



Managing Projects with MS Project 2010



Session: 4

Task Allocation

For Aptech Centre Use Only



Objectives

- ◆ Define project outlining requirements
- ◆ Compare project estimates to actual details
- ◆ Understand how to build agile project plans
- ◆ Describe how to work with scheduling tasks
- ◆ Describe project constraints
- ◆ Describe how to control timing with constraints

For Aptech Centre Use Only



Introduction

- ◆ A project is a consolidation of phases and tasks.
- ◆ A project manager while allocating tasks to resources must consider all the four Ws:
 - ❖ what the tasks are
 - ❖ when to assign tasks
 - ❖ who are the resources to work on tasks
 - ❖ where in the project the resources should start work on tasks
- ◆ Resources start working on a project, after they are assigned to their specific tasks by the project manager.
- ◆ The relationships between the tasks form the schedule of the project.



Defining Phases and Outlining Requirements

- ◆ A project outline is a collection of subtasks grouped within summary tasks.
- ◆ In MS Project, each group of tasks within a summary task represents a project phase.
- ◆ The tasks in MS Project have a tree-like hierarchical structure.
- ◆ Any summary task or a task with subtasks under it, gets its duration and cost information as a sum of its subtasks in the hierarchy.
- ◆ A summary task does not have its own timing or cost information.

For Aptech Certification Only



Representation of Project Outline on Gantt Chart

- ◆ The tasks in the project outline, including summary tasks are represented as a Gantt Chart on the left of the Gantt Chart table.
- ◆ If a summary task is manually scheduled, MS Project warns by displaying a red Gantt bar.
- ◆ It indicates that the calculated duration for the subtasks do not match the summary task duration.
- ◆ The summary task's Finish date field will also have a red underline to indicate a scheduling problem.



Creating Manually Scheduled Tasks 1-2

- ◆ A project manager can start creating the schedules for summary tasks/phases based on the WBS and subsequently add sub tasks.
- ◆ MS Project 2010 provides a new scheduling mode for manual scheduling, Manually Scheduled.
- ◆ Manual scheduling prevents automatic movement of scheduled dates of a summary task when subtasks are added to it.
- ◆ The steps for creating manually scheduled summary tasks are as follows:

Open an existing project file in MS Project 2010.

Create a summary task and set its **Task Mode to Manually Scheduled**.

Enter the duration for the summary task and start date of the summary task. Start date can also be set by dragging the bar to the right on the **Gantt Chart** to any desired time frame.

Create other summary tasks based on the WBS. Subtasks to these summary tasks can be added now or later.

Complete the plan by setting tasks below the summary task, with scheduling method and duration of the task as desired.

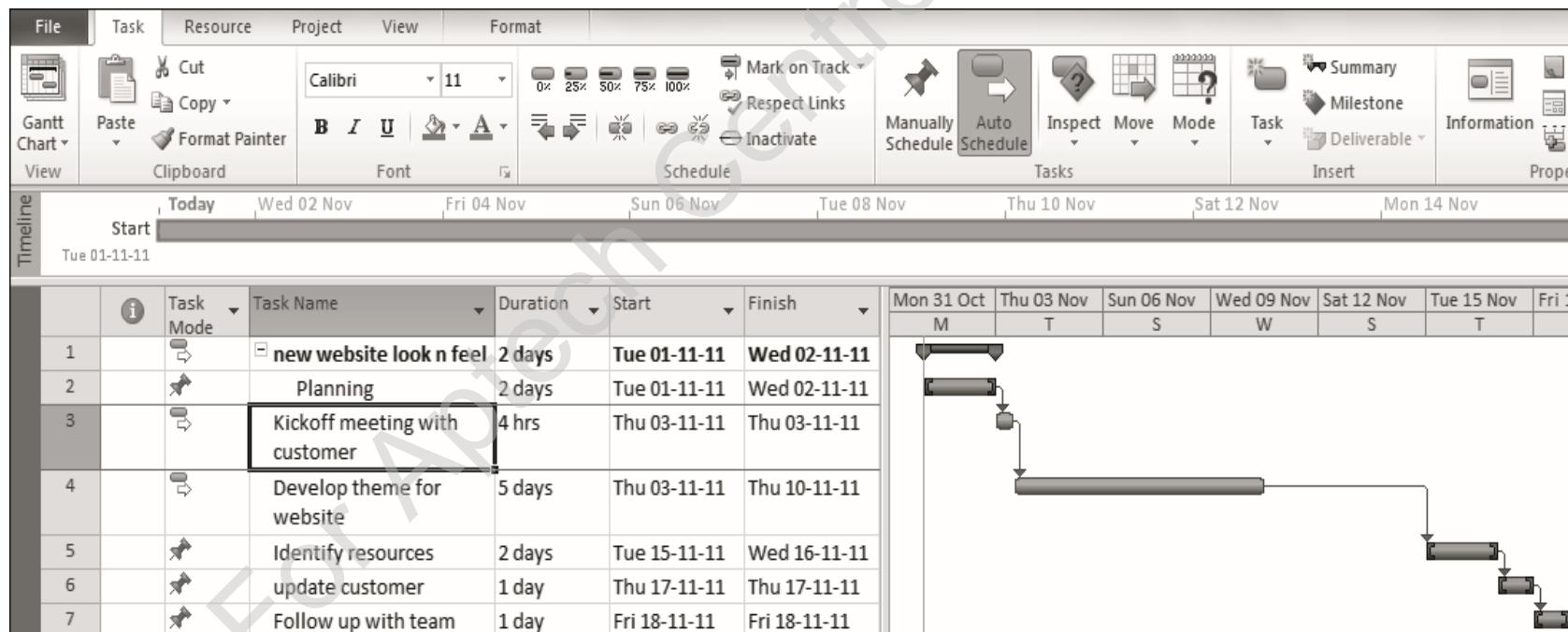


Creating Manually Scheduled Tasks 2-2

Indent the subtasks. The **Gantt Chart** displays a summary bar for manually scheduled summary tasks and displays a rollup bar for subtasks.

Click the location to insert a task and press the **Insert** key.

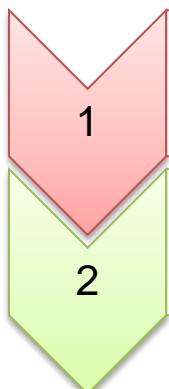
- Following figure illustrates creating manually scheduled summary tasks:





Deleting Tasks 1-2

- ◆ To delete a task, select the entire task row in the **Gantt Chart** table including the Task ID, and press the Delete key.
- ◆ After deleting a task, the project manager needs to make sure that any task dependencies are adjusted as needed.
- ◆ MS Project 2010 comes with a unique feature of inactivating a task, which is equivalent to deleting a task.
- ◆ Making a task inactive, keeps the task in the project plan and strikes it out in the **Gantt Chart** table and on the **Gantt Chart**.
- ◆ If any auto scheduled tasks are dependent on the inactive task, MS Project overlooks that inactive task while calculating the schedules for other tasks.
- ◆ Steps to mark a task as inactive are as follows:

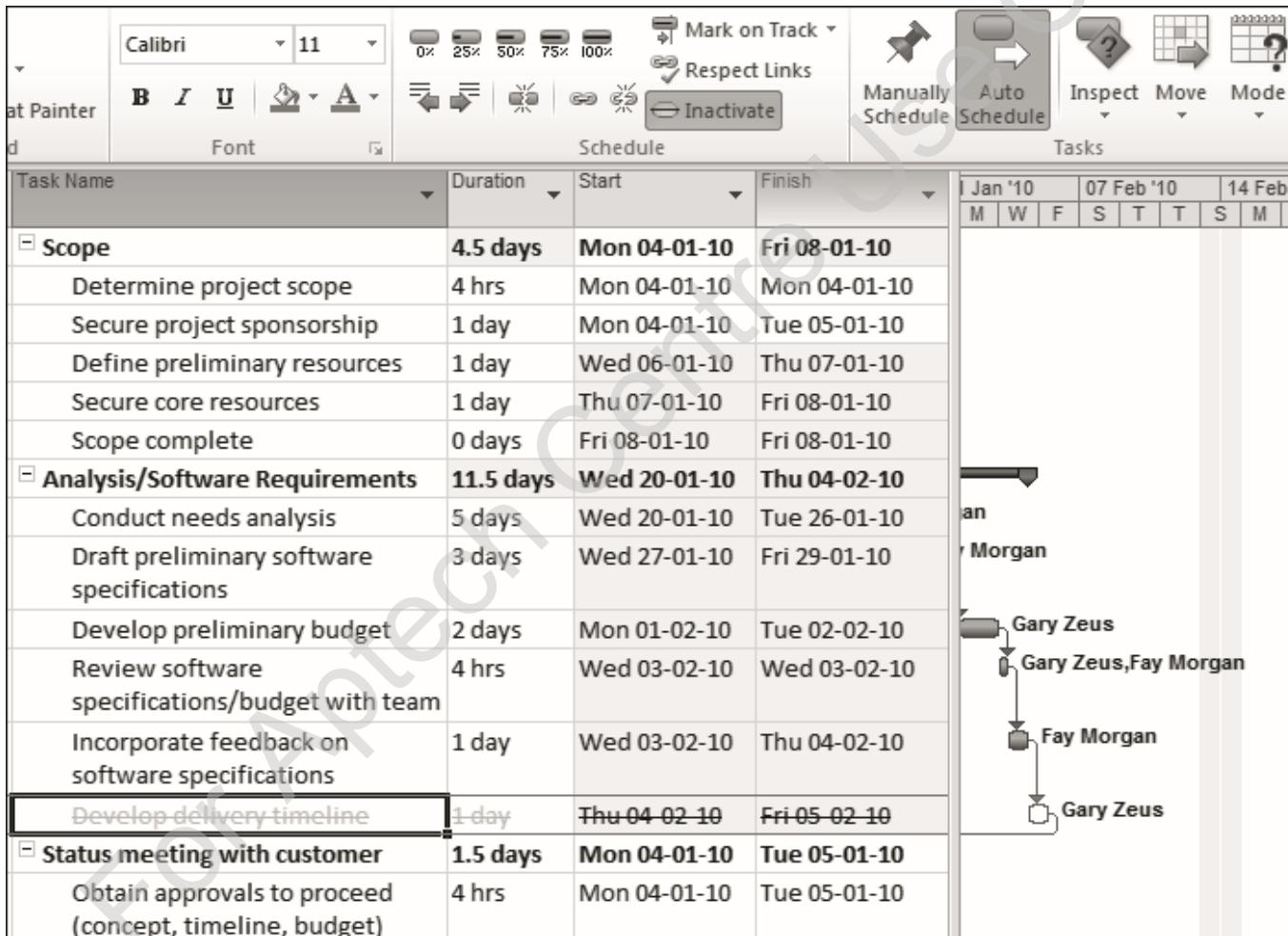


- Select the task in **Gantt Chart** view to make inactive.
- Click the **Inactivate** button placed in the **Schedule** group on the **Task** tab of the **Ribbon** to make the task as inactive.



Deleting Tasks 2-2

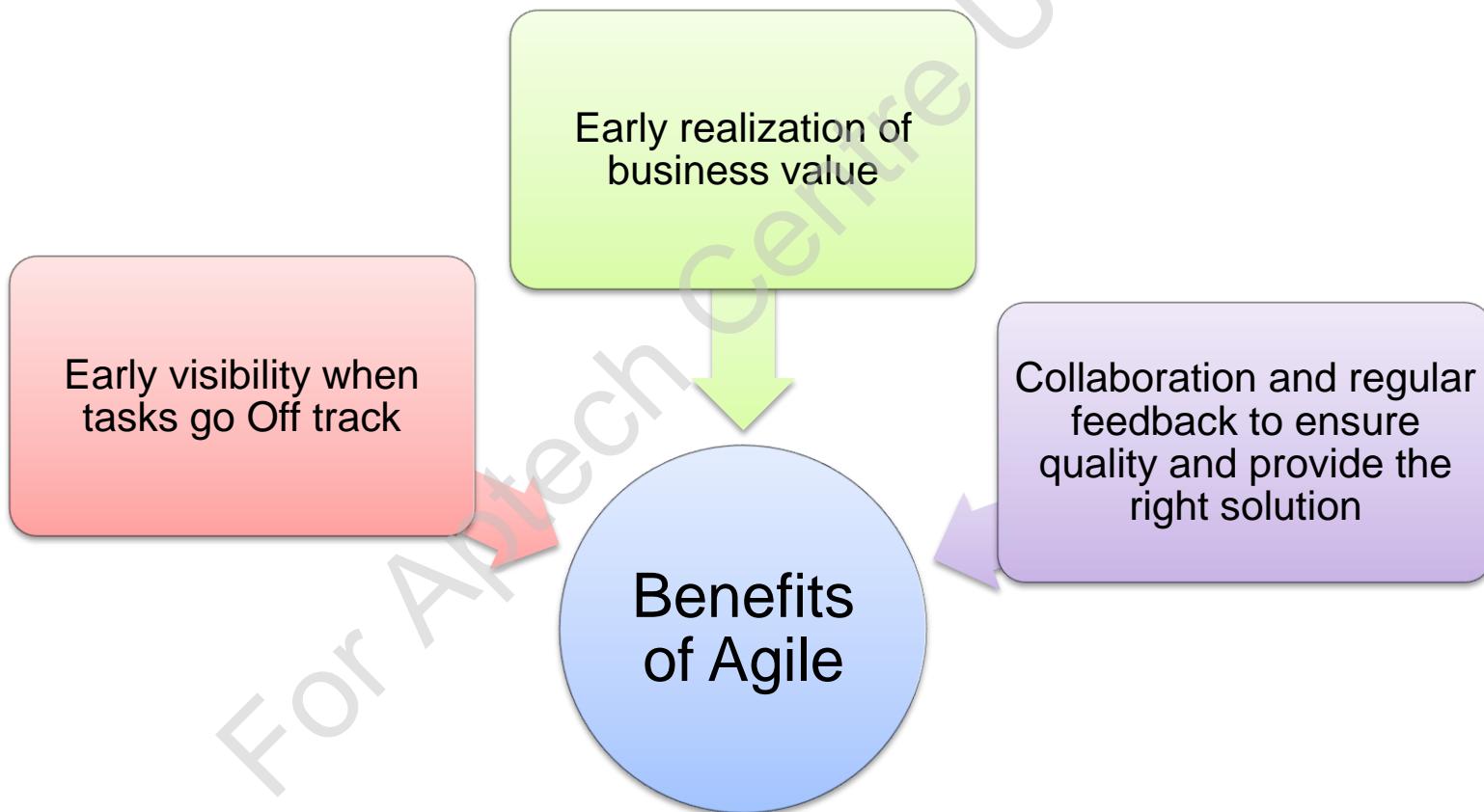
- Following figure illustrates inactivating a task:





Building Agile Project Plans

- ◆ Agile project planning, also referred as ‘release planning’, is about planning multiple sprints (levels) that culminate in a release of the final deliverable.
- ◆ Having agile project plans help the project manager deal with any uncertainty in project schedules.





Scheduling Tasks

- ◆ The timings for executing the tasks and their relationship with each other define project schedule.
- ◆ Project managers can make changes and set preferences for the tasks and their schedules while creating them.
- ◆ A project manager, using MS Project, can control scheduling using either Manually Scheduled or Auto Scheduled modes.
- ◆ In **Auto Scheduled** mode, MS Project uses the old method of calculating task schedules based on the project start date and its dependencies.
- ◆ In **Manually Scheduled** mode, project managers can enter the task duration and dates anytime during the project life cycle.



Working with Tasks

- ◆ The first step while creating tasks is identifying the individual action items.
- ◆ These individual action items can be considered as individual tasks.
- ◆ The parameters needed for creating a task are as follows:





Entering Tasks

- ◆ Creating a task in MS Project is as simple as entering a name for it.
- ◆ Details of the task such as its duration and type, can be entered at the same time or later.
- ◆ Users can enter task information in the following three ways:

By using the **Gantt Chart** table

By using the **Task Information** dialog box via the **Gantt Chart** view

By importing tasks from Excel or Outlook



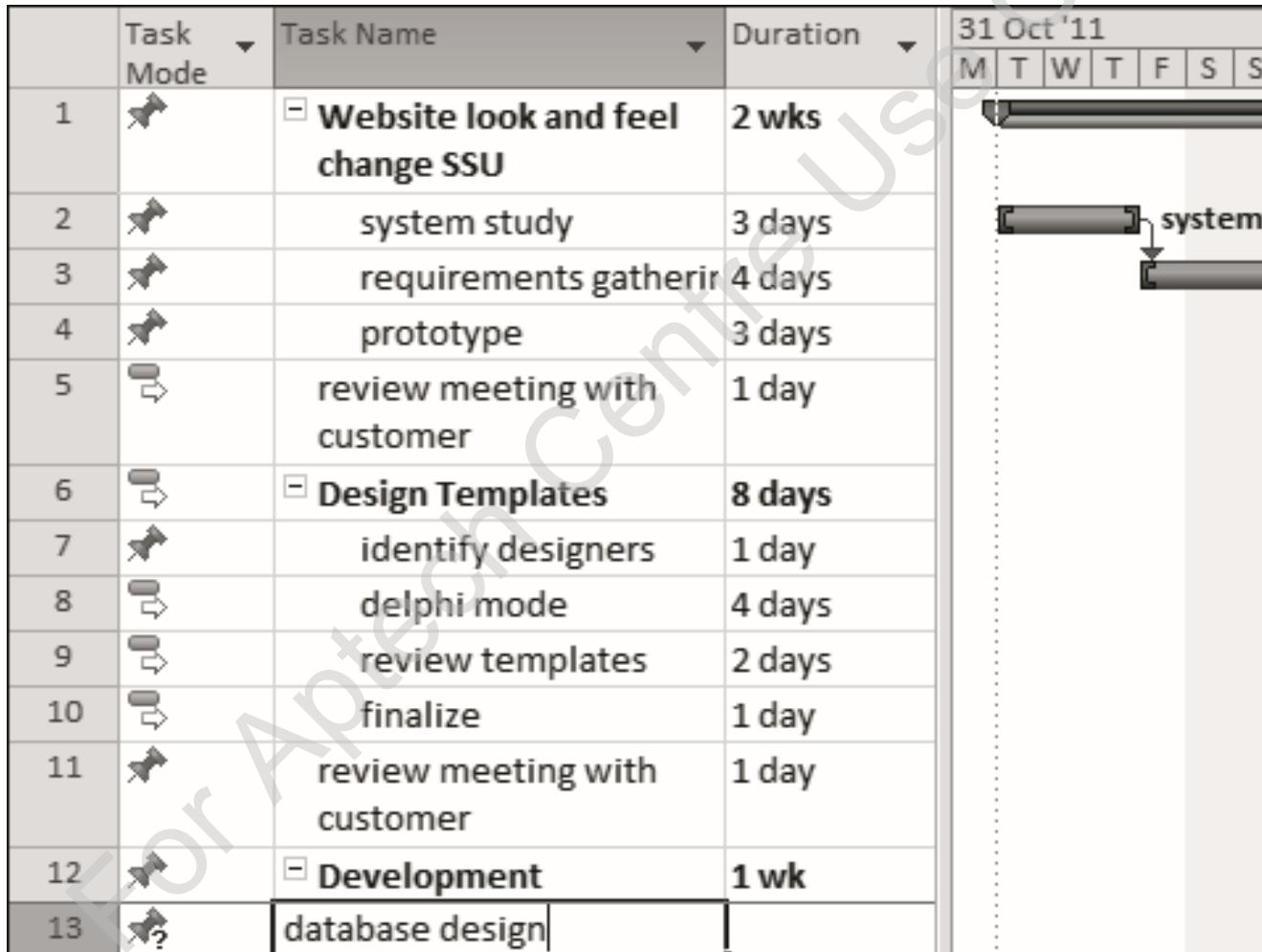
Entering Tasks in the Gantt Chart Table 1-2

- ◆ The quickest and easiest way to enter all task names is through the **Gantt Chart** table.
- ◆ The user can simply enter the name in the Task Name column, press the ENTER key or down arrow key to move to the next blank row, enter another task, and so forth.
- ◆ An automatic Task ID is created by MS Project for each task name.
- ◆ To enter a task in the **Gantt Chart** table, place the cursor in a blank cell in the **Task Name** column and enter a task name.
- ◆ Press Delete or Backspace key to delete/edit task names.
- ◆ To move to the next cell, press the down arrow key and then type the next task name, and so forth for all task names.



Entering Tasks in the Gantt Chart Table 2-2

- Following figure illustrates entering tasks in **Gantt Chart** table:





Entering Tasks in the Task Information Dialog Box 1-2

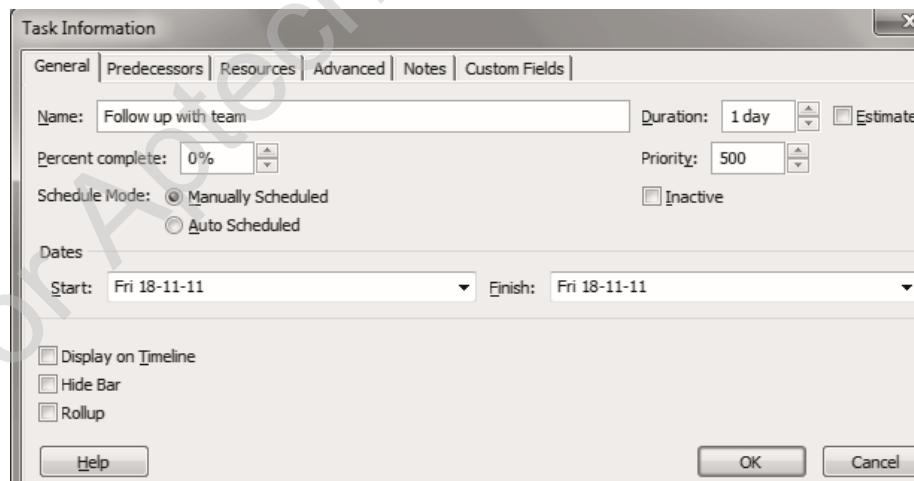
- ◆ Project managers can also enter tasks in the **Gantt Chart** table using the Task Information dialog box, by performing the following steps:

Double-click a blank cell. This displays the **Task Information** dialog box

Enter the task name in the **Name** text box

Click **OK** to save the task

- ◆ Following figure shows the Task Information dialog box:





Entering Tasks in the Task Information Dialog Box 2-2

- Users can add any additional columns that they need. To do so, perform the following steps:

Scroll to the last column on the **Gantt Chart** table and click the drop-down arrow on the header of the Add New column to display a list of task related parameters.

Select the required parameter to display it as a new column.

- To insert a task within the list of tasks, users can select the task row above which they want to add the new task and click the top part of the **Task** button in the **Insert** group on the **Task** tab.



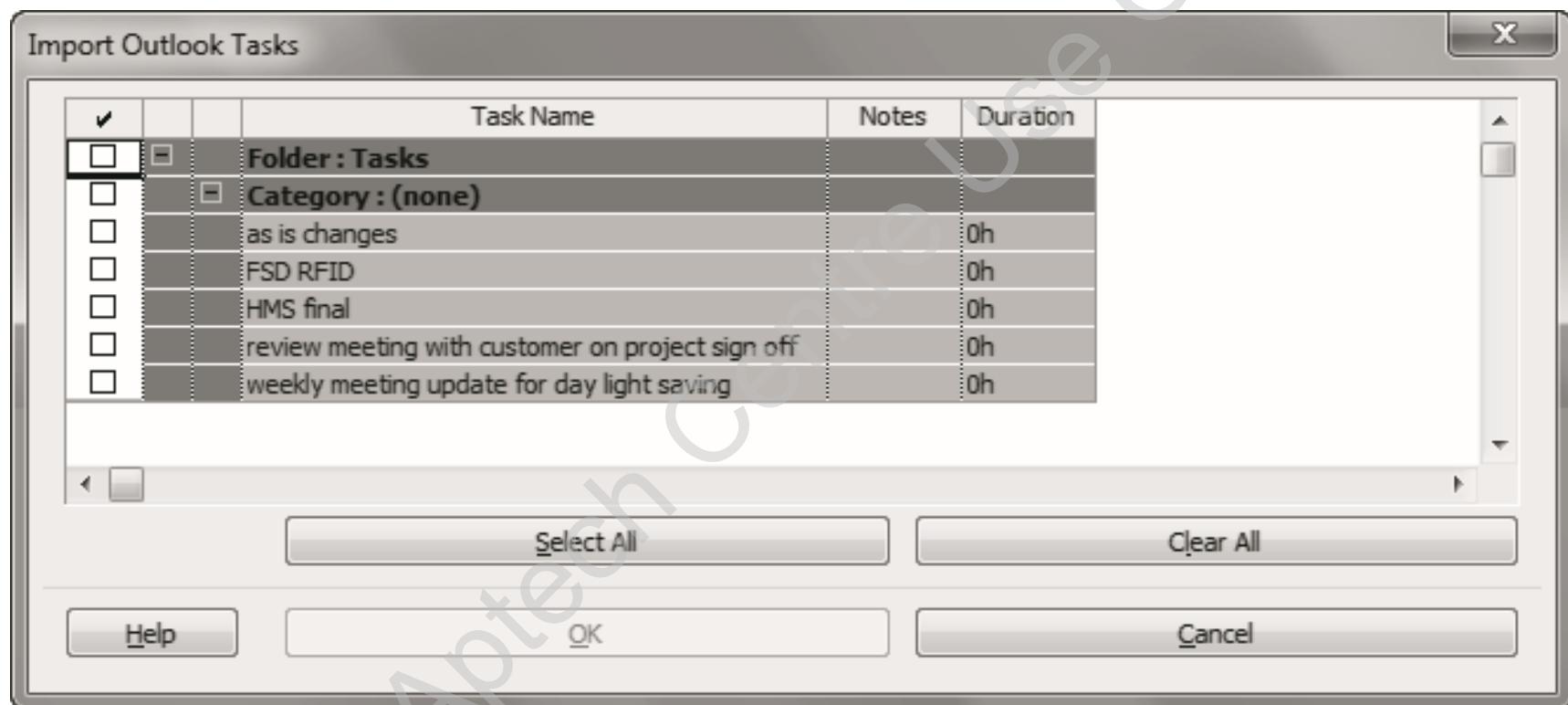
Importing Tasks from Outlook 1-2

- ◆ MS Project 2010 provides an easy way to import tasks created in Outlook 2010 into a project.
- ◆ A project manager can import Outlook tasks into MS Project by performing the following steps:
 - 1 • Open MS Project 2010 and create a new project file.
 - 2 • In the Insert group on the **Task** tab, click the down arrow on the Task button and select **Import Outlook Tasks**.
 - 3 • From the list of tasks, select the check boxes adjacent to each task to import them into project.
 - 4 • Click **OK** to view the tasks imported in MS Project.
- ◆ The imported tasks are added at the bottom of the task list in the **Gantt Chart** table.



Importing Tasks from Outlook 2-2

- Following figure illustrates the **Import Outlook Tasks** dialog box:





Importing Tasks from Excel 1-4

- ◆ Project managers can also import tasks from Excel to MS Project.
- ◆ Project managers can create and edit this list in Excel, and when finalized, they can import the tasks into MS Project.
- ◆ MS Project 2010 provides two templates for importing Excel data.
- ◆ These templates are located in the **Installed Templates** section in the Backstage view in Excel 2010.
- ◆ The two templates are as follows:

Microsoft Project Task List Import Template

Microsoft Project Plan Import Export Template



Importing Tasks from Excel 2-4

- The steps to use the **Microsoft Project Task List Import Template** are as follows:

1

- Open MS Excel 2010 and open the **File** tab. Click **New** in the Backstage view and select the **Installed Templates** option to display **Microsoft Project Plan Import Export Template** and **Microsoft Project Task List Import Templates** as shown in figure.

2

- Select the **Microsoft Project Task List Import Template** and click the appropriate button to open the template in Excel 2010.

3

- Enter the Task Information, Resources, and Dates in the respective columns of the template, and save the file as an Excel workbook.

4

- Now, open MS Project 2010 and click **Open** from **File** tab to display the **Open** dialog box. From the file types drop-down list adjacent to the File name text box, choose **Excel Workbook**.

5

- Locate the Excel workbook containing the project details and click the **Open** button to start the **Import Wizard**. The first screen of the wizard displays the information about the Import Wizard.

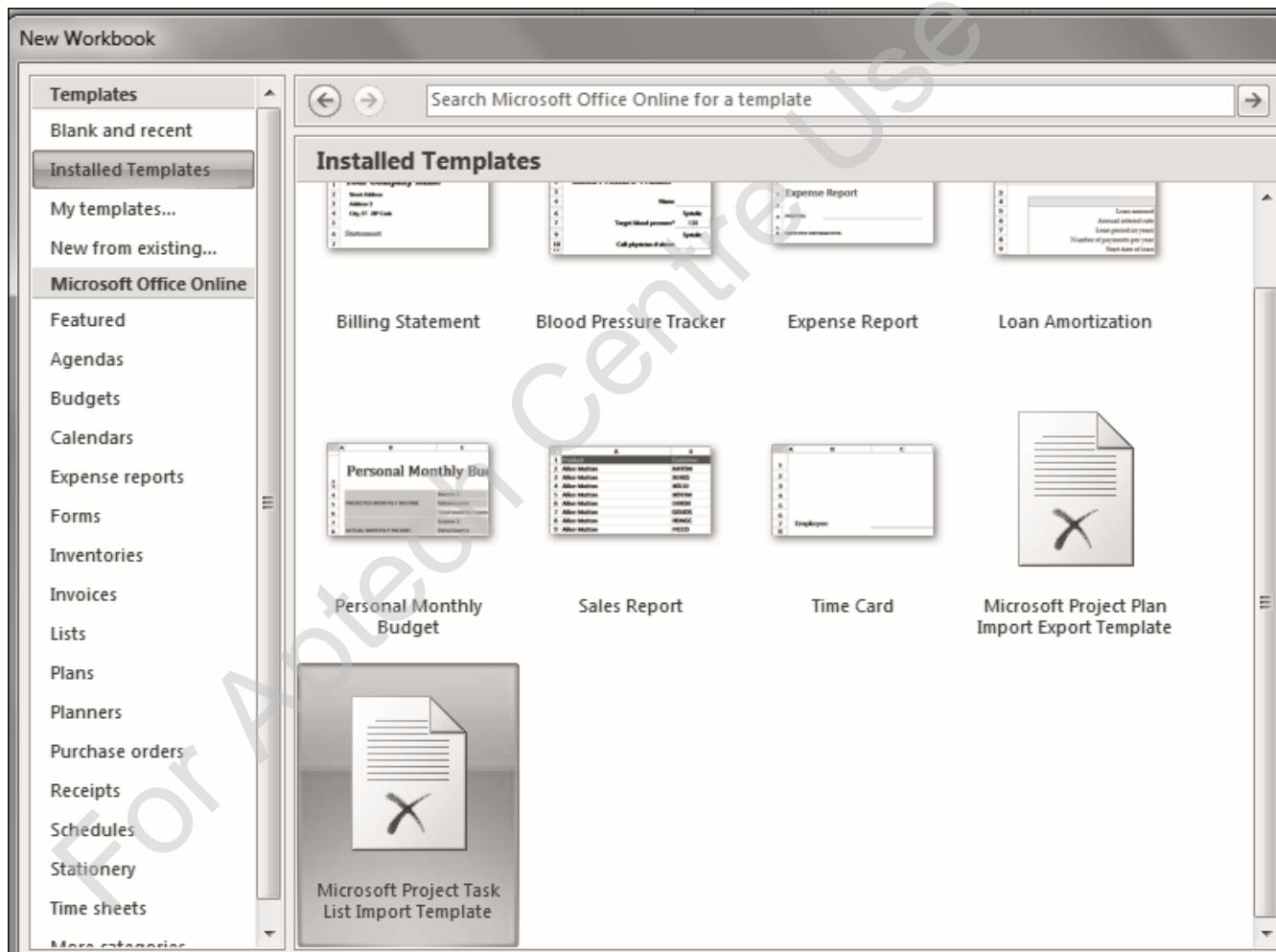
6

- Click **Next** to continue with the wizard.



Importing Tasks from Excel 3-4

- Following figure illustrates display of MS Project Import Templates in Excel 2010:





Importing Tasks from Excel 4-4

7

- If a predefined map already exists, where the Excel data columns are mapped to the MS Project data columns, select the **Use existing map** radio button and specify the template. Else, select the **New Map** radio button and click **Next**.

8

- Specify method of importing the file and click **Next**. There are three methods to import the workbook: **As a new project**, **Append the Data to the active project**, or to **Merge the data into the active project**.

9

- Click **Next**. Three check boxes are displayed. Users can select to import tasks, resources, and assignments from the Excel workbook using these check boxes.

10

- Select **Import Includes Headers** to import the column headings from the task list and click **Next**.

11

- From the **Source Worksheet Name** list box, select the name of the worksheet from which data needs to be imported.

12

- In the **From** and **To** columns of the given table, specify which columns in the Excel worksheet map to which fields in the MS Project file.

13

- Once the mapping is done for all fields, click **Finish**.



Setting Task Duration, Units, and Work

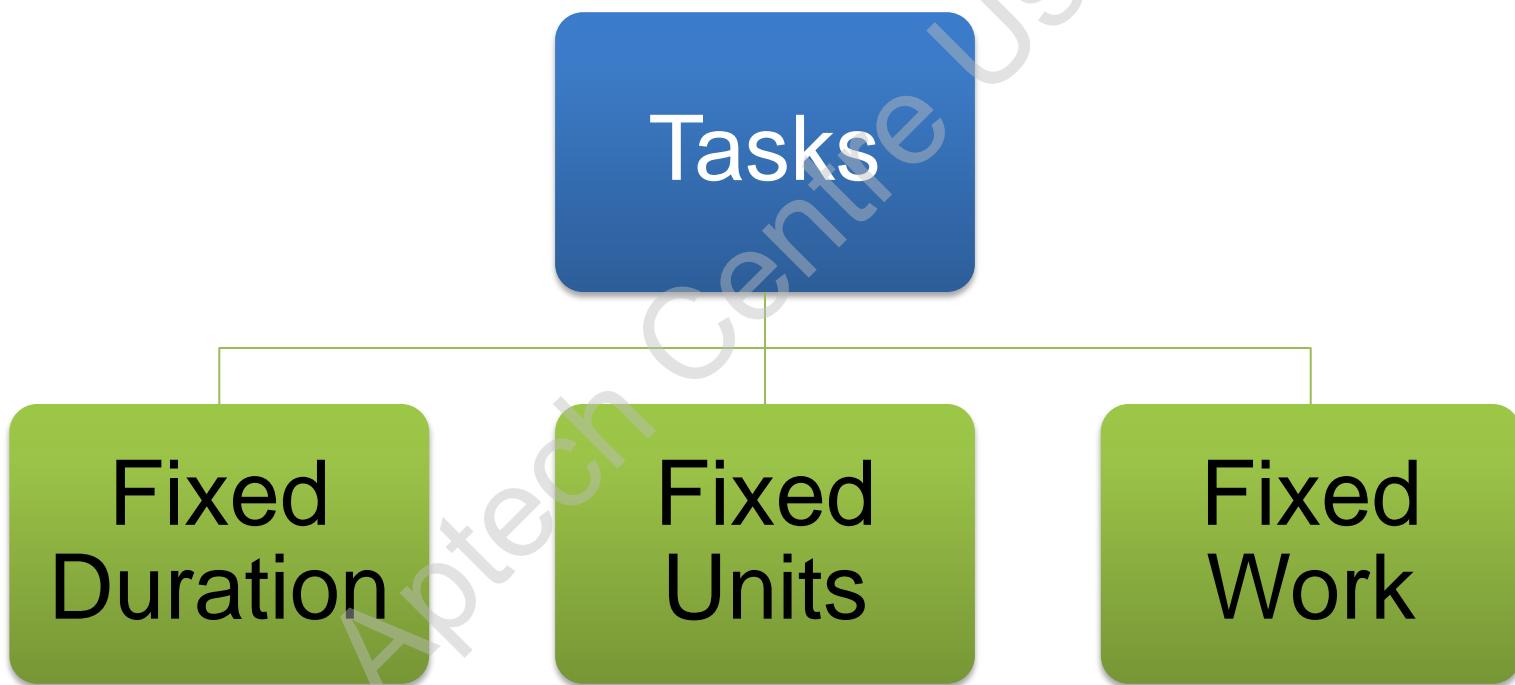
- ◆ The duration assigned to individual tasks sum up to define the timing of the entire project.
- ◆ MS Project 2010 cannot determine the duration of a task, but it helps a project manager to identify the effect of timing of tasks on the total duration of the project.
- ◆ Estimating the duration must be done using the project manager's experience and knowledge.

For Aptech Centres ONLY



Identifying Task Types 1-2

- Every project contains one or all three types of tasks.
- These task types have an effect on the schedule of a task, when scheduled using the auto schedule mode.





Identifying Task Types 2-2

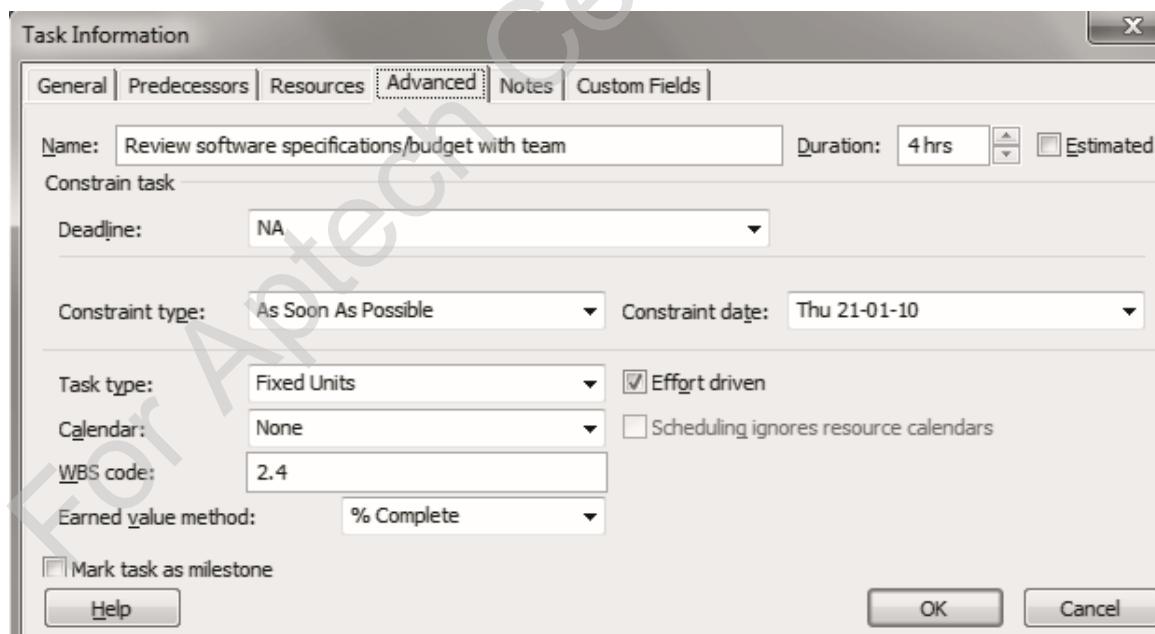
- The steps to define the task types are as follows:

Select a task name in the **Gantt Chart** table and click **Information** in the **Properties** group, on the **Task** tab to display **Task Information** dialog box.

Click the **Advanced** tab and select the appropriate task type for the selected task, from the **Task Type** drop-down list.

Click **OK** to save the task type.

- Following figure illustrates types of tasks in the Task Information dialog box:





Setting Task Duration

- ◆ Tasks without any duration are called milestones.
- ◆ MS Project allows users to set various units of task durations such as Hours, Days, Weeks, and so forth.
- ◆ Steps to specify the duration type for a task are as follows:

Select a task name from the **Gantt Chart** table and click **Information** in the **Properties** group, on the **Task** tab to display the **Task Information** dialog box.

In the **Duration** text box on the **General** tab, enter the duration or click the up and down scroll buttons to increase or decrease the duration.

Specify time unit.

Click **OK** to save the changes.



Setting Milestones

- ◆ As mentioned earlier, tasks without any duration are called milestones.
- ◆ To create a milestone, simply indicate the task duration as zero in the **Duration** column in **Gantt Chart** table.
- ◆ If the user wants to mark a task with some duration as a milestone, click the **Advanced** tab of the **Task Information** dialog box and select the **Mark task as milestone** check box.
- ◆ A milestone is represented in the **Gantt Chart** view with a black **diamond** shape than a taskbar.



Recurring Tasks and Effort Driven Tasks

- ◆ Recurring tasks are those tasks that are repeated regularly during the execution of the project.
- ◆ It becomes a tedious task for the user to create all the tasks for each occurrence.
- ◆ MS Project automatically creates the recurring task if once designated with a period of recurrence.
- ◆ Though MS Project facilitates to change the type of a task either as **Manually Scheduled** or **Auto Scheduled**, the user can make **Auto Scheduled** tasks as effort driven tasks.



Recurring Tasks 1-2

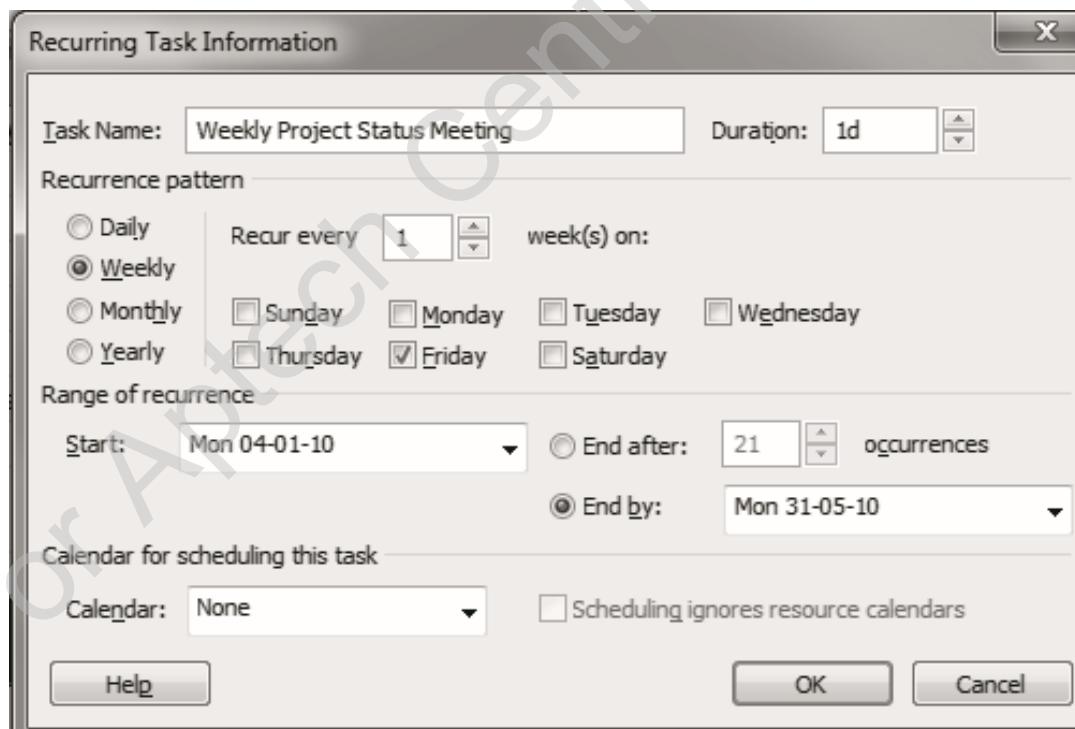
- ◆ Tasks that occur repeatedly in projects are called recurring tasks.
- ◆ Tasks such as, conducting weekly status meeting every Friday or generating a monthly project report can be considered as recurring tasks.
- ◆ Using MS Project, users can set up such tasks to recur.

- 1 • In the **Insert** group on the **Task** tab, click the down arrow on the Task option and select **Recurring Task**.
- 2 • In the **Task Name** text box, enter a name for the recurring task.
- 3 • In the **Duration** text box, enter the duration for the task, such as 5d to set the task duration to five days.
- 4 • Choose a recurrence pattern by selecting the **Daily**, **Weekly**, **Monthly**, or **Yearly** radio buttons.
- 5 • Specify the **Range of recurrence**, which is the start and end period between which the tasks should recur.
- 6 • Click **OK** to save the recurring task.



Recurring Tasks 2-2

- When assigning resources to a recurring task, make sure to assign resources to individual recurrences and not to the summary level recurring task.
- MS Project will not calculate the work hours correctly, if resources are assigned to the summary recurring task.
- Following figure illustrates the creation of a recurring task in the **Recurring Task Information** dialog box:





Effort-driven Tasks

- ◆ In MS Project, manually scheduled tasks cannot be set up as effort driven tasks.
- ◆ Only auto scheduled tasks can be effort-driven.
- ◆ If resource assignments are adjusted, the duration might change but the number of hours of effort and the resources needed to complete the task remain the same.
- ◆ While adding or deleting a resource assignment on an effort-driven task, the amount of work is distributed equally among all the resources.
- ◆ Effort-driven schedule uses the formula $D=W/U$ (Duration is equal to Work divided by Units).
- ◆ MS Project recalculates the duration of a task accordingly if resources (Units) are added or removed from a task assignment.



Arranging and Splitting Tasks 1-2

- ◆ A task can be split by performing the following steps:

Click the **Split Task** button under the **Schedule** group on the **Task** tab. This displays the **Split Task Information** box. The box guides the user to set the start date for the continuation of the task.

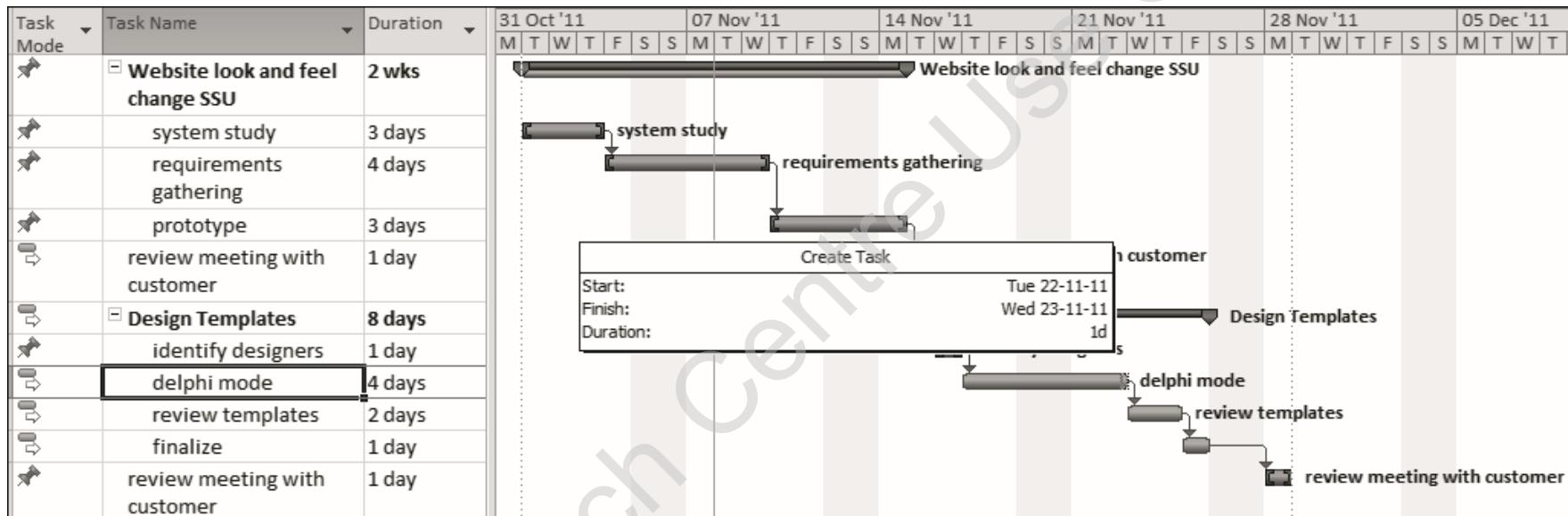
Move the cursor on the **Gantt Chart** taskbar to adjust the pointer's position till it displays the date where the user wants to start the split, and then drag it to right till the box contains the date on which the user wants the task to begin again and release the mouse.

To rejoin the split task, place the mouse over the taskbar until the cursor appears and drag the split taskbar to join with the split portion of the taskbar.



Arranging and Splitting Tasks 2-2

- Following figure illustrates the process of splitting a task:





Understanding Constraints

- When a task is created in MS Project and set to Auto Scheduled, by default, the As Soon As Possible constraint is selected.
- In simple words, the task starts as soon as the project starts, assuming that no dependencies exist and that would delay the start of the project.
- Timing of a task depends upon its start date, finish date, dependencies, task type, and any effort-driven setting and constraints.
- Following table lists all the constraints and explains their effects on a task's timing:

Constraint	Effect
As Soon As Possible	The default setting in MS Project; the task starts as early in the schedule as possible, based on project dependencies and project start date.
As Late As Possible	The task occurs as late as possible in the project schedule, based on project dependencies and project finish date.
Finish No Earlier Than	The end of the task cannot occur any earlier than the date specified.
Finish No Later Than	The end of the task cannot occur any later than the date specified.
Must Finish On	The task must finish on that date.
Must Start On	The task must start on that date.
Start No Earlier Than	The task cannot start any earlier than the date specified.
Start No Later Than	The task cannot start any later than the date specified.



Setting Constraints 1-2

- ◆ Setting a constraint involves selecting the type of constraint in the Task Information dialog box.
- ◆ Some constraints work together with a chosen date.
- ◆ The steps to set a task constraint are as follows:

Select a task name from the **Gantt Chart** table and click the Information option on the Task tab to display the **Task Information** dialog box.

Click the **Advanced** tab and select the appropriate constraint from the **Constraint** type drop-down list.

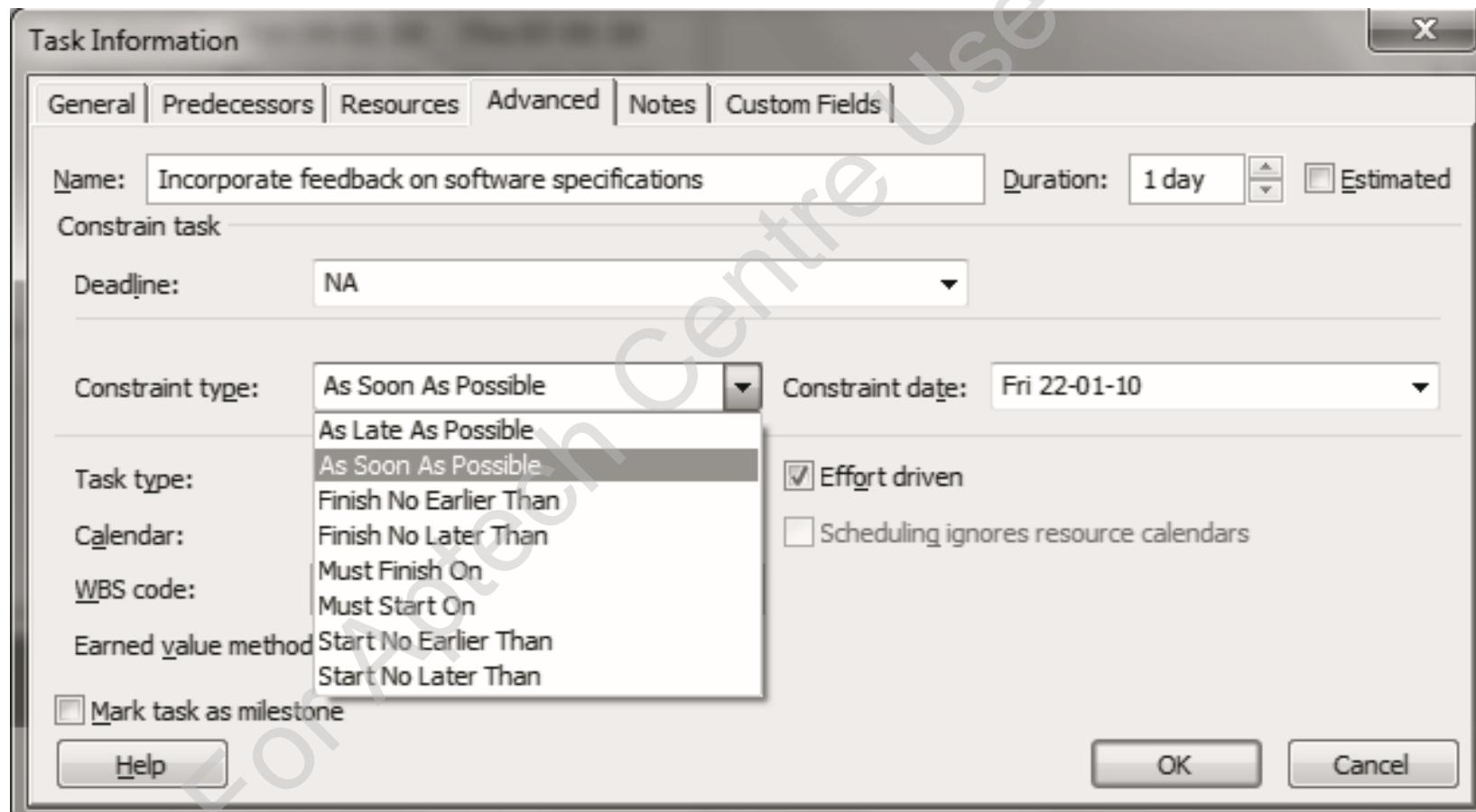
If the constraint requires a date, select one from the **Constraint date** drop-down list.

Click **OK** to save the settings.



Setting Constraints 2-2

- Following figure illustrates specifying constraint types in the **Task Information** dialog box:





Setting a Deadline 1-2

- ◆ Deadlines are not considered to be constraints; though in MS Project, the deadlines are set in the **Constraint Task** section of the **Task Information** dialog box.
- ◆ In MS Project, setting a deadline displays a symbol in the **Indicator** column of the **Gantt Chart** view if the task has run past the deadline that alerts the project manager to take corrective actions.
- ◆ Steps to set a deadline are as follows:

Select a task name and click the **Information** option on the **Task** tab to display the **Task Information** dialog box.

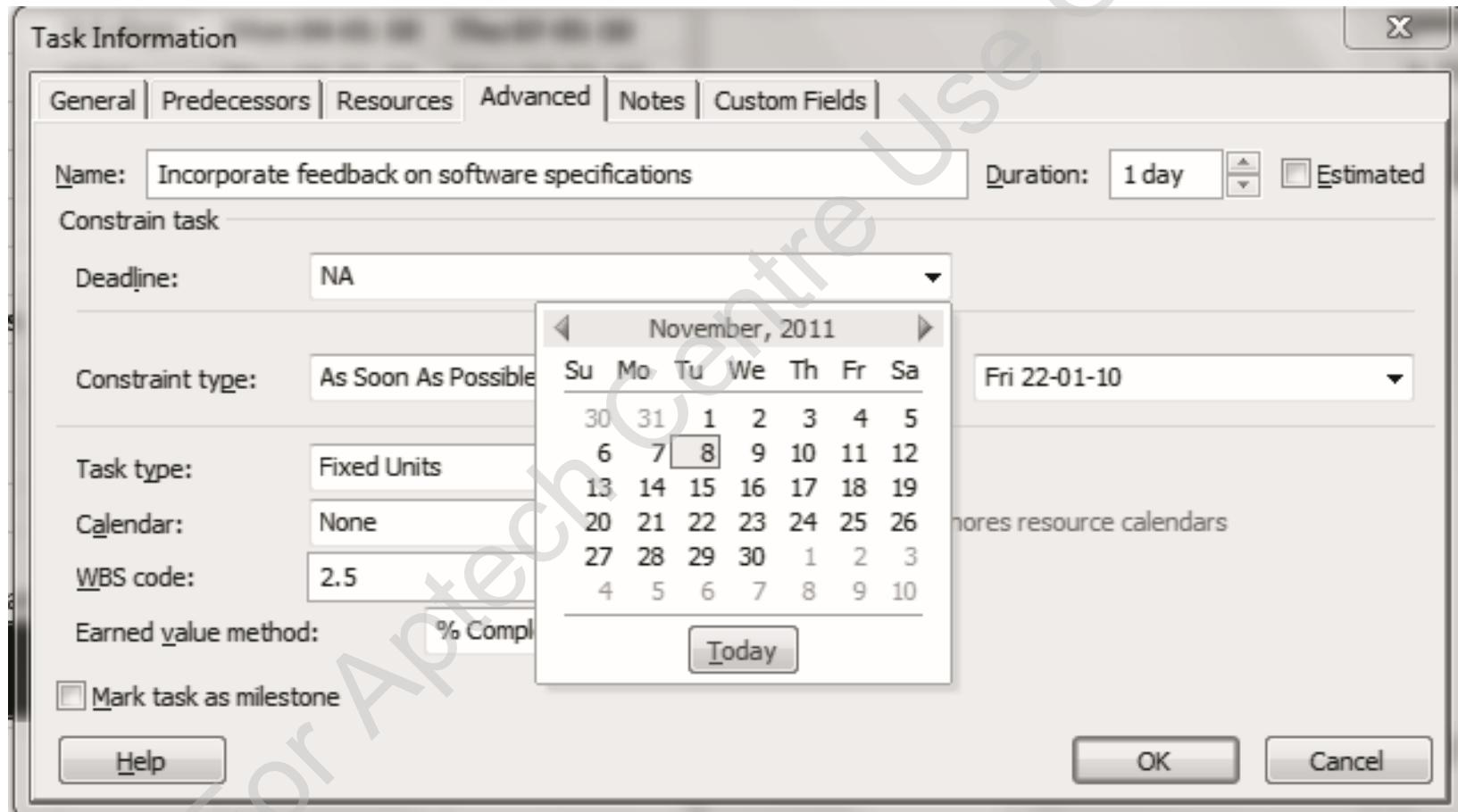
Under the **Constrain task** section on the **Advanced** tab, select a date in the **Deadline** field.

Click **OK** to save the deadline setting.



Setting a Deadline 2-2

- Following figure illustrates **Task Information** dialog box for setting deadlines:





Summary

- ◆ Project managers must build agile project plans to help deal with uncertainties in the project.
- ◆ In case of auto scheduling, any changes in task scheduling are automatically recalculated and updated.
- ◆ In case of manual scheduling, any change in task scheduling does not affect the project schedule unless changed manually.
- ◆ Users can create new tasks by entering information in the Tracking Gantt table or in the Task Information dialog box, or by importing tasks and project information from Excel or Outlook.
- ◆ MS Project identifies three types of tasks; fixed duration, fixed units, and fixed work.
- ◆ Tasks that occur repeatedly in a project life cycle can be set up as recurring tasks.
- ◆ Certain tasks for which the work hours required per resource to complete the task is affected by the resources assigned are called effort-driven tasks.