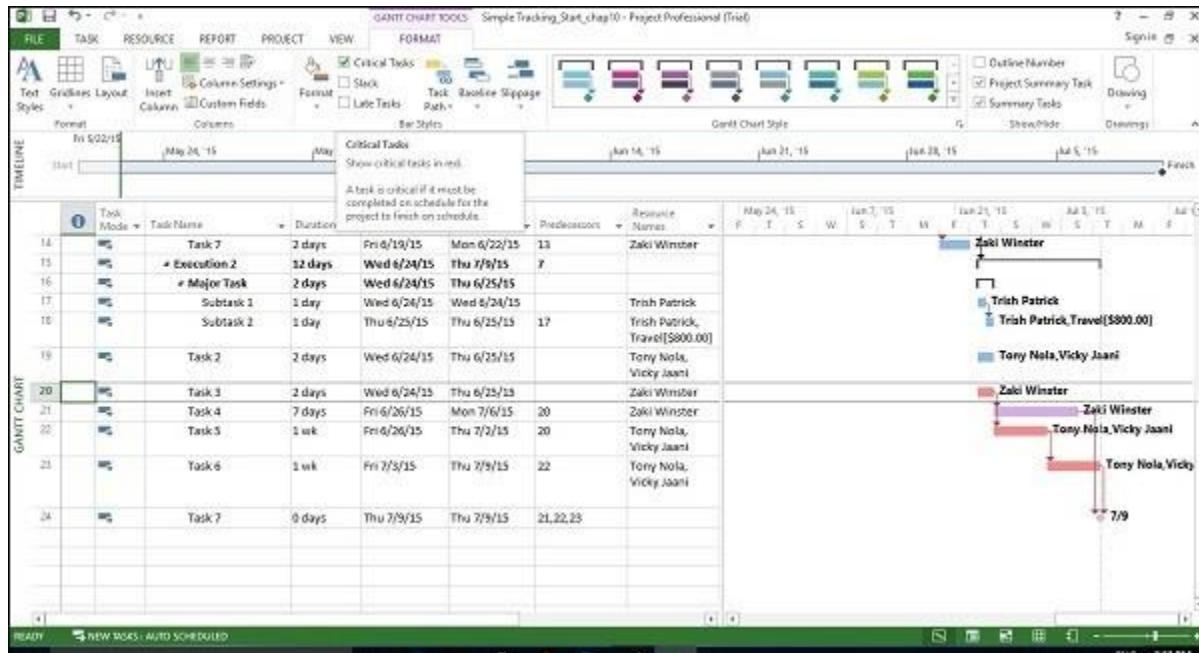
Slack or Float are key to understanding Critical path. There are two types of Float –

- **Free Float** – It is the amount of time a task can be delayed without delaying another task.
- **Total Float** – It is the amount of time a task can be delayed without delaying the completion of the project.

A task is on the critical path if its total float is less than or equal to a certain threshold—by default, if its float is zero days (you can adjust this threshold if you want). In contrast, noncritical tasks have float, meaning that they can start or finish earlier or later within their float time without affecting the completion date of the plan.

All task bars in the critical path, in the Gantt Chart View on the right, will turn Red in color.

In Gantt Chart view → Format Tab → Bar Styles Group → Check the Critical Tasks box ON.



Lab Task

- 1-Create a Recurring task for your FYP project plan.
- 2-Create columns for free slack and total slack. Identify the critical task in you FYP project plan.



Lab 14 & 15

Resource Over Allocation

Introduction: Advanced Scheduling with MS Project 2013

Problem Statement:

- Learn resource allocations
- Resolve resource over allocation



Check Resource Allocations

Relationship between a resource's capacity and task assignments is called allocation.

This can be defined by 3 states –

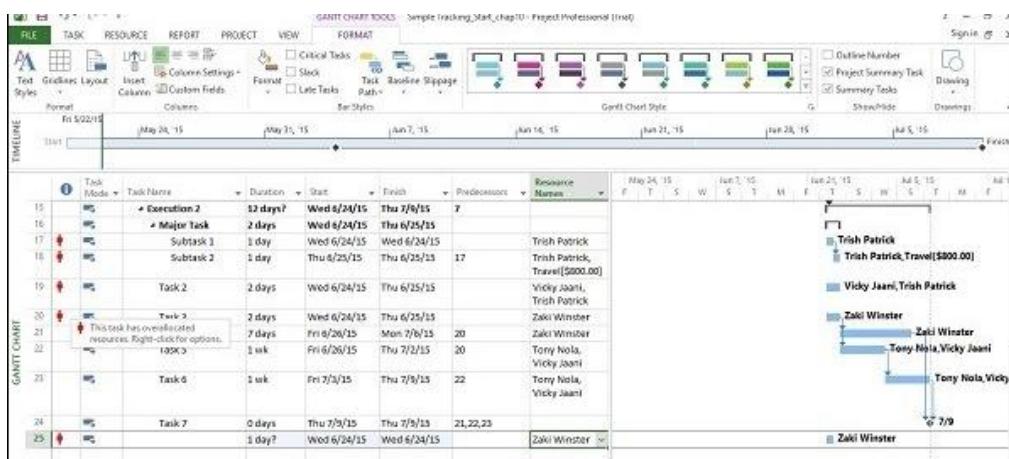
- Under allocated – An Engineer who works for 40 hours a week, has work assigned for only 20 hours.
- Fully allocated – A skilled worker who works for 40 hours a week, is assigned 40 hours of work in that week.
- Over allocated – A carpenter is assigned 65 hours of work, when he only has a 40 hour work week.

In Gantt Chart View

Click View Tab → Task Views group → Gantt Chart view.

Gantt Chart View displays some limited resource information, as shown in the following screenshot.

It summarizes whether there may be a problem by the red over allocated icon in the indicator column.





Click View Tab → Resource Views group → Resource Usage view.

The Resource Usage view displays resources and all tasks assigned to them underneath the ResourceName. The left-hand side of the screen lists the Resources and the TaskNames together with columns of total information for the resource or assignment. The right-hand side shows a time-phased view.

Resource Name	Work	May 24-'15										Jun 7-'15										Jun 21-'15														
		M	T	W	T	F	S	M	T	W	F	S	M	T	W	F	S	M	T	W	F	S	M	T	W	F	S	M	T	W	F	S				
Task 2	8hrs	Work																																		
Task 5	16 hrs	Work																																		
Task 5	40 hrs	Work																																		
Task 6	40 hrs	Work																																		
Trish Patrick	72 hrs	Work	8h	16h	16h																															
Task 2	40 hrs	Work	8h	16h	16h																															
Subtask 1	8 hrs	Work																																		
Subtask 2	8 hrs	Work																																		
Task 2	16 hrs	Work																																		
Travel		Work																																		
Subtask 2		Work																																		
Vicky Joani	112 hrs	Work																																		
Task 5	16 hrs	Work																																		
Task 2	16 hrs	Work																																		
Task 5	40 hrs	Work																																		
Task 6	40 hrs	Work																																		
Will Farmer	0 hrs	Work																																		
Zaki Waseem	256 hrs	Work	8h	16h	32h	16h	16h	24h	32h	16h	32h	16h	24h	8h	16h	32h	16h	24h	8h	16h	32h	16h	24h	8h	16h	32h	16h	24h	8h	16h	32h	16h	24h			
Task 4	80 hrs	Work	8h	16h	32h	16h	16h	24h	32h	16h	32h	16h	24h	8h	16h	32h	16h	24h	8h	16h	32h	16h	24h	8h	16h	32h	16h	24h	8h	16h	32h	16h	24h			
Task 4	40 hrs	Work																																		

You can also collapse the outline in the table to see total work per resource overtime.

Click on Resource Name column heading.

Click View Tab → Data group → Outline → Hide Subtasks.

Resource Name	Work	May 24-'15										Jun 7-'15										Jun 21-'15													
		M	T	W	T	F	S	M	T	W	F	S	M	T	W	F	S	M	T	W	F	S	M	T	W	F	S	M	T	W	F	S			
Printing	0 hrs	Work																																	
Rocky Waron	0 hrs	Work																																	
Shazia Sherreen	4 hrs	Work																																	
Tony Nola	184 hrs	Work																																	
Trish Patrick	72 hrs	Work																																	
Travel		Work																																	
Subtask 2		Work																																	
Vicky Joani	112 hrs	Work																																	



Resolve Resource Over Allocation

One would need to either change the scope (reduce the amount of work), assign more resources, or accept a longer schedule to resolve over allocation.

This can be achieved by using some of the following techniques –

Adjust Schedule

By changing its lead or lag time when the resource has more tasks assigned than can be completed during a given time period. If you add delay that is less than or equal to the amount of slack on the task, you will not affect the finish date of the project.

By default when you link tasks, they are assigned a “Finish to Start” relationship. In this relationship,

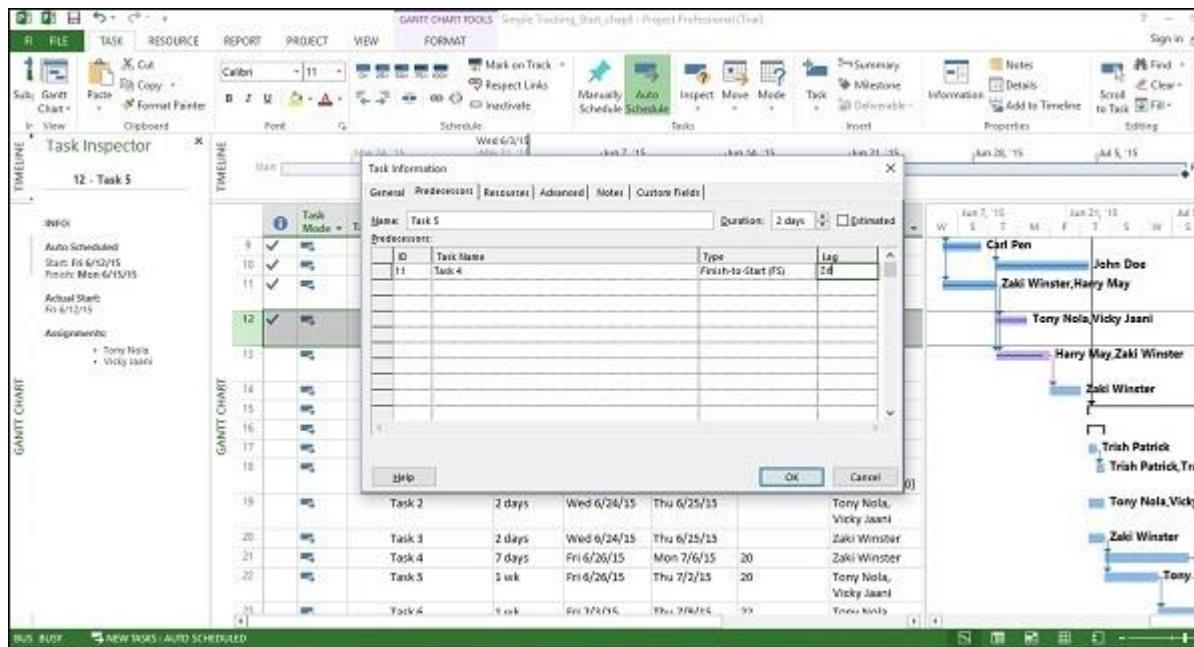
- **Lead** – Lead time causes successor task to begin before its predecessor tasks ends.
- **Lag** – Lag time causes successor task to start after its predecessor task ends.

Click Task Tab → double-click the required Task under Task Name column → Task Information dialog box opens → Predecessors Tab.

Under Lag heading column, enter the lag in terms of hours, days, weeks, or years.

You can also apply lag or lead as a percentage. If you enter 50% for the selected Task which is 6 days long, the task is delayed by 3 days after the predecessor ends.

Lag is entered as positive units and lead in negative units (example, -3d or -50%).





Substitute Resources or Add Additional Resources

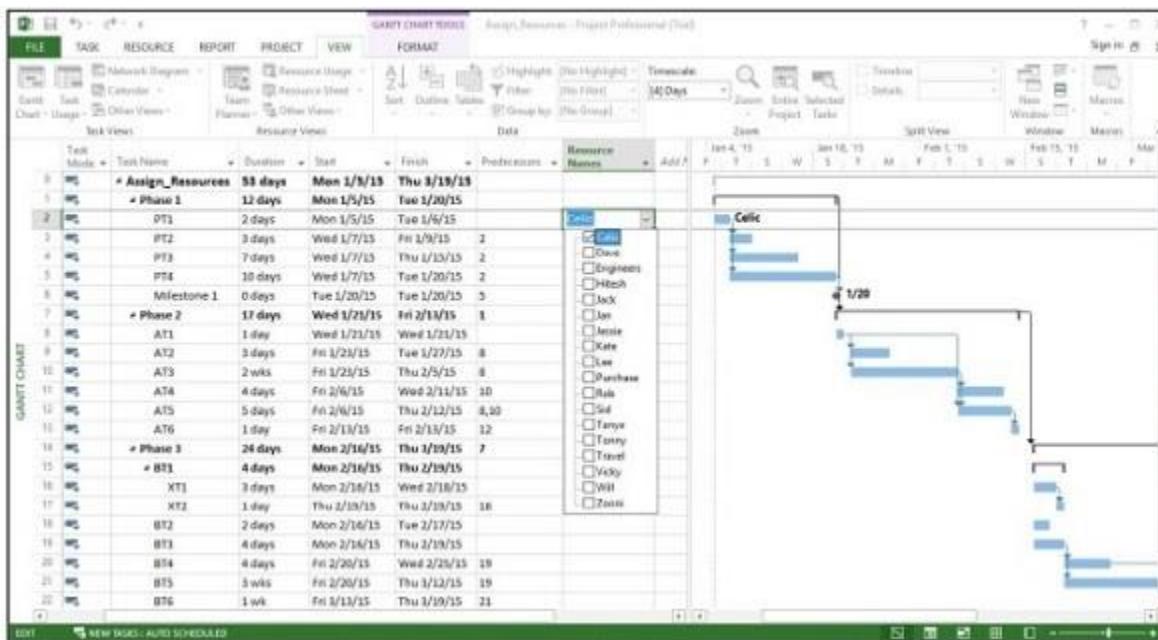
You can manually allot some other resource to the task.

Click View Tab → Gantt Chart View → Resource Name column.

Click the box below the Resource Name column for the task you need the resource to be assigned.

From the dropdown, choose the resource name. In the following example, for Task 1 "PT1", we have chosen the resource "Celic".

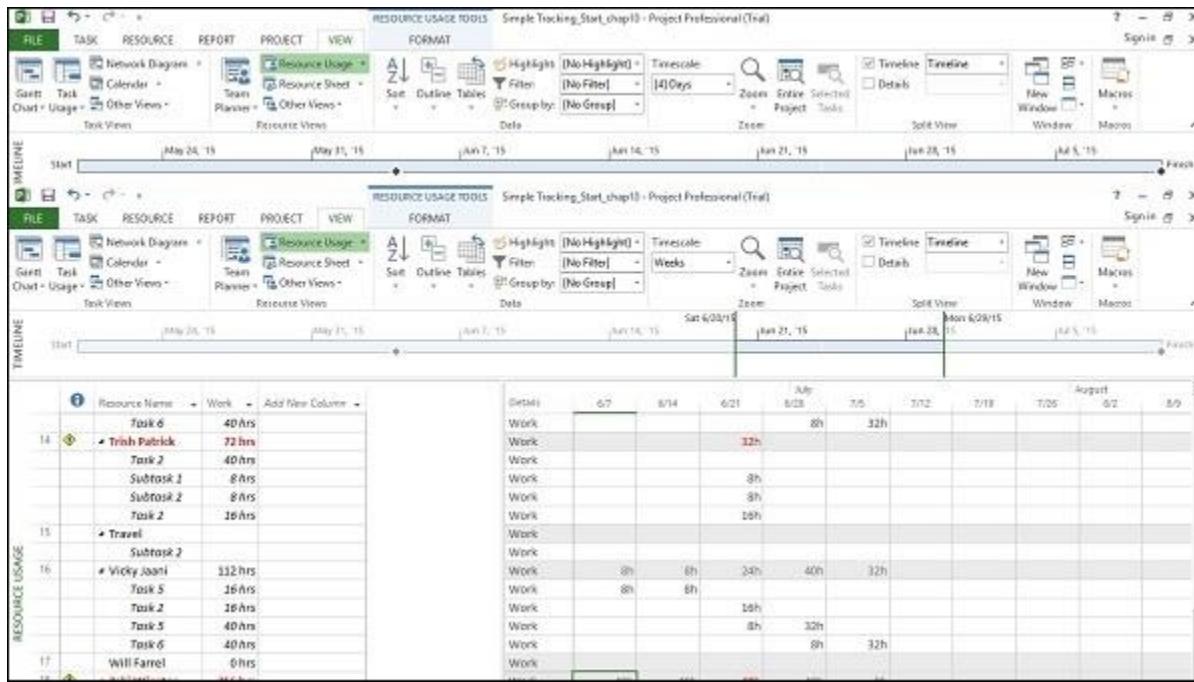
You can also select multiple resources to work on a single task.



Reduce Assigned Work

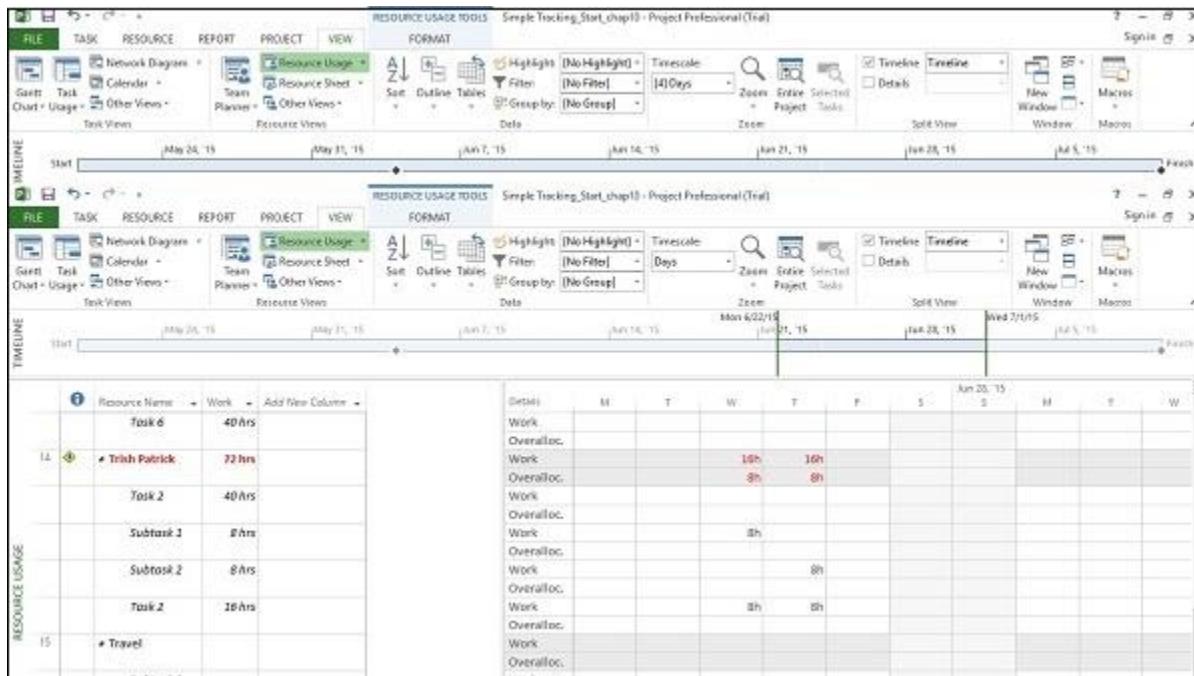
Click View Tab → Resource Views group → Resource Usage view.

In the following example, Trish Patrick is over allocated, the Resource Name and Work appear in red.



On View tab → Zoom group → Timescale box → Days.

You can also right-click on the Time-phased grid in the right hand side window to display amount of overallocation by switching on overallocation.



Now you can reduce the assigned hours. In the following example, 8-hour assignment is reduced to 4-hour assignments. Not only is Trish Patrick's work reduced but total work in the plan has changed. You will also notice a new icon in the indicator column to let you know that the assignment work has been edited.



The screenshot displays two side-by-side Microsoft Project windows. Both windows show the 'Resource Usage' view for a project named 'Simple Tracking_Start_chap10'. The top window shows a timeline from May 24, '15 to July 8, '15, with tasks assigned to a resource named 'Trish Patrick'. The bottom window shows a similar timeline, but the tasks have been modified to reduce their duration. The resource usage grid shows work hours being reduced from 40 hrs to 8 hrs for certain tasks.

Task ID	Resource Name	Work
14	* Trish Patrick	56 hrs
	Task 2	40 hrs
15	Subtask 2	4 hrs
15	Subtask 2	4 hrs
15	Task 2	8 hrs
	* Travel	

Decrease Task Duration

You can decrease task duration (if no actual work has been entered) to reduce the amount of work required of the resource, who is assigned to complete the task. If actual work has been recorded, you must manually reduce the remaining work on the task.

Remove Over Allocated Resource

You can just remove a resource assignment from an overallocated resource.



Lab 16 & 17

Task Constraints

Introduction: Advanced Scheduling with MS Project 2013

Problem Statement:

- What is meant by task constraints
- Apply different tasks constraints and what is meant by each



Lead and Lag

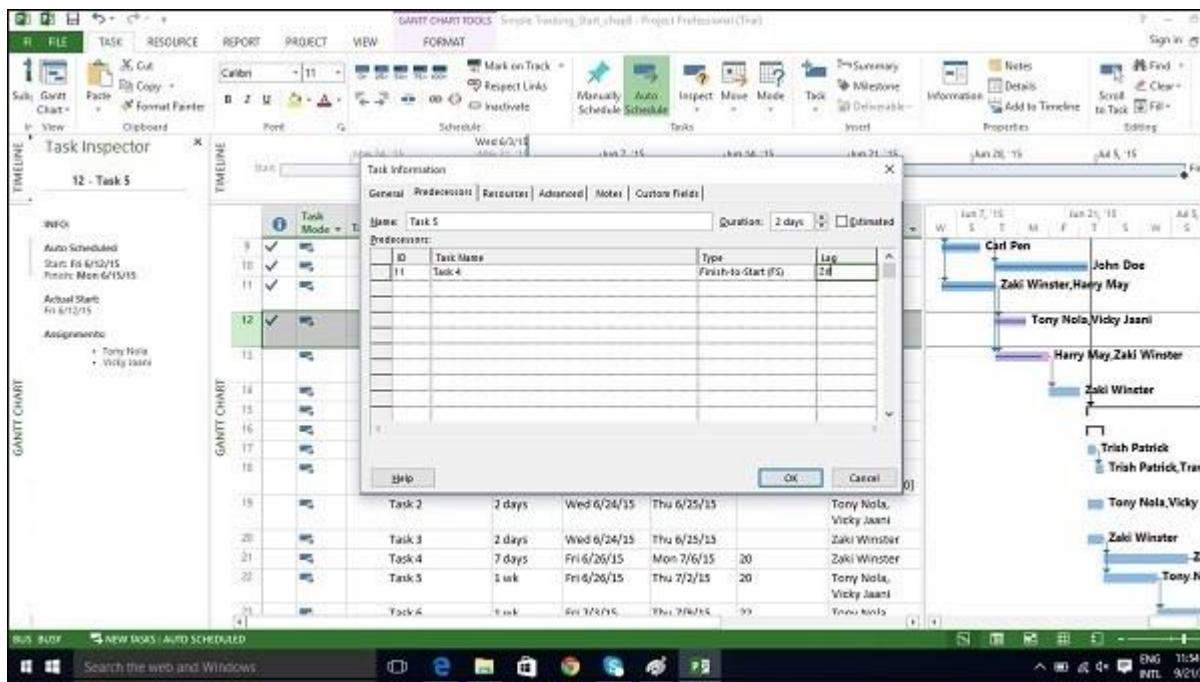
By default when you link tasks they are assigned a “Finish to Start” relationship. In this relationship,

- Lead – Lead time causes successor task to begin before its predecessor task ends.
- Lag – Lag time causes successor task to start after its predecessor task ends.

Click Task Tab → double-click the required Task under Task Name column → Task Information dialog box opens → Predecessors Tab.

Under Lag heading column, enter the lag in terms of hours, days, weeks, or years. You can also apply lag or lead as a percentage. If you enter 50% for the selected Task which is 6 days long, the task is delayed by 3 days after the predecessor ends.

Lag is entered as positive units and lead in negative units (example, -3d or -50%).



Apply Task Constraints

- In MS Project 2013 by default each task is constrained as “As Soon As Possible” when Automatic Scheduling is turned ON.
- As Soon As Possible means the task starts as soon as the project starts, if there are no dependencies that would delay it.
- No fixed start or end dates are imposed by this constraint type, but of course predecessor and successor dependencies are maintained.

When MS Project 2013 performs calculations to save you time in a project that's running late, constraint settings are enforced.

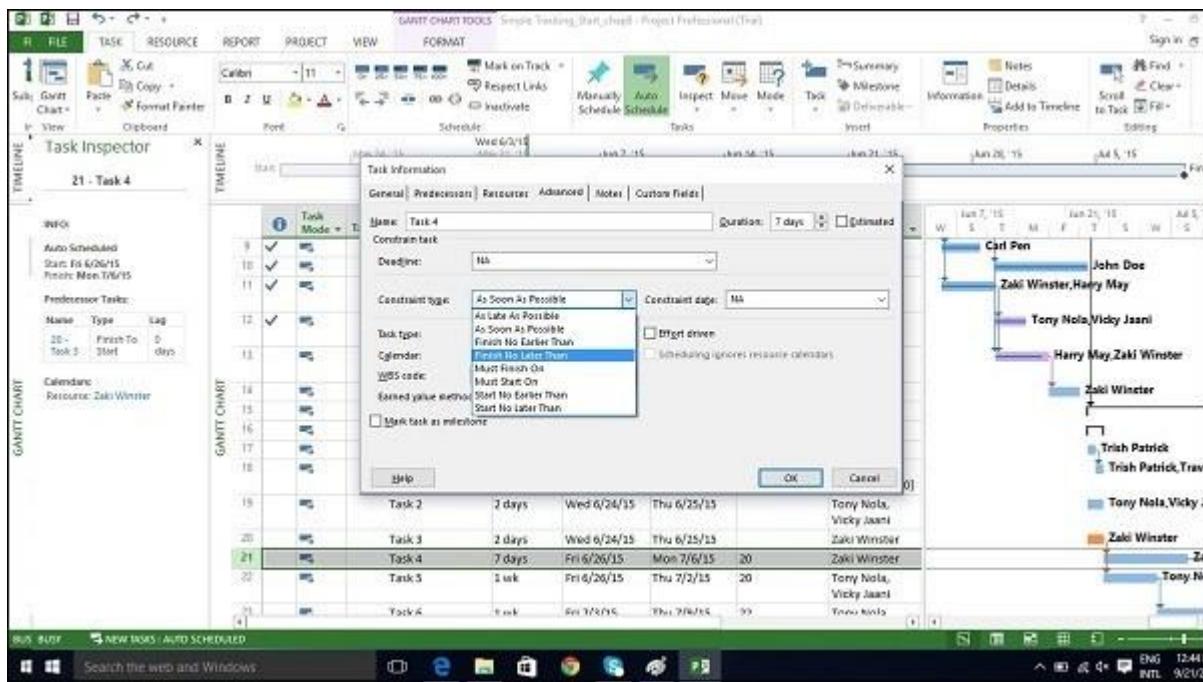
There are 8 Task Constraints.



Constraint type	Constraint name	Description
Flexible	As Late As Possible (ALAP)	Task is scheduled as late as possible with the task ending before the project ends and without delaying subsequent tasks. Default constraint when you schedule from the project finish date. Do not enter a task start or finish date with this constraint.
	As Soon As Possible (ASAP)	Task is scheduled to begin as early as possible. Default constraint when you schedule from the project start date. Do not enter a start or finish date with this constraint.
Semi-Flexible	Start No Earlier Than (SNET)	Task is scheduled to start on or after a specified date.
	Finish No Earlier Than (FNET)	Task is scheduled to finish on or after a specified date.
	Start No Later Than (SNLT)	Task is scheduled to start on or before a specified date.
	Finish No Later Than (FNLT)	Task is scheduled to finish on or before a specified date.
Inflexible	Must Finish On (MFO)	Task is scheduled to finish on a specified date.
	Must Start On (MSO)	Task is scheduled to start on a specified date.

Click Task Tab → double-click the required Task under Task Name column → Task Information dialog box opens → Advanced Tab.

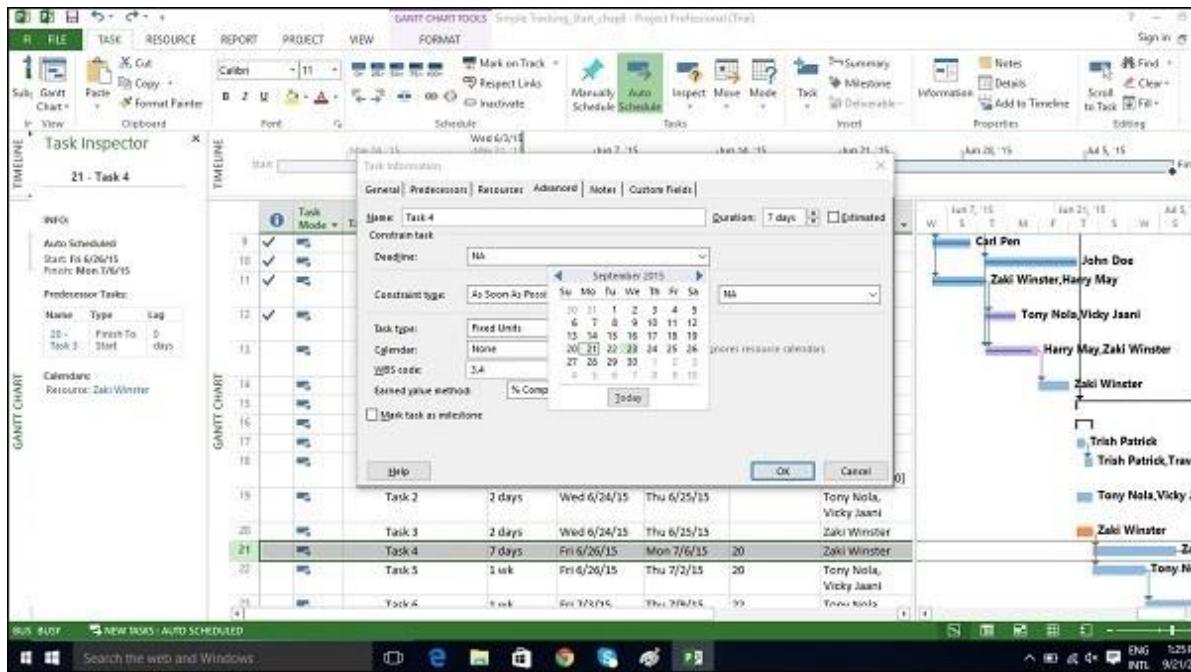
Click dropdown box for Constraint type. Choose the constraint you would like to apply



Enter Deadline Date

If you use Tasks Constraints, you limit your scheduling flexibility, where MS Project 2013 will fix a particular start or finish date of the task according to the constraint. It is a better idea to use a Deadline Date which has no effect on the scheduling of a task or summary task. MS Project will alert you with a red exclamation symbol in the indicators column, if the scheduled completion of the task exceeds its deadline date.

Click Task Tab → double-click the required Task under Task Name column → Task Information dialog box opens → Advanced Tab.



Lab Task 15

- Create additional columns for “free slack, total slack, Early start, Early finish, late start and late finish” for your FYP Task list
- Create critical path
- Apply all 8 task constraints to your FYP task list



Lab 18

Resource Over Allocation

Introduction: Advanced Scheduling with MS Project 2013

Problem Statement:

- Learn resource allocations
- Resolve resource over allocation

Lab Task

Open the “Lab 16 practice task.mpp” file and check the resource allocations. See if there is any resource over allocations. Apply the steps learnt in lab 14 to resolve resource over allocation.



Lab 19& 18

Levelling

Introduction: Level Over Allocated Resources

Problem Statement:

- Learn what is meant by leveling
- Learn to set priorities
- Learn to level over allocated resource
- Check plan's cost



Level Over Allocated Resources

If resources are over allocated you can use resource-leveling feature in MS Project 2013. It works by either splitting tasks or by adding delay to tasks to ensure the resource is not overloaded. Leveling can delay the individual task finish dates and even the project finish date.

Project first delays tasks to use up any available slack. Once the slack becomes zero, MS Project 2013 makes changes according to priorities, dependency relationships and task constraints (such as a Finish No Later Than constraint).

Set Priorities

It is always better to set task priorities (this is a measure of a task's importance/availability for leveling). You can enter value between 1 and 1000, according to the amount of control you like in the leveling process. A priority level of 1000 will ensure MS Project does not level a particular task. By default, priority is set at 500 or a medium level of control. Tasks that have lower priority are delayed or split before those that have higher priority.



COMSATS University Islamabad, Lahore Campus

Click View Tab → Task Views → Gantt chart View.

In the Gantt chart table area, scroll to the right to see Add New Column.

Click on the dropdown box and select Priority.

The screenshot shows two Microsoft Project windows side-by-side. Both windows have the title bar "RESOURCE USAGE TOOLS: Simple Tracking_Start_chap10 - Project Professional (Trial)". The left window is in "Task Views" mode, and the right window is in "Gantt Chart Tools" mode. In the right window, the "Add New Column" dropdown menu is open, showing options like "Priority". A tooltip indicates that typing into the column will automatically create a new column. The Gantt chart displays tasks from May 24 to July 5, 2015, with various resources assigned to each task.

Now you can add priority to each task as required.

The screenshot shows the Microsoft Project interface after adding the "Priority" column. The "GANTT CHART" tab is selected. The table now includes a "Priority" column. The Gantt chart displays tasks from May 24 to August 2, 2015, with resource assignments and priority levels. The "Priority" column contains values such as 1, 2, 3, 4, 5, etc., indicating the relative importance of each task.



Levelling

Steps in the Leveling process are only a few, but it is important to understand what each option does. The steps are as follows –

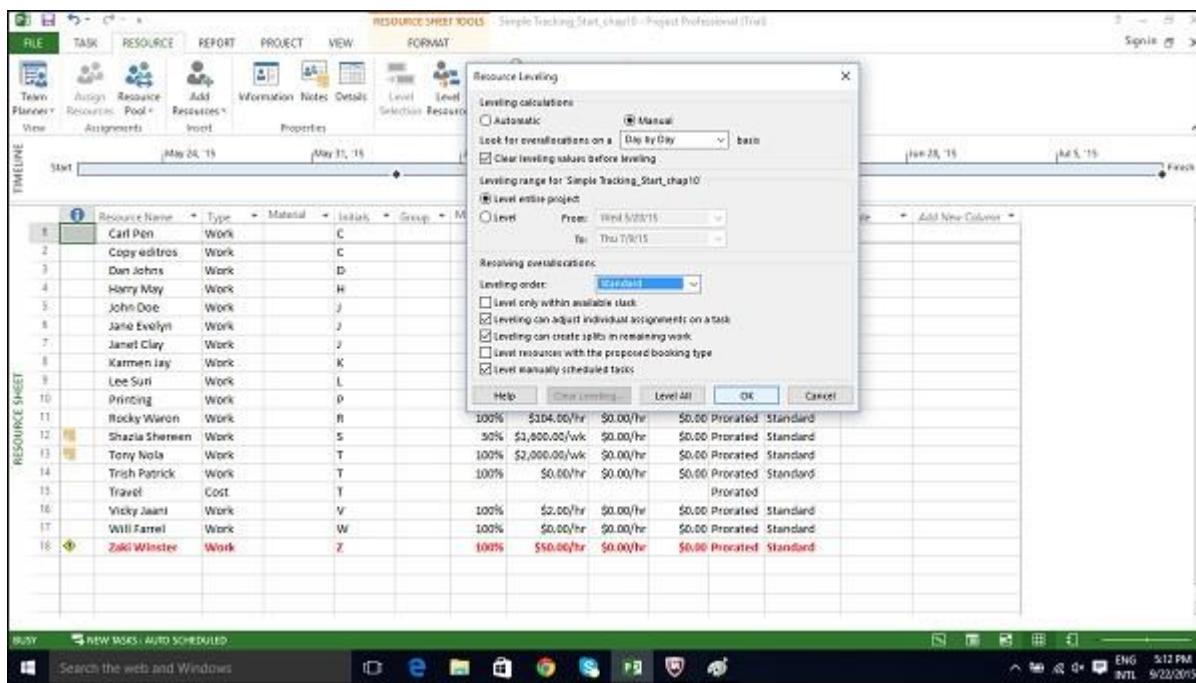
Click on View Tab → Resource View group → Resource Sheet.

Click Resource tab → Level group → Leveling Options → Level All.

Project does leveling and over allocated indicators are removed (If leveling is done completely, sometimes this might not happen).

In the following section, we will look at Leveling Options in detail –

Click Resource tab → Level group → Leveling Options.





Step 1: In Resource Leveling dialog box, under Level calculations, try to use Manual more often. This will ensure MS Project 2013 does the leveling process only when you ask it to, and not as soon as a resource becomes over allocated even if you don't want it to (when you choose Automatic option). For examples, if a resource is over allocated, for say half an hour more in a week, from 40 hours to

40.5 hours, you wouldn't want this to inconvenience you by getting automatically leveled.

Step 2: In Resource Leveling dialog box, under Level calculations, choose Day by Day basis for "Look for over allocations on a" option. Doing so will not level resources, but it will determine when Project displays over allocation indicators next to resourcenames.

Step 3: In Resource Leveling dialog box, under Level calculations, use the clear leveling values before leveling checkbox is selected. Doing so will ensure Project removes any existing leveling delays from all tasks and assignments before leveling. And if you previously leveled the plan and then added more assignments, you might want checkbox to be unchecked to ensure you don't lose the previous leveling results.

Step 4: In Resource Leveling dialog box, under **Leveling range for "....."**, you can choose **Level entire project**. Here you choose to level either the entire plan or only assignments that fall within a date range you specify.

Step5: In Resource Leveling dialog box, under Resolving over allocations, **leveling order** dropdown box you can choose Standard. You have 3 options here –

- **ID only** option delays tasks only according to their ID numbers. *Numerically higher ID numbers (for example, 10) will be delayed before numerically lower ID numbers. You might want to use this option when your plan has no task relationships or constraints.*
- **Standard option** delays tasks according to *predecessor relationships, start dates, task constraints, slack, priority, and IDs.*
- **Priority, standard option** looks at the task priority value before the other standard criteria (Task priority is a numeric ranking between 0 and 1000).

Step6: In Resource Leveling dialog box, under Resolving over allocations, you have several options that you can select. These are explained as follows –

- **Level only within available slack.** Selecting this checkbox would prevent Project from extending the plan's finish date. MS Project will use only the free slack within the existing schedule, which could mean that resource over allocations might not be fully resolved.
- **Leveling can adjust individual assignments.** Selecting this checkbox allows Project to add a leveling delay (or split work on assignments if Leveling Can Create Splits in Remaining Work is also selected) independently of any other resources assigned to the same task. This might cause resources to start and finish work on a task at different times.
- **Leveling can create splits in remaining work checkbox.** This allows Project to split work on a task (or on an assignment if Leveling Can Adjust Individual Assignments on a Task is also selected) as a way of resolving over allocation.



- **Level manually scheduled tasks.** Selecting this allows Project to level a manually scheduled task just as it would an automatically scheduled task

Lab 20 & 22

Introduction: Learn how to track progress by saving baselines

Problem Statement:

- Learn what is a baseline
- Learn how to set a baseline-table
- Learn how to set a baseline
- Learn what is interim plan



MS Project - Track Progress

Once your project plan is ready in MS Project, it becomes essential for a project manager to measure the actuals (in terms of work completed, resources used and costs incurred) and to revise and change information about tasks and resources due to any changes to the plans.

Save a Baseline

To evaluate project performance, you need to create a baseline against which you will compare the progress. One needs to save the baseline, once a plan is fully developed. Of course, one can always add new tasks, resources, constraints and costs to the plan.

Also note, it makes sense to save the baseline before entering any actual values such as percentage of task completion.

Note – With MS Project 2013, you can save up to 11 Baselines in a Single plan. These multiple baselines seem contrary to the definition of baseline. You can use this flexibility when –

- You have a baseline plan for the external customer and another for the internal team.
- You are preparing for a risk event. You want to develop separate baseline plans for risk response and recovery.
- You are accommodating a big change request; you might still want to keep the original plan for future reference when communicating with a stakeholder.

Create a Baseline table

Click View → table → more tables → baseline→ OK.

Note: Now all the table entries are zero as no baseline is set yet.



Create a Baseline

Click Project Tab → Schedule group → Set Baseline → OK.

The screenshot shows the Microsoft Project Professional interface. The ribbon tabs are visible at the top, with 'PROJECT' selected. In the center, there's a 'Resource Overview' chart. On the right, a 'Gantt Chart Tools' tab is active, showing a timeline from May 24, 2015, to July 10, 2015. A 'Set Baseline' dialog box is open over the Gantt chart. The dialog has several options: 'Baseline' (selected), 'Selected tasks', 'Entire project' (selected), and 'Selected tasks'. There are also checkboxes for 'Roll up baseline' and 'From subtasks into selected summary task(s)'. At the bottom of the dialog are 'OK' and 'Cancel' buttons. The main Gantt chart area shows a project structure with tasks like 'Simple Tracking_Start_chap1', 'Planning Phase', 'Execution', etc., each with its duration and start date.

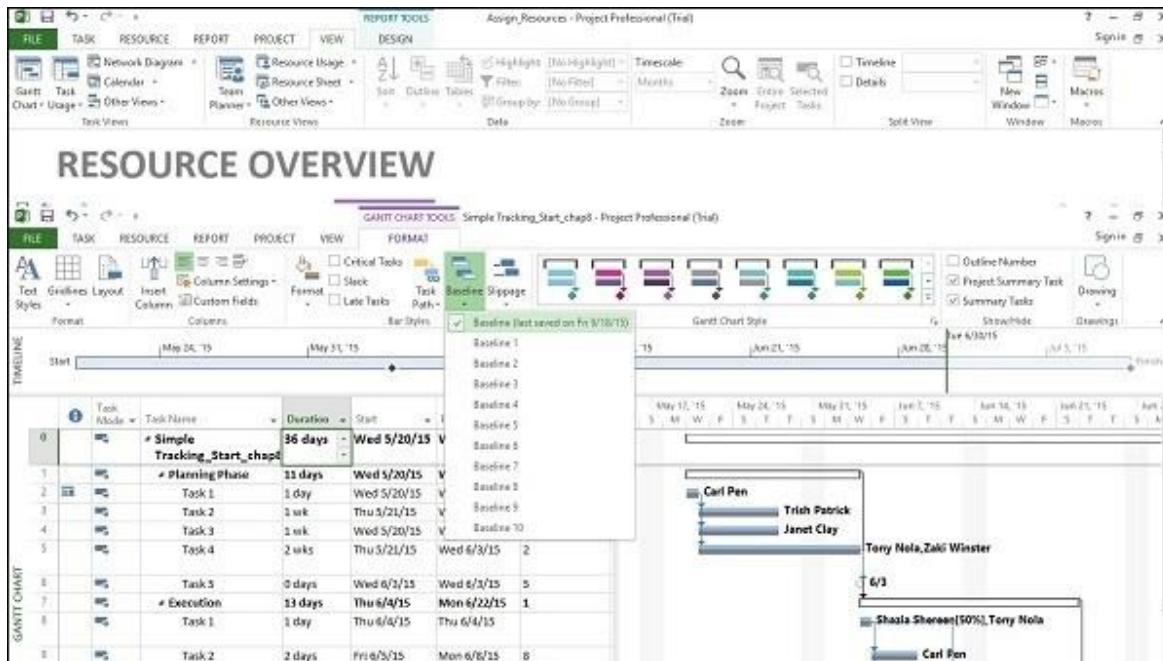


View Baseline on Gantt Chart

Click View Tab → Task Views group → Gantt Chart.

Click Format Tab → Bars and Styles group → Baseline (that you want to display).

You will see Baseline Gantt bars displayed together with the current Gantt bars.



Update a Baseline

As time and work progresses on a project, you might need to change the baseline as well. You have several options for the same –

- Update the baseline.
- Update the baseline for selected tasks. Save
- multiple baselines.



Update the Baseline for the Entire Project

This simply replaces the original baseline values with the currently scheduled values.

Click Project Tab → Schedule group → Set Baseline → OK.

Update the Baseline for Selected Tasks

This does not affect the baseline values for other tasks or resource baseline values in the plan.

Click Project Tab → Schedule group → Set Baseline → For select Selected tasks → OK.

Save Multiple Baselines

You can save up to 11 baselines in a single plan. The first one is called Baseline, and the rest are Baseline 1 through Baseline 10.

Click Project Tab → Schedule group → Set Baseline → click the dropdown box to save any baseline you like.

Click OK.

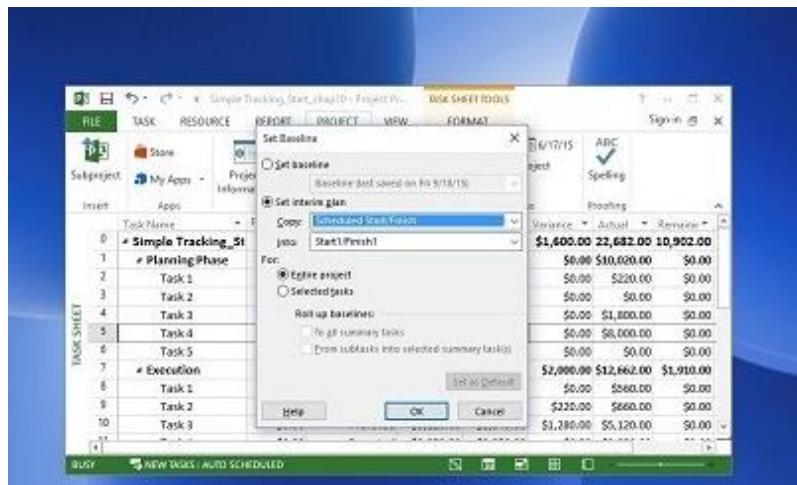
The screenshot shows a Microsoft Project Professional window with a task list. A 'Set Baseline' dialog box is open over the task list. The dialog has a dropdown menu with the following options: 'Baseline (first saved on Fri 9/18/15)', 'Baseline 1', 'Baseline 2', 'Baseline 3', 'Baseline 4', 'Baseline 5', 'Baseline 6', 'Baseline 7', 'Baseline 8', 'Baseline 9', and 'Baseline 10'. The 'Baseline (first saved on Fri 9/18/15)' option is highlighted with a blue selection bar. At the bottom of the dialog are 'OK' and 'Cancel' buttons.



Interim Plans

An interim plan saves only two kinds of information for each task – Current start dates and Current finish dates. It can be used as a project marker. It is visually easy to see how off-track or on-track the project progress is. Because it only specifies dates, it is simple, clear and easy information.

Click Project Tab → Schedule group → Set Baseline → Set interim plan → OK.



Lab task

Save a base line for your FYP project plan. After doing changes in durations save another baseline and explore the differences.



Lab 23 & 24

Task Slippage

Introduction: Advanced Scheduling with MS Project 2013

Problem Statement:

- Learn what is task slippage
- How to view tasks with variance?



After creating a project plan and baselines, the project begins. At this stage, the project manager would be focusing on collecting, monitoring, analyzing project performance, and updating project status by communicating with the stakeholders.

When there is a difference between what is planned and the actual project performance, it is called a **Variance**. Variance is mostly measured in terms of Time and Cost.

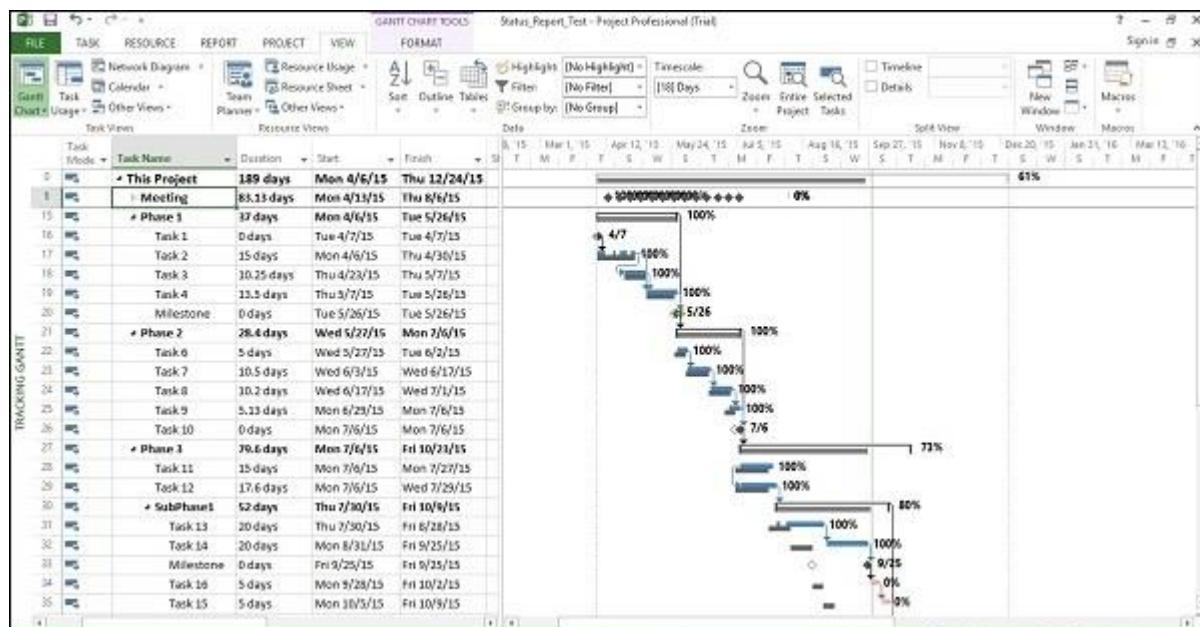
Task Slippage

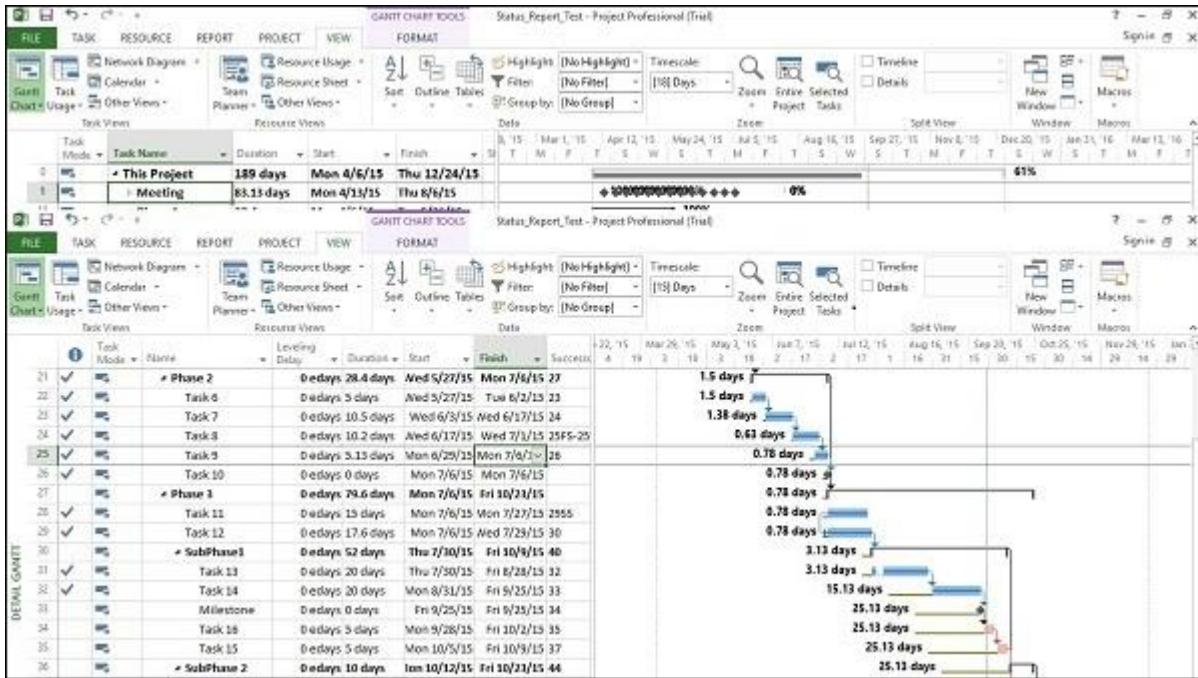
There are several ways to view task with variance.

Method 1: Graphical View by Tracking Gantt

Click View tab → Task Views group → Gantt Chart dropdown → Tracking Gantt.

By comparing the currently scheduled Gantt bars with baseline Gantt bars, you can see what tasks started later than planned or took longer to complete.





Method 3: Variance Table

Click View tab → Data group → Tables → Variance.

Method 4: Filters

Click View tab → Data group → Filters → More
Filters → choose filter as Late tasks, Slipping task, etc.

MS Project 2013 will filter the task list to show only the tasks filtered in this process. So if you select Slipping Task, you will view only incomplete tasks. Any task that is already completed will not show up.

Lab Task

Opening gantt of .mpp file. Explore how changes effect the slippage of the successor





Lab 25

Introduction: Advanced Scheduling with MS Project 2013

Problem Statement:

- Learn about task costs
- Learn about resource costs
- Learn about project reports

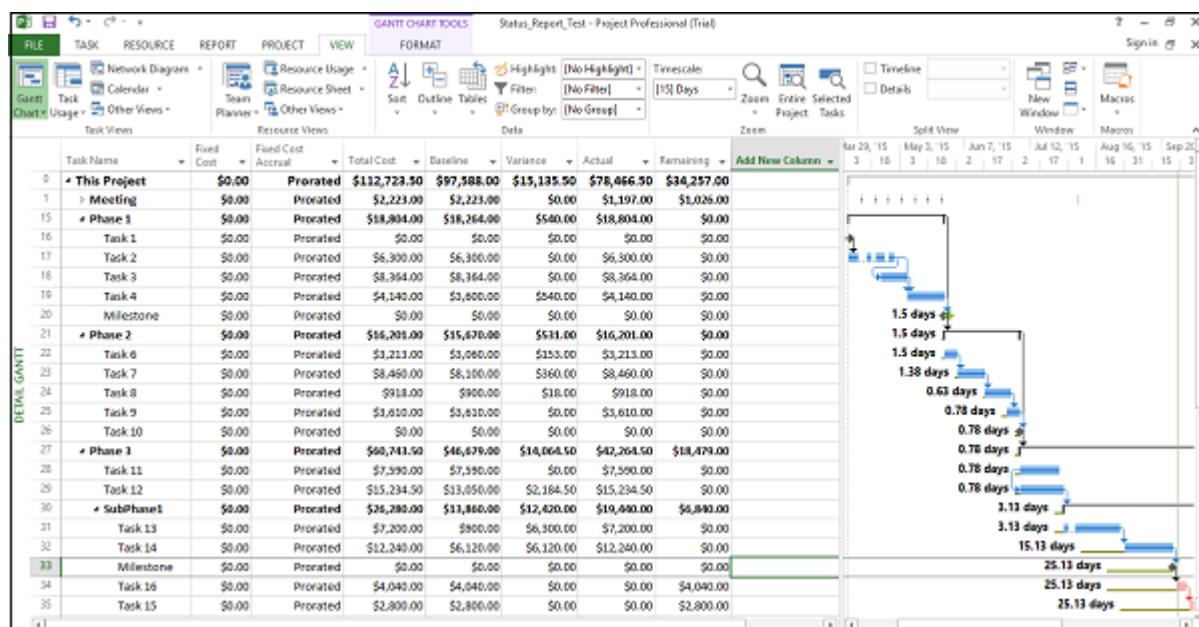


Task Costs

To examine cost in a project life cycle, you should be aware of these terms and what they mean in MS Project 2013 –

- **Baseline costs** – All planned costs as saved in baseline plan.
- **Actual costs** – Costs that have been incurred for tasks, resources, or assignments.
- **Remaining costs** – Difference between baseline/current costs and actual costs.
- **Current costs** – When plans are changed due to assigning or removing resources, or adding or subtracting tasks, MS Project 2013 will recalculate all costs. This will appear under the fields labeled Cost or Total Cost. If you have started to track actual cost, it will include actual cost+ remaining cost (uncompleted task) per task.
- **Variance** – Difference between Baseline Cost and the Total Cost (current or scheduled cost).

Click View Tab → Data group → Tables → Cost.



You will be able to view all relevant information. You can also use filters to see tasks that have run over budget.

Click View tab → Data group → Filters → More Filters → Cost Overbudget → Apply.



Resource Cost

For some organizations, resources costs are primary costs, and sometimes the only cost, so these need to be closely watched.

Click View tab → Resource Views group → Resource Sheet.

Click View tab → Data group → Tables → Cost.

We can sort the Cost column to see which resources are the most and least costly.

Click the AutoFilter arrow in Cost column heading, when the drop-down menu appears, click on Sort Largest to Smallest.

You can use the AutoFilter feature for each of the columns, By sorting Variance column, you will be able to see the variance pattern.

Resource Name	Cost	Baseline	Variance	Actual Cost	Remaining	Add New Column
3 Engineer	\$20,718.00	\$13,500.00	\$7,218.00	\$20,718.00	\$0.00	
5 Hero Marcus	\$25,432.25	\$22,066.25	\$3,366.00	\$18,654.75	\$8,777.50	
4 Danny Jansen	\$11,740.25	\$8,644.75	\$3,095.50	\$9,399.75	\$2,340.50	
8 Lo Santiago	\$15,456.00	\$14,000.00	\$1,456.00	\$9,854.00	\$5,600.00	
1 Carl Pen	\$11,182.50	\$11,182.50	\$0.00	\$8,767.50	\$2,415.00	
2 Services	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
6 Johnny Danner	\$18,848.50	\$18,848.50	\$0.00	\$11,778.50	\$6,072.00	
7 Jackie Chan	\$546.00	\$546.00	\$0.00	\$234.00	\$252.00	
9 Technical Writer	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
10 Trump Olson	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
11 Travel	\$3,500.00	\$3,500.00	\$0.00	\$0.00	\$3,500.00	
12 Miscellaneous	\$300.00	\$300.00	\$0.00	\$0.00	\$300.00	

Project Report

Project 2013 comes with a set of predefined reports and dashboards. You'll find all of these on the Report tab. You can create and customize graphical reports for your project as well.

Dashboard Reports

Click Report → View Reports group → Dashboards.

Resource Reports

Click Report → View Reports group → Resources.



Cost Reports

Click Report → View Reports group → Costs.

Progress Reports

Click Report → View Reports group → In Progress.

Custom Reports

Click Report → View Reports group → New Report.

There are four options.

- **Blank** – Creates a blank canvas. Use the Report Tools - Design tab to add charts, tables, text, and images.
- **Chart** – Creates a chart comparing Actual Work, Remaining Work, and Work by default. Use the Field List pane to pick different fields to compare. The look of the chart can be changed by clicking on Chart Tools tabs, Design, and Layout tabs.
- **Table** – Creates a table. Use the Field List pane to choose what fields to display in the table (Name, Start, Finish, and % Complete appear by default). Outline level box lets you select how many levels in the project outline the table should show. The look of the table can be changed by clicking on Table Tools tabs, Design, and Layout tabs.
- **Comparison** – Creates two charts side-by-side. Charts will have the same data at first. You can click one of the charts and pick the data you want in the Field List pane to begin differentiating them.



Lab 26 & 27

Network Diagram

Introduction: Advanced Scheduling with MS Project 2013

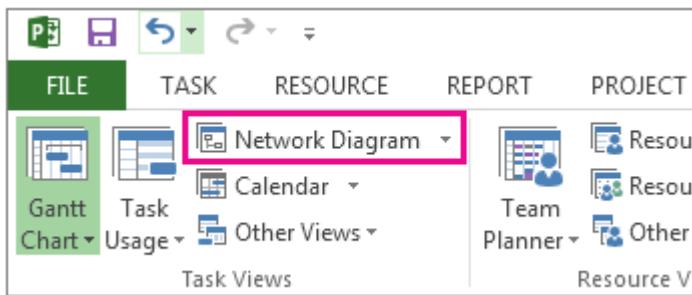
Problem Statement:

- Creating Network diagram from the scratch
- How to represent non critical tasks, critical tasks, summary tasks, milestones.
- How to add predecessor, resources, indentations



Network Diagram

To find the Network diagram view, choose **View > Network Diagram**.



Add a legend

Choose **File > Print > Page Setup**.

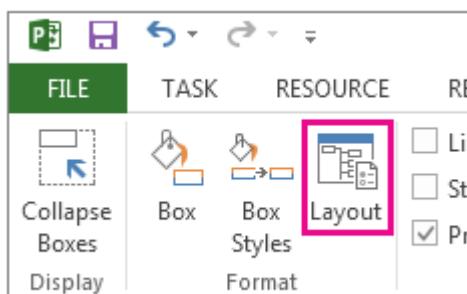
On the Legend tab, decide how you want your legend to look, which pages it should show up on, and then labels you want.

Choose OK.

Automatically change the way the boxes are laid out

Choose **View > Network Diagram**.

Choose **Format > Layout**.



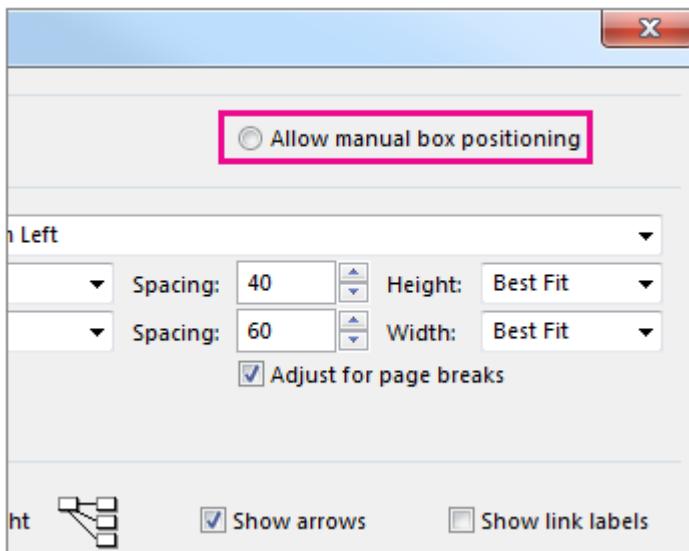
Under Box Layout, choose the box arrangement, alignment, spacing, height, and width that work best for you. To space boxes evenly, select Fixed in the Height and Width boxes.

Keep in mind that grouped tasks are positioned automatically. You'll need to undo grouping if you want to change them.



Manually change the way boxes are laid out

If you've gotten this far and still don't like how your boxes are positioned, click **Format > Layout**, select **Allow manual box positioning**, choose **OK**, and then drag the boxes to the spot you want.



If you manually reposition a task, you can change the layout of any linked tasks or subtasks associated with it by right-clicking on the task and choosing **Layout Related Tasks Now**.

Change the line style between boxes

If you have a lot of tasks that you've linked to predecessor or successor tasks, the links between boxes can be really hard to follow. Try changing the line style, and then arranging them in way that's easier to see.

- Choose View > Network Diagram.
- Choose Format > Layout.

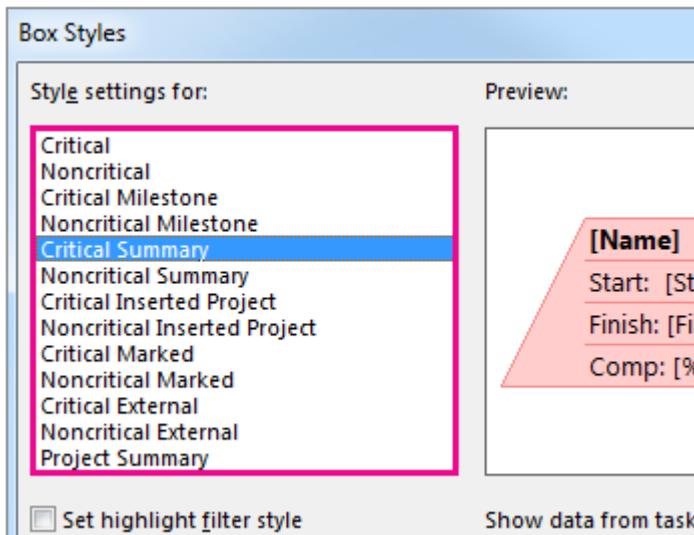
- Under **Link style**, select **Rectilinear** or **Straight**. Rectilinear links look like this  , and straight links look like this  .
- Select **Show arrows** to add arrows that point to predecessor and successor tasks. Select **Show link labels** to add dependency and lead or lag time to the link line.

Choose what kind of task information to show

- If things are looking cluttered (or you start to experience information overload), try changing the task information in each box so you only see what's most important.
- Choose View > Network Diagram.
- Choose Format > Box Styles.



In the Style settings for list, select the task that you want to change.



- Under **Border**, choose the shape, color, width, and gridline options to create the look you want.
- Select a name under **Data template** to apply your changes to an existing template. To create a new template that will use your changes, choose **More Templates**, and then choose **New** (to create a new template), **Copy** (to base the new template on an existing one), **Edit** (to change a template), or **Import** (to import a template from another project).
- Choose **OK**.

Lab Task

The SDLC has phases:

- Initiation
- Planning and requirement gathering
- Designing
- Development
- Testing
- Deployment

Create a network diagram of these phases showing properly:

1. milestones,
2. predecessors,
3. summary tasks and
4. resources.



Lab 28 & 29

Introduction to Asana

Introduction: Getting started with asana

Problem Statement:

- Getting started with asana
- Creating profile, adding team members
- Starting a new project
- Assigning tasks, subtasks, deadlines
- Adding attachments



What is Asana?

Asana is an Online Project Management App where you can Organize:

- Projects
- Tasks
- Team members

With Asana you can set:

- Project milestones
- Assign tasks to teams
- See current status
- Assign tasks with due dates
- See current projects
- And real time update when any changes are made

It makes it easier for people to work together as a **team**.



Asana works with PC, iOS, and Android



Asana for iOS, iPad, and Android

Made by Asana

Download Asana on your iPhone, iPad, or Android device to plan your day, share ideas, and get team updates on the go.

MORE INTEGRATIONS



Get Asana for your iOS or Android device

iPhone and iPad

1. Download our Asana app from the [App Store](#)
2. For help getting up to speed, read our [iOS Quick Start Guide](#)

Android

1. Download our Asana app from the [Google Play Store](#)
2. For help getting up to speed, read our [Android Quick Start Guide](#)

Feedback & Support

[Asana Support](#)

and integrates with other Apps too

The screenshot shows the Asana Apps & Integrations page at <https://asana.com/apps>. The page features a header "Asana and the tools you love, united" and a sub-header "Try out these integrations to make tracking your work even easier!". Below this, there's a "App Spotlight" section with cards for Dropbox and Google Sheets. The main area is titled "App Directory" and contains a grid of integration cards:

- HipChat**: Map any Asana project to a Hipchat room and subscribe to notifications when items are added.
- Instagantt**: Create Gantt charts, schedule tasks in Asana, and see task dates and dependencies.
- Box**: The Box app is built into the Asana interface, allowing users to attach Box files directly to Asana tasks.
- Okta**: Okta provides secure single sign-on (SSO) access to Asana.
- Dropbox**: The Dropbox file browser is built into the Asana interface, allowing users to upload files directly to Asana.
- Google Sheets**: Create spreadsheets and powerful calculations. Both can be connected to Asana so you don't have to switch between them.
- Google Drive**: The Google Drive file browser is built into the Asana interface so you can easily select files directly in Asana.
- Slack**: Post messages to a Slack channel when there are changes in your Asana workspace.
- Chrome Extension**: Bring Asana to any web page in Chrome. Just click the current tab in the Asana extension to open it in a new tab, or create links with Asana links.
- Zapier**: Zapier integrates the Asana API with thousands of third-party services. You can use Zapier to connect Asana with...

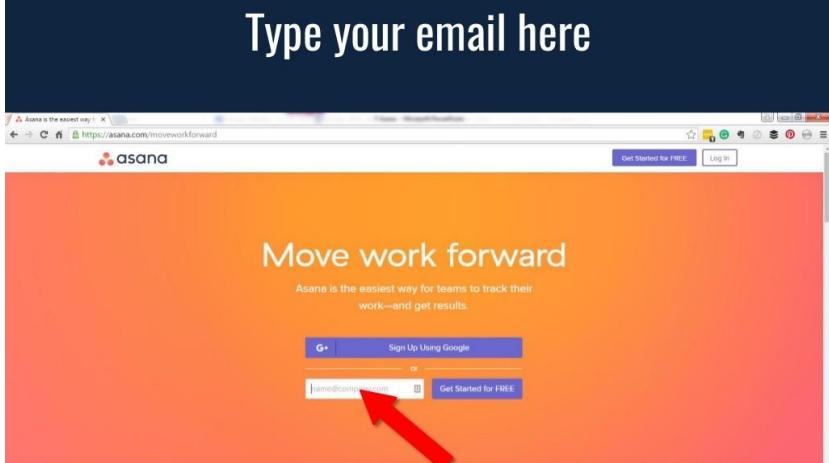


How to create an account on asana?

Type “asana.com” and press “Enter”



Type your email here



And click “get started for free”



Click this to go to your email inbox

The screenshot shows a web browser window for Asana. At the top, there's a navigation bar with links for 'Get Started for FREE!' and 'Log In'. Below the header, a large orange and pink graphic is visible. The main content area has a white background with a blue envelope icon and the text 'Thanks for joining Asana'. It says, 'Check your email and click the verification link to start getting work done in Asana.' Below this is a blue button labeled 'Open your Gmail inbox', which is highlighted by a red arrow. At the bottom of the page, there's a dark footer bar with links for 'ASANA', 'ABOUT US', 'SUPPORT', and 'APPS & SOCIAL'.

Click this to open email from Asana

The screenshot shows a Gmail inbox. The search bar at the top contains 'Google'. Below it, there are filter buttons for 'Gmail', 'Compose', and 'More'. A red arrow points to the subject line of an email from 'Asana <no-reply@asana.com>'. The subject line reads 'Complete your Asana sign up - Verify your email address You're o...'. The email preview shows some text and a small image of the Asana logo.

Click this to verify your email address

The screenshot shows an email from 'Asana <no-reply@asana.com>' with the subject 'Complete your Asana sign up'. The email body starts with 'You're one click away...' and features a prominent blue button labeled 'Verify your email address', which is highlighted by a red arrow. Below the button, there's a note: 'You've received this email because you requested an [asana.com](#) account with this email address. If you didn't intend to, you can ignore this email—the account hasn't been created yet.' At the bottom, there's a link: 'Having trouble with that button? Copy and paste this link into your browser.'

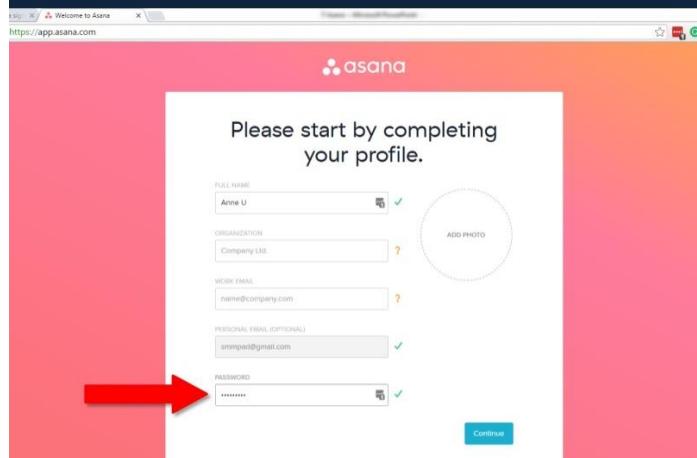


Let's create your Asana profile



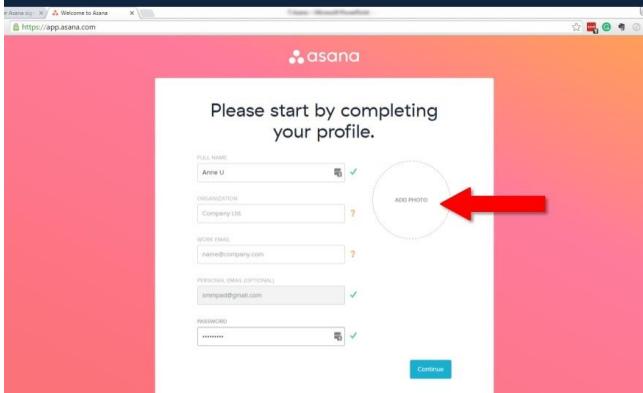
Type your name, company's name and work email.

Choose a password and type it here



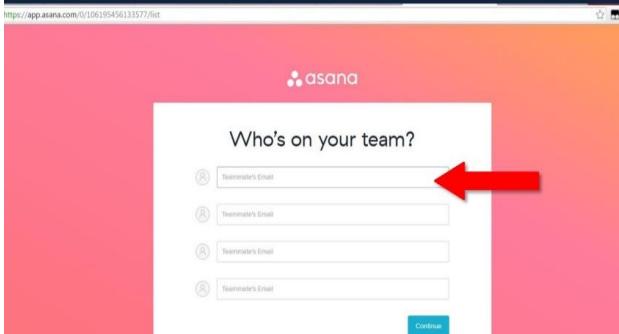


Click this if you want to add your photo
(or just skip this)

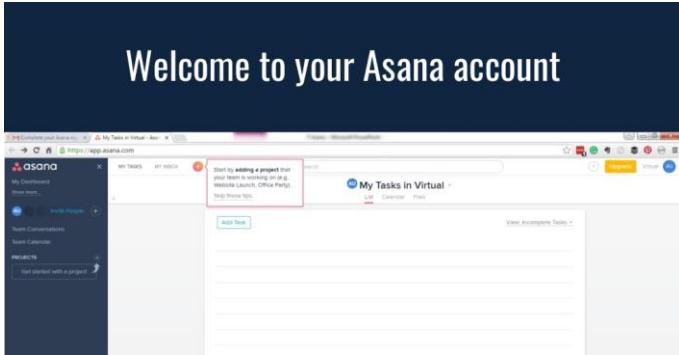
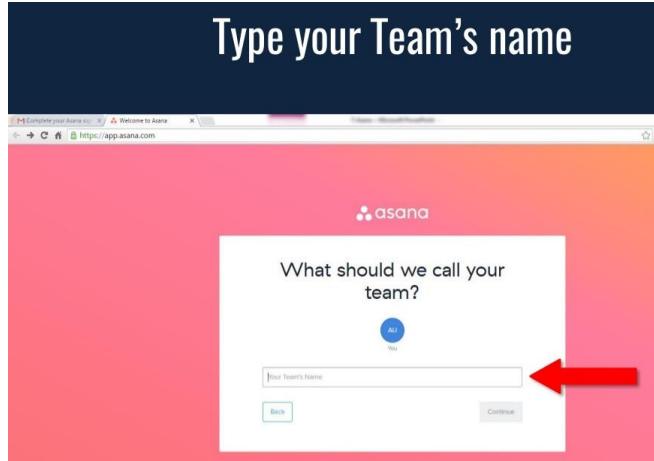


And click “continue”

Type your teammate's email here
(or skip this and add them later)



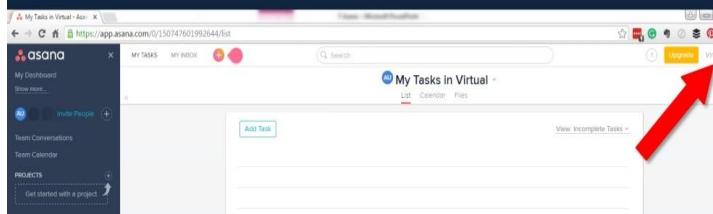
Type your Team's name



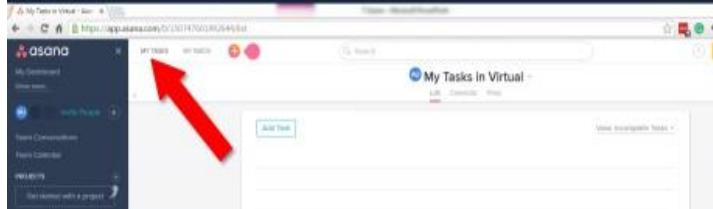


Quick tour to your Asana work space

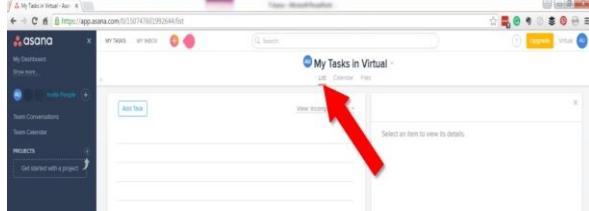
On the top-right corner is your Team's name



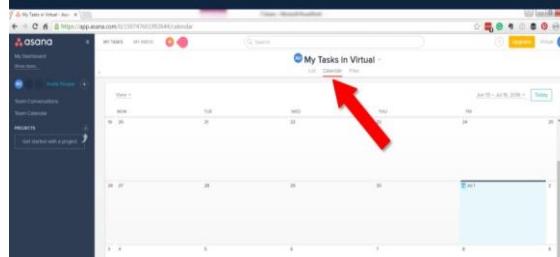
You are currently viewing “My Tasks”



Click “List” to go to List view



Click “Calendar” to go to Calendar view





Click "Files" to see your file attachments

This screenshot shows the Asana interface. A red arrow points to the 'Files' tab in the top navigation bar, which is highlighted in blue. Below the navigation bar, there's a section titled 'My Tasks in Virtual' with tabs for 'List', 'Calendar', and 'Files'. The 'Files' tab is active. A large icon representing files is centered in the main workspace.

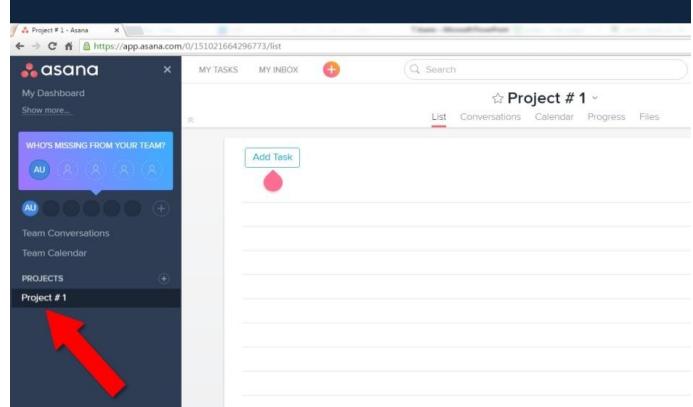
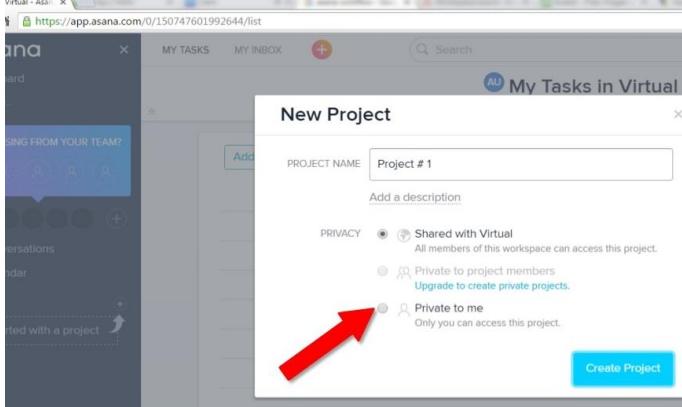
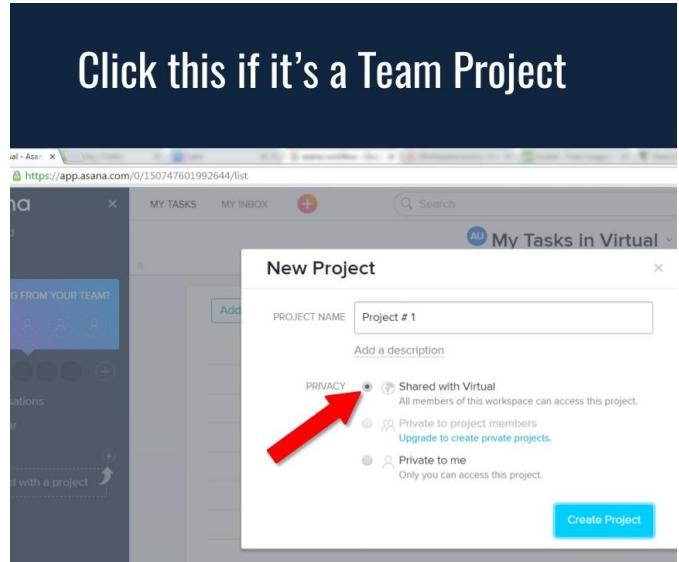
where you can click and see your Team Members

This screenshot shows the Asana interface. A red arrow points to the 'Team Members' section, which is highlighted in blue. This section displays a list of team members with their profile pictures and names. Below this, there's a button labeled 'Add Task'.

Asana Projects

Click this to create a project

This screenshot shows the Asana interface. A red arrow points to the 'Create a project' button, which is located at the bottom left of the sidebar. The sidebar also includes other sections like 'Dashboard', 'Who's missing from your team?', 'Conversations', 'Calendar', and 'Get started with a project'.





Add tasks in Asana

Type your task here and press “Enter”

The screenshot shows the Asana interface with a large text overlay "Type your task here and press ‘Enter’". Below this, the Asana dashboard is visible, featuring a search bar, a "Tutorials" project, and a task input field labeled "Add Task". A red arrow points to the "Add Task" button.

Every task you add here

The screenshot shows the Asana interface after a task has been added. The task "Asana tutorial" is listed in the "Tutorials" project. A red arrow points to the newly added task.

will also appear here

The screenshot shows the Asana interface with the task "Asana tutorial" listed in the "Tutorials" project. A red arrow points to the task in the list.

The screenshot shows the Asana interface displaying the details of the task "Asana tutorial" in the "Tutorials" project. A red arrow points to the task details.



Click this to assign task to a team member or to yourself

The screenshot shows the Asana interface with a task titled "Asana tutorial". A red arrow points to the "Assign" button, which is located next to the "Due Date" button in the top right corner of the task card.

Click this to assign due date for the task

The screenshot shows the Asana interface with a task titled "Asana tutorial". A red arrow points to the "Due Date" button, which is located next to the "Assign" button in the top right corner of the task card.

Click this to create “Tags” for the task

The screenshot shows the Asana interface with a task titled "Asana tutorial". A red arrow points to the "Tags" icon, which is located in the top right corner of the task card.

Click this to add subtasks

The screenshot shows the Asana interface with a task titled "Asana tutorial". A red arrow points to the "Subtasks" icon, which is located in the top right corner of the task card.



See Your Project Progress

Click “Progress”

The screenshot shows the Asana interface with the 'Tutorials' project selected. The top navigation bar includes 'MY TASKS', 'MY INBOX', a search bar, and tabs for 'List', 'Conversations', 'Calendar', 'Progress' (which is highlighted in red), and 'Files'. Below the navigation is a list of tasks: 'IFTTT tutorial' due Aug 9, 'Freshbooks tutorial' due Aug 6, and 'Asana tutorial' due Aug 4. On the left sidebar, there are sections for 'Team Conversations', 'PROJECTS' (with 'Tutorials', 'Project #2', and 'Project #3'), and 'My Dashboard'.

You can add a due date

The screenshot shows the 'Tutorials' project details page. At the top, there's an 'About this Project' section with 'Anne U' and a 'Due Date' button. Below it is an 'Update Status' section with two radio buttons: 'Notify more people' (selected) and 'Remind me to update the status every Friday'. Further down is a 'Progress' section showing a chart with 1 task remaining and 2 tasks completed. A red arrow points to the 'Due Date' button.

Click on 1 of these circles to choose the current status of the project

The screenshot shows the 'Tutorials' project details page. It features an 'About this Project' section with 'Anne U' and a 'Due Date' button. Below is an 'Update Status' section with three colored circles (blue, orange, green) and a text input field. At the bottom is a 'Progress' section with a chart showing 1 task remaining and 2 tasks completed. A red arrow points to one of the colored circles in the 'Update Status' section.

And see the complete and incomplete tasks

The screenshot shows the 'Tutorials' project details page. It includes an 'About this Project' section with 'Anne U' and a 'Due Date' button. Below is an 'Update Status' section with two radio buttons: 'Notify more people' (selected) and 'Remind me to update the status every Friday'. At the bottom is a 'Progress' section featuring a triangular chart divided into two sections: a smaller blue section at the bottom and a larger green section above it, representing 1 task remaining and 2 tasks completed. A red arrow points to this chart.



On the top-left corner, click your initials

A screenshot of the COMSATS Virtual workspace interface. At the top left, the user's initials 'AU' are displayed in a blue circle. A red arrow points to this icon. The top navigation bar includes a search bar, upgrade button, and other account-related links.

Click "Virtual Settings"

A screenshot of the COMSATS Virtual workspace interface. The user's initials 'AU' are again at the top left. A red arrow points to the 'Virtual' link in the top navigation bar. A dropdown menu is open, showing options like 'Virtual', 'Personal Projects', 'Upgrade', 'Virtual Settings', 'More', 'My Profile Settings', and 'Log Out'. The 'Virtual Settings' option is highlighted with a red arrow.

Click "Members"

A screenshot of the 'Workspace settings' dialog box. The 'Members' tab is selected. It shows the workspace name 'Virtual' and an 'Update Workspace' button. A red arrow points to the 'Members' tab.

To add another member, type email here

A screenshot of the 'Workspace settings' dialog box. The 'Members' tab is selected. It shows two members: Anne U (smmped@gmail.com) and Lisa (lisagravante@gmail.com). Below them is an 'INVITE MORE MEMBERS' section with an 'EMAIL:' input field and a 'NAME (OPTIONAL)' input field. A red arrow points to the 'EMAIL:' input field.

Type member's name

A screenshot of the 'Workspace settings' dialog box. The 'Members' tab is selected. It shows the same member list and invite fields as the previous screenshot. A red arrow points to the 'Send Invite' button at the bottom right of the invite section.

And send invite



