Welcome to the Eastwood Harris Pty Ltd Microsoft® Project 2013, 2016 or 2019 and PMBOK® GUIDE SIXTH EDITION training course.

Administration
- Evacuation
- Timings, meals and facilities
- Mobile phones and emails
- Introductions
  - Your name
  - Your position or role
  - Your experience in using scheduling software
  - What you wish to learn from this course
  - How you expect to use the software
- Course attendance sheet.

Course Objectives
This course objectives are to teach:
- The user interface and how to create projects,
- Creating a schedule without resources,
- Filters, Layouts, Grouping and Printing,
- Baselines and updating an un-resourced project,
- Creating and assigning resources,
- Controlling projects with resources and costs,
- Tools and utilities,

Successful completion of all the course workshops will confirm that the objectives have been met.

Course Agenda
Day 1 Modules
1 Introduction
2 Creating a Project Schedule
3 Navigating and Setting the Options
4 Creating Projects and Templates
5 Defining Calendars
6 Adding Tasks
7 Organizing Tasks Using Outlining
8 Formatting the Display
9 Adding Task Dependencies
10 Network Diagram View
11 Constraints.
Module 1 – Introduction

Topics:
- Purpose of the course
- Required Background Knowledge
- Purpose of Planning
- Definition of Planning and Control
- PMBOK® Guide Process Groups and Knowledge Areas
- Project Planning
- Levels of Planning
- Monitoring and Controlling a Project
- Project Planning Metrics
- Planning Cycle
- PMBOK® Guide Processes and Microsoft Project

1.1 Purpose of the course
- Provide a method for planning, scheduling and controlling projects
- Using Microsoft Office Project Professional 2013, 2106 & 2019 or Microsoft Office Project Standard 2013, 2016 & 2019,
- In an environment utilizing the PMBOK® Guide Sixth Edition processes,
- Up to an intermediate level.

1.2 Required Background Knowledge
To attend this course you should have:
- An understanding of how the PMBOK® Guide Knowledge Areas and Processes are used to plan and control a project.
- The ability to use a personal computer and understand the fundamentals of the operating system.
- Experience using application software such as Microsoft Office, which would have given you exposure to Windows menu systems and typical Windows functions such as copy and paste.

1.3 Purpose of Planning
- The ultimate purpose of planning is to build a model that allows you to predict which activities and resources are critical to the timely completion of the project,
- Strategies may then be implemented to ensure that these activities and resources are managed properly,
- Thus ensuring that the project will be delivered both On Time and Within Budget.

1.4 Definition of Planning and Control
PMBOK® Guide defines:
- The Planning Process as those processes performed to define and mature the project scope, develop the Project Management Plan, and identify and schedule the project activities that occur within the project,
- The Control as comparing actual performance with planned performance, analyzing variances, assessing trends to effect process improvements, evaluating possible alternatives, and recommending appropriate corrective action as needed.
1.5 PMBOK® Guide Process Groups

The PMBOK® Guide has five Process Groups:
- Initiating Process Group
- Planning Process Group
- Executing Process Group
- Monitoring and Controlling Process Group
- Closing Process Group.

1.6 PMBOK® Guide Processes

The following Processes may be managed in Microsoft Project when the schedule is unresourced:
- 5.4 Create WBS
- 6.2 Define Activities
- 6.3 Sequence Activities
- 6.4 Estimate Activity Durations
- 6.5 Develop Schedule
- 6.6 Control Schedule

1.7 Levels of Planning

Projects are often planned at a summary level and then detailed out in the schedule before the work is commenced.

Smaller projects may be detailed out during project planning but other large or complex projects may require several levels before the project is fully detailed out.

The following techniques documented in the PMBOK® Guide be considered to develop a plan:
- WBS Development
- Sub-projects
- Phases
- Rolling Wave
- Work Packages
3.1 Starting Microsoft Project Professional and Standard (cont)

- Once a new project has been created there are more options available from the File menu:

3.2 - Identify the Parts of the Project Screen

3.3 - Customizing the Screen

- The toolbars will not be covered in detail in this course as they operate the same way as all other Microsoft products,

- The Ribbon Toolbar has Tabs along the top and Ribbon Groups, which are groups of Command Buttons, below the Ribbon Tabs,

- Significant productivity improvements may be made by:
  - Moving the Quick Access Toolbar below the Ribbon Toolbar,
  - Ensuring that frequently used functions are made available on the Quick Access Toolbar,
  - Collapse (Minimize in MSP 2010) the Ribbon which hides the Ribbon Toolbar until required.

- NOTE: You may download and import the Eastwood Harris Quick Access Toolbar to save formatting time.

3.4 - Microsoft Project Windows

- Multiple Windows may be created for each project,

- The View, Window group commands manage multiple windows,

- The picture below shows three views of the same project opened at the same time, with the Gantt Chart view on the left being split.

3.5 - Status Bar

- The Status Bar, located at the bottom of the screen, may be formatted by right-clicking on it,

- It is recommended that you do not display the Zoom Slider as this function does not result in good timescale increments:

3.6 - Forms Available from the Ribbon Groups

- Some Ribbon groups have a little arrow in the bottom right-hand corner of the Group box,

- Clicking on the arrow will open up a form:
6.10 - Elapsed Duration

- A task may be assigned an Elapsed duration and the task will ignore all calendars and the task will take place 24 hours a day and 7 days per week,
- This is useful for tasks such as curing concrete,
- To assign an elapsed duration type an "e" between the duration and units to enter an elapsed duration.

The example below shows the difference between a 7-Elapsed Day task and a 7-day task on a Standard (5-day per week) calendar.

6.11 - Indicators Column

- The Indicators column will display icons in the column when a task contains a non-default setting such as a Note, Constraint, or a Task calendar.
- Placing the mouse over the icon will display information about the task:

6.12 - Assigning Calendars to Tasks

- Tasks often require a different calendar from the Project Calendar and Microsoft Project allows each task to be assigned a unique calendar,
- A Task Calendar may be assigned by:
  - Using the Task Information form, Advanced tab, or
  - Displaying the Task Calendar column.

6.13 - Workshop 4 - Adding Tasks

- We will add the tasks for this project and then add the WBS in the next workshop.

Module 6 – Adding Tasks - Summary

Topics:
- Understanding Tasks
- Adding New Tasks
- Understanding Change Highlight
- Copying and Pasting Tasks
- Milestones
- Reordering Tasks by Dragging
- Sorting Tasks
- Task Information Form
- Elapsed Durations
- Indicators Column
- Assigning Calendars to Tasks
- Workshop 5 - Adding Tasks.

Module 7 – Organising Tasks Using Outlining

Topics:
- Understanding Outlining
- Creating an Outline
- Promoting and Demoting Tasks
- Summary Task Duration Calculation
- Summarizing Tasks
- Project Summary Task
- Workshop 5 - Entering Summary Tasks.
7.1 Understanding Outlining

- Outlining is used to summarize and group tasks under a hierarchy of Parent or Summary Tasks.
- They are used to add structure to your project during planning, scheduling and updating.
- These headings are normally based on your project Work Breakdown Structure (WBS), Control Accounts or Planning Packages.
- The development of the WBS is covered in PMBOK® Guide Knowledge Area Project Scope Management and the development of the WBS is covered in detail in section 5.4 Create WBS.

7.2 - Creating an Outline

- Microsoft Project 2010 introduced a function titled Insert Summary Task.
- There are two ways of creating a Summary Task:
  - The Insert Summary Task function and
  - The traditional way of creating summary tasks by promoting and demoting tasks.

7.3 - Promoting and Demoting Tasks

- There are several ways of Promoting and Demoting Tasks:
  - Dragging with the mouse,
  - Quick Access toolbar buttons,
  - Ribbon toolbar buttons,
  - Shift + Alt and Left or Right Arrow keys,
  - Undo.

7.4 - Summary Task Duration Calculation

- The summary task duration is calculated from the Start to the Finish over the calendar assigned to the task, thus changing the summary task calendar will change the displayed duration:

7.5 - Summarizing Tasks

- Tasks may be summarised by:
  - The + and − signs to the left of the Summary Task description,
  - Note: These symbols replaced the + and − sign used in earlier version of the software,
  - The View, Data group, Outline button.
11.2 - Deadline Date

- **Deadline Date** allows the setting of a date that a task should be complete,
- A **Deadline Date** is similar to placing a **Finish No Later Than** constraint on a task and affects the calculation of the **Late Finish** date and float of the task,
- A second constraint such as an Early Start constraint may also be assigned to a task with a Deadline Date.

11.4 - Task Notes

- It is often important to note why a constraint has been set, or to record information about a Task,
- Microsoft Project has a function that enables you to note information associated with a task, including the reasons why a constraint has been set,
- The **Task Information** form has a **Note** tab, which has some word processing-type formatting functions:

11.5 Completed Schedule Check List

- Check all constraints are valid and cross referenced to contract documentation or project management plan,
- Review float. Tasks with excessive float should be assigned dummy successors or delayed if they are not scheduled in a realistic timeframe with sequencing logic or Early Start constraints,
- Ensure all stakeholders are represented and agree to their scope or work,
- Ensure all risk mitigation tasks have been added,
- Check the Critical Path is realistic and aligned with what project personnel consider critical,
- A resourced schedule should be optimized by checking the histograms and tables,
- Evaluate the contingent time,
- Ensure all project personnel are in agreement with the schedule.

Module 11 – Constraints - Summary

- Understanding Constraints
- Assigning Constraints
- Deadline Date
- Task Notes
- Completed Schedule Check List
- Workshop 9 – Constraints.
Important Points – In-Progress Tasks

- There is an in-built proportional link between Duration, Actual Duration, Remaining Duration and % Complete,
- It is not possible to unlink these fields and therefore not possible to enter the Remaining Duration independently of the % Complete,
- The Physical % Complete may be used to show the progress of a task that is independent of the durations,
- There are many methods of updating an in-progress task that you may explore in your own time.

Important Points – In-Progress Tasks continued

The workshop in this book uses the following method:
- The Tracking table is applied and Status Date set,
- The Actual Start is entered
- The Actual Duration should be entered so that progress is up to the Status Date, or use the Mark on Track button,
- Then the Remaining Duration may then be entered so the Finish date is correct and the Actual Duration will not change,
- The % Complete will be calculated by Microsoft Project.

Important Points – Un-Started Tasks

- The Un-started tasks should have durations and logic adjusted as required,
- New Un-started tasks without predecessors will stay on the project start date and ignore the Status date unless a constraint is assigned, say by dragging the task.

Split In-Progress Tasks

- There are two options in the File, Options, Schedule tab for calculating the finish date of the successor when the successor task starts before the predecessor task is finished. This option will operate when:
  - The Project Option Split in-progress tasks is checked,
  - There is an Actual Start, and
  - A % Complete between 1% and 99% is assigned to the successor task,
- Before updating:
  - Split in-progress tasks checked:
  - Split in-progress tasks unchecked:

16.5 - Simple Procedure for Updating a Schedule

- This process is designed for people who require just one simple method of updating a schedule utilizing the Update Project function,
- In summary the process:
  - Sets and displays the Baseline,
  - Runs the Update Project function,
  - Then the user adjusts the program to reflect reality,
  - This process is ideally suited to a situation when the plan is being closely followed and only minor adjustments are required to the Actual Dates and Remaining Durations,
  - It may not suit all situations especially when a project is way off plan.

16.6 Procedure for Detailed Updating

- This procedure is suited to people who wish to update a schedule properly and make sure the Actual dates and durations are correct,
- In summary the process:
  - Sets and displays the Baseline,
  - Then the user updates each task manually,
  - It has small but important differences to the previous process.
16.7 Comparing Progress with the Baseline

- To display the Baseline Bar in the Gantt Chart you may use any of the functions covered in the FORMATTING THE DISPLAY chapter,
  - The Format, Bar Styles group, Baseline button, or
  - The Bar Styles form,
  - You may use the Gantt Chart Wizard,
  - Note: The Gantt Chart Wizard should ONLY be used if the project was created in Microsoft Project 2007 or earlier,
  - The Start Date, Finish Date and Duration variances are available for Baseline only (not Baseline 1 to 10) by displaying the Start Variance, Finish Variance and Duration Variance columns,
  - The Slippage function will also display slippage from the Baseline.

16.8 In-Progress Schedule Check List

- This check list may be used to check an in-progress schedule before it is published.

16.9 Corrective Action

- There are two courses of action available with slippage:
  - The first is to accept the slippage. This is rarely acceptable, but it is the easiest answer,
  - The second is to examine the schedule and evaluate how you could improve the end date,
- Suggested techniques to bring the project back on track include:
  - Reducing the durations of tasks on the Critical Path,
  - Providing more time by changing calendars,
  - Changing task relationships so tasks take place concurrently,
  - Change the method of execution, for example moving work off-site,
  - Reducing the project scope and hence deleting tasks.

Module 16 – Tracking Progress - Summary

Topics:
- Setting the Baseline
- Practical Methods of Recording Progress
- Understanding Tracking Progress Concepts
- Updating the Schedule
- Simple Procedure for Updating a Schedule
- Procedure for Detailed Updating
- Comparing Progress with Baseline
- In-Progress Schedule Check List
- Corrective Action
- Workshop 14 - Updating the Schedule and Baseline Comparison

Module 17 – Creating Resources and Costs

Topics:
- Creating Resources in the Resource Sheet
- Grouping Resources in the Resource Sheet
- Resource Information Form
- Resource Calendars
- Workshop 15 - Defining Resources
PMBOK® Guide and Resources

Resources may be used to assist in the following PMBOK® Guide processes:

- 6.4 Estimate Activity Durations with the schedule does not include costs,
- 7.2 Estimate Costs and 7.3 Determine Budget with the schedule includes costs, and
- 9.1 Plan Resource Management, 9.2 Estimate Activity Resources and 9.3 Acquire Resources to indicate how many resources are required and when.

Understanding Resources

- A resource may be defined as something or someone that is assigned to a task and is required to complete the task. This includes people or groups of people, materials, equipment and money,
- It is recommended that the minimum number of resources be assigned to tasks when it is planned to status a schedule. Avoid cluttering the schedule with resources that are in plentiful supply or are of little importance. Every resource added to the schedule will need to be updated. Therefore the scheduler’s workload increases as resources are added to tasks,
- Microsoft Project 2007 introduced a Cost resource in addition to the existing Work and Material resources. This allows the entry of Costs as a resource without requiring a quantity,
- Microsoft Project also has an Expense function.

Using Resources

- Individual Resources – Individual people often responsible for completing the task or tasks associated with tasks to which they have been assigned,
- Group Resources – Represent groups of people, such as trades or disciplines on a construction site,
- Crews – Representing a mix of trades and mobile equipment,
- Input Resources – These resources are required to complete the work and represent the project costs,
- Output Resources – These could be the project deliverables or outcomes and could have a direct relationship to the project income.

17.1 Creating Resources in the Resource Sheet

- To add resources to the Resource Sheet, select View, Resource Views group, Resource Sheet,
- Select the File, Options, Schedule tab to set your option of Percentage or Decimal, 2 or 200% is two resources:

17.2 Grouping Resources in the Resource Sheet

- Resources may be grouped on any data fields, such as Custom Fields and Custom Outline Codes, using the View, Data, Group by: function,
- The example below shows resources grouped by Resource Group:

17.3 Resource Information Form

- The Resource Information form is opened by double-clicking on a specific row within the Resource Sheet view.
17.4 Resource Calendars
- Tasks calendars may not accommodate specific resource availability,
- Resource Calendars, on the other hand, can be used to schedule this resource-specific nonworking time,
- A unique resource calendar is created automatically when a resource is created and is a copy of the project Base Calendar when the resource is created,
- This topic is extremely complex and is covered in the book in detail but will not be covered in this course.

Module 17 – Creating Resources and Costs – Summary
Topics:
- Creating Resources in the Resource Sheet
- Grouping Resources in the Resource Sheet
- Resource Information Form
- Resource Calendars
- Workshop 15 - Defining Resources.

17.5 Workshop 15 - Defining Resources
- The resources must now be added to this schedule,
- Since we have updated our project, we need to revert to the original schedule that we saved prior to updating the current schedule.

Module 18 – Assigning Resources and Costs to Tasks
Topics:
- Fixed Costs
- Assigning Work without a Resource
- Resource Definitions
- Task Type and Effort-Driven
- Resource Calendars
- Assignment of Resources to Summary Tasks
- Roll up Costs and Hours to Summary
- Task Type and Effort-Driven
- Workshop 16 - Assigning Resources to Tasks.

18.1 Fixed Costs
- Fixed costs are a function where you may assign costs to a task without creating resources,
- It is a useful function if you require a cash flow only but not so useful with a progressed schedule as actual costs are linked to the % Complete,
- A fixed cost is assigned using the Fixed Cost column.
- The fixed cost may be accrued at the Start, End or Prorated over the duration of the task,
- Fixed Costs are added to resource costs and the total is shown in the Cost column.

18.2 Assigning Work without a Resource
- Display the Work column and type in the hours to assign work to a task which does not have resources,
- A resource assigned to a task with work will inherit the work value assigned to the task.
18.3 Resource Definitions

- When a resource is assigned to a task, it has three principal components:
  - Quantity, in terms of Work or Material required to complete the task,
  - Units, which represents the number of people working on a task or material quantity, often called Units per Time Period and
  - Cost, calculated from the Standard Rate, Overtime Rate and Cost per Use,
- The Units (per Time Period) of a Work resource may be entered against a task and the Work (Quantity) will be calculated, or
- The Work entered and the Units will be calculated,
- The resource cost is calculated from the resource Work times the resource Rate.

18.4 Task Type and Effort-Driven

- Once a resource has been assigned to a task, the task Effort is the combined number of hours of all resources assigned to a task,
- The Effort-driven option decides how the effort is calculated when a resource is added or when a resource is removed to a Fixed Units or Fixed Duration task.
- There are two options:
  - Effort-driven - When a resource is added or removed from a task, the Task Effort assigned to a task remains constant,
  - Non Effort-driven - When a resource is added to or removed from a task, the Resource Effort or Work of other resources remains constant. Adding or deleting resources increases or decreases the total task effort.

18.5 Resource Calendars

- The simplest method of scheduling is when all tasks and resources share the same calendar,
- This is often not desirable and Microsoft Project allows three levels of calendars: project, task and resource,
- The interaction among these calendars when resources are assigned is difficult to understand,
- The order that resources are assigned to tasks and assignment of task calendars may result in different calculated task durations and work,
- It is recommended that you practice with a small schedule with one or two tasks and resources until you are confident on how the software is calculating.

18.6 – 18.9 Assigning Resources

- Resources may be assigned a number of ways including using the:
  - Resource Assignment form
  - Task Details form
  - Task Information form
  - Resources column
- The instructor will demonstrate some of these functions by completing the workshop.

18.10 Assignment of Resources to Summary Tasks

- Summary tasks may be assigned Fixed Costs, Work Resources, Costs Resources and Material Resources,
- You must also be aware that when a Work resource is assigned to a summary task the task type is set to Fixed Duration and that setting may not be changed,
- Thus, any change in duration of a summary task due to rescheduling of associated detail tasks will result in a change to the work assignment and the calculated costs of a summary task.
20.1 Understanding Baseline Dates, Duration, Costs and Hours

- Baseline Dates and Baseline Duration were covered earlier,
- Baseline Costs are also known as Budgets and represent the original project cost estimate. These are the figures against which the expenditures and Cost at Completion (or Estimate at Completion) are measured,
- Baseline Work is also known as Budgeted Quantity and represents the original estimate of the project quantities. These are the quantities against which the consumption of resources are measured,
- Note: If resources have been assigned then the Baseline Costs and Work are recorded at the same time as the Baseline dates.

20.2 Understanding the Status Date

- The Status Date was covered earlier,
- Actual Costs and Quantities/Hours or Actual Work occur before the Status Date,
- Costs and Quantities/Hours To Complete or Work to Complete occur after the Status Date,
- Note: The Status Date is by default set at the end of each day.

20.3 Formatting the Current Date and Status Date Lines

To format the display of the Current Date and Status Date lines on the Bar Chart,
- Select Format, Format group, Gridlines...to display the Gridlines form:

20.4 Information Required to Update a Resourced Schedule

- Microsoft Project may calculate task Actual Costs from the rates entered in the Resource Table or the costs may be entered manually,
- This option is set in the File, Options, Schedule tab,
- If the Actual Costs are to be calculated by Microsoft Project then the Actual Costs do not need to be collected,
- The following information is required to update a resourced schedule:
  - Tasks completed in the update period:
    - Actual Start date of the task,
    - Actual Finish date of the task,
    - Actual Costs spent, Actual Resource Hours spent, and/or Actual Material Quantities,
  - Tasks commenced in the update period:
    - Actual Start date of the task,
    - Remaining Duration or Expected Finish date,
    - Actual Costs and Actual Resource Hours and/or Actual Material Quantities,
    - Hours or Quantities to complete,
    - Stop date and Resume date for tasks that have had their work suspended. These may be used for splitting tasks,
  - Tasks Not Commenced:
    - Changes in logic or date constraints,
    - Changes in estimated Costs, Hours or Quantities,
    - Any additional tasks to represent new work.
Summary Tasks and Earned Value  
(continued)  
• The method that Microsoft Project uses to calculate the Earned Value data is documented in the Help file and should be read carefully, as different versions of Microsoft calculate these fields differently,  
• Should different Earned Value calculations be required then Custom Data Fields should be considered as an alternative.

Module 20 – Updating Projects with Resources - Summary

Topics:
• Understanding Baseline Dates, Duration, Costs and Hours
• Understanding the Status Date
• Formatting the Status Date
• Information Required to Update a Resourced Schedule
• Updating Dates and Percentage Complete
• Updating Resources
• Additional Updating Functions
• Splitting Tasks
• Summary Tasks and Earned Value
• Workshop 18 - Updating a Resourced Schedule.

20.9 Workshop 18 - Updating a Resourced Schedule

• We need to update the tasks and resources,  
• The instructor will demonstrate this workshop first.

Review Expectations

• Complete Feedback Sheet and
• Have we met your expectations?

Thank you for attending