

EASTWOOD HARRIS PTY LTD.

Welcome to the Eastwood Harris Pty Ltd Microsoft Project training course presented by Paul E Harris

Page 1

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Administration

- Evacuation
- Timings, meals and facilities
- Mobile phones and emails
- Introductions
 - Your name
 - Your position or job
 - Experience in scheduling software
 - What you expect from the course
- Course attendance sheet.

Page 2

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Course Agenda

Day 1 Modules

- 1 Introduction
- 2 Creating a Project Plan
- 3 Creating Projects and Setting up the Software
- 4 Navigating Around the Screen
- 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

Day 2 Modules

- 12 Filters
- 13 Views, Tables and Details
- 14 Printing and Reports
- 15 Tracking Progress
- 16 Grouping Tasks, Outline Codes and WBS
- 17 Options
- 18 Creating Resources
- 19 Assigning Resources and Costs to Tasks
- 20 Resource Histograms, Tables, S-Curves & Leveling
- 21 Statusing Projects with Resources
- 22 Tools and Techniques for Scheduling.

Page 3

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Module 1 – Introduction

Topics:

- Purpose of the Course
- Required Background Knowledge
- Purpose and of Planning
- Project Planning Metrics
- Planning Cycle
- Levels of Planning
- Monitoring and Controlling a Project.

Page 4

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Purpose of the course

- Provide a method for planning, scheduling and controlling projects using Microsoft Project,
- Up to an intermediate level.

Page 5

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Required Background Knowledge

- The ability to use a personal computer and understand the fundamentals of the operating system,
- Experience using application software such as Microsoft Office, and
- An understanding of how projects are managed.

Page 6

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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**.

Page 7

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Planning aims to:

- Identify the total scope,
- Plan to deliver the scope,
- Evaluate different project delivery methods,
- Identify the deliverables under a logical breakdown of the project,
- Identify and optimize the use of resources,
- Evaluate if target dates may be met,
- Identify risks and plan to minimize them,
- Provide a baseline plan,
- Assist in stakeholders' communication,
- Assist management to think ahead and make informed decisions.

Page 8

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Planning helps to avoid or assist in evaluating:

- Increased project costs or reduction in scope and/or quality,
- Additional change over and/or operation costs,
- Extensions of time claims,
- Loss of your client's revenue,
- Contractual disputes and associated resolution costs,
- The loss of reputation of those involved in a project, and
- Loss of a facility or asset in the event of a total project failure.

Page 9

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Project Planning Metrics

- A change in any one of these components normally results in a change in one or more of the others.

Page 10

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Planning Cycle

```

    graph TD
      A[Plan the Project] --> B[Execute Work]
      B --> C[Monitor Progress]
      C --> D[Evaluate and Report]
      D --> E[Revise Plan]
      E --> A
  
```

Page 11

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Techniques used to Develop a Plan

As a schedule is developed more details is normally added. There are several techniques that may be considered:

- Work Breakdown Structure (WBS)
- Sub-projects
- Phases
- Stage Plan
- Work Package
- Rolling Wave

Page 12

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Controlling a Project

- Monitoring a project ensures:
 - The required deliverables are being produced
 - The required quality is being met
 - Deliverables are produced on time, with the planned resources and to budget
- Controlling a project
 - Ensures the project is executed to the plan
 - Compare the project's progress with the plan
 - Review options
 - Forecast problems as early as possible
 - Record historical data
 - Records data for dispute resolution.

Page 13

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Module 2 – Creating a Project Plan

Topics:

- Understanding Planning and Scheduling Software
- Understanding Your Project
- Level 1 – Planning without Resources
- Level 2 – Tracking Progress without Resources
- Level 3 – Planning with Resources
- Level 4 – Tracking Progress of a Resourced Schedule.

Page 14

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Planning software allows:

- Record the WBS- the deliverables,
- Break the deliverables into activities,
- Assign durations, constraints, predecessors and successors to activities,
- Calculate the start and finish dates,
- Assign resources and/or costs to activities,
- Optimize the project plan,
- Set Baselines to compare progress,
- Approve work,
- Record the actual progress,
- Compare progress against the original plan,
- Amend the plan for scope changes etc., and
- Produce management reports.

Page 15

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Four modes or levels

- There are four levels in which planning and scheduling software may be used.

	Planning	Controlling
Without Resources	LEVEL 1 Planning without Resources	LEVEL 2 Tracking progress without Resources
With Resources	LEVEL 3 Planning with Resources	LEVEL 4 Tracking progress with Resources

Page 16

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Level 1 – Planning Without Resources

- Create the project
- Define the calendars
- Defining the WBS and other codes
- Add tasks
- Add the logic & constraints
 - Mandatory dependencies
 - Discretionary dependencies
 - External dependencies
- Schedule the project and
- Consider contingent time.

Page 17

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Understanding Your Project

- Before you start the process of creating a project plan, it is important to have an understanding of the project and how it will be executed, read and understand the following types of documents:
 - The contract,
 - The project methodology statements,
 - Drawings and specifications.
- Consider conducting a **Stakeholder Analysis**, and
- A **Risk Analysis** at the start of a project.

Page 18

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Creating Projects

To create the project in Microsoft Project, you will require the following information:

- Project Name
- The Project Start Date (and perhaps the Finish Date)
- It would be helpful to know other important information such as:
 - Client name, and
 - Other project data such as location, project number and stakeholders.

Page 19

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Defining the Calendars

- The finish date and time of an task is calculated from the start date and time plus the task duration over the calendar assigned to the task.

Duration: 5 days

Page 20

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Defining a WBS and Adding Tasks

- A WBS may be defined as a hierarchical breakdown of all the project deliverables or products.
- The principal method of assigning a WBS to a project with Microsoft Project is using a function entitled **Outlining**, which creates a hierarchy of summary tasks:

Task Name	Duration	Start	Finish
1 Project Summary Task	57 days	2 Apr	19 Jun
2 Start Milestone	0 days	2 Apr	2 Apr
3 Finish Milestone	0 days	19 Jun	19 Jun
4 WBS Node 1	28 days	2 Apr	27 Apr
5 Task 1	5 days	2 Apr	6 Apr
6 Task 2	8 days	9 Apr	16 Apr
7 Task 3	7 days	19 Apr	27 Apr
8 WBS Node 2	38 days	19 Apr	28 May
9 Task 4	3 days	19 Apr	23 Apr
10 Task 5	19 days	30 Apr	24 May
11 Task 6	4 days	25 May	30 May
12 WBS Node 3	41 days	24 Apr	19 Jun
13 Task 7	4 days	24 Apr	27 Apr
14 Task 8	6 days	31 May	7 Jun
15 Task 9	8 days	8 Jun	19 Jun

Page 21

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Summarizing a Schedule

- The project schedule may be rolled up using these summary tasks:

Task Name	Duration	Start	Finish
1 Project Summary Task	57 days	2 Apr	19 Jun
2 Start Milestone	0 days	2 Apr	2 Apr
3 Finish Milestone	0 days	19 Jun	19 Jun
4 WBS Node 1	28 days	2 Apr	27 Apr
8 WBS Node 2	38 days	19 Apr	28 May
12 WBS Node 3	41 days	24 Apr	19 Jun

Page 22

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Adding the Logic

There are several types of dependencies that may be used when planning a project:

- Mandatory dependencies**, also known as **Hard Logic**, are relationships between tasks that may not be broken.
- Discretionary dependencies**, also known as **Sequencing Logic** or **Soft Logic**, are relationships between tasks that may be changed when the plan is changed.
- External dependencies** are usually events outside the control of the project team that impact the schedule.

Page 23

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Leads and Lags

- The software will calculate the start and finish dates for each task.
- The end date of the project is calculated from the start date of the project, the logic amongst the tasks, any **Leads** (often referred to as **Negative Lag**) or **Lags** applied to the logic and durations of the tasks.

Task Name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1 Predecessor	[Task Bar]														
2 Successor with 3 day Lag	[Task Bar]														
3	[Task Bar]														
4 Predecessor	[Task Bar]														
5 Successor with 3 day Lead	[Task Bar]														

Page 24

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Schedule Calculations

- When a schedule has a **Closed Network** scheduling the project will identify the:
 - Critical Path(s), the shortest duration a project may be completed in
 - Total Float, the amount of time an task may be delayed without delaying the end of a project
 - Free Float is the time an task may be delayed without delaying another task.

Task Name	Dur	Start	Finish	Total Slack	Free Slack
1 Start Milestone	0d	1 Jun	1 Jun	0d	0d
2 Activity	5d	1 Jun	5 Jun	0d	0d
3 Activity	5d	8 Jun	12 Jun	0d	0d
4 Activity	5d	15 Jun	19 Jun	0d	0d
5 Activity	2d	1 Jun	2 Jun	11d	3d
6 Activity	2d	8 Jun	9 Jun	0d	0d
7 Finish Milestone	0d	19 Jun	19 Jun	0d	0d

Page 25

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Closed Network

- In a **Closed Network** every activity has except: one or more start milestones and one or more finish milestones:
 - A Start Predecessor, and
 - A Finish Successor.

Page 26

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Critical Path(s)

- The **Critical Path** is the shortest duration that a project may be completed in and a delay to any activity will delay the end date of the project, shown in red below:

Task Name	Dur	Start	Finish	Total Slack	Free Slack
1 Start Milestone	0d	1 Jun	1 Jun	0d	0d
2 Activity	5d	1 Jun	5 Jun	0d	0d
3 Activity	5d	8 Jun	12 Jun	0d	0d
4 Activity	5d	15 Jun	19 Jun	0d	0d
5 Activity	2d	1 Jun	2 Jun	11d	3d
6 Activity	2d	8 Jun	9 Jun	0d	0d
7 Finish Milestone	0d	19 Jun	19 Jun	0d	0d

Page 27

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Total Float

- The **Total Float** is the amount of time an activity may be delayed without delaying the end of a project.
 - An activity may delay another activity.
 - Displayed in a column and the thin black bar below and may be in the negative.

Task Name	Dur	Start	Finish	Total Slack	Free Slack
1 Start Milestone	0d	1 Jun	1 Jun	0d	0d
2 Activity	5d	1 Jun	5 Jun	0d	0d
3 Activity	5d	8 Jun	12 Jun	0d	0d
4 Activity	5d	15 Jun	19 Jun	0d	0d
5 Activity	2d	1 Jun	2 Jun	11d	3d
6 Activity	2d	8 Jun	9 Jun	0d	0d
7 Finish Milestone	0d	19 Jun	19 Jun	0d	0d

Page 28

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Free Float

- The **Free Float** is the amount of time an activity may be delayed without delaying another activity.
 - Displayed in a column or bar.
 - Is never in the negative.

Task Name	Dur	Start	Finish	Total Slack	Free Slack
1 Start Milestone	0d	1 Jun	1 Jun	0d	0d
2 Activity	5d	1 Jun	5 Jun	0d	0d
3 Activity	5d	8 Jun	12 Jun	0d	0d
4 Activity	5d	15 Jun	19 Jun	0d	0d
5 Activity	2d	1 Jun	2 Jun	11d	3d
6 Activity	2d	8 Jun	9 Jun	0d	0d
7 Finish Milestone	0d	19 Jun	19 Jun	0d	0d

Page 29

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Constraints

- To correctly model the impact of events outside the logical sequence, you may use constraints. A constraint would be imposed to specific dates such as:
 - The availability of a facility to allow work to commence,
 - The predetermined time a project must be complete by,
- Constraints should be cross-referenced to the supporting documentation such as contract documentation Milestone Dates.

Page 30

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Constraints Types

There are two types of constraints:

- Project Constraints which includes the Project Start Date or Project Finish Date only in Microsoft Project and
- Task Constraints; the two most common are Start On or After (Early Start) and Finish On or Before (Late Finish).

Page 31

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Task Early Start Constraint

- An task will no longer start on the Data Date When a **Start No Earlier Than** constraint is assigned
- This is more commonly known as an **Early Start** constraint.

Task Name	Dur	Start	Finish	Total Slack	Free Slack
1 Start Milestone	0d	7 Jun	7 Jun	0d	0d
2 Activity A	5d	8 Jun	12 Jun	0d	0d
3 Activity B	5d	15 Jun	19 Jun	0d	0d
4 Activity C	5d	22 Jun	26 Jun	0d	0d
5 Activity D	2d	8 Jun	9 Jun	11d	3d
6 Activity E	3d	15 Jun	18 Jun	8d	5d
7 Finish Milestone	0d	26 Jun	26 Jun	0d	0d

Page 32

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Task Late Finish Constraint

- This picture shows a **Finish Date No Later Than** constraint assigned 4 days earlier than the calculated finish date
- Thus Negative Float is created, representing the amount of time that needs to be caught up,
- This is constraint is also known as a **Late Finish** constraint.

Task Name	Dur	Start	Finish	Total Slack	Free Slack
1 Start Milestone	0d	7 Jun	7 Jun	-4d	0d
2 Activity 1	5d	8 Jun	12 Jun	-4d	0d
3 Activity 2	5d	15 Jun	19 Jun	-4d	0d
4 Activity 3	5d	22 Jun	26 Jun	-4d	0d
5 Activity 4	2d	8 Jun	9 Jun	7d	7d
6 Activity 5	3d	22 Jun	23 Jun	-1d	0d
7 Finish Milestone	0d	26 Jun	26 Jun	-4d	0d

Page 33

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Task Late Finish Constraint

- This schedule has a **Finish Date No Later Than** constraint assigned after the calculated finish date,
- The Total Float is **NOT** calculated to the constraint date when the constraint date it is **LATER** the calculated Early Finish,
- Positive Total Float is **NOT** created and a critical path of zero days float is maintained.

Task Name	Dur	Start	Finish	Total Slack	Free Slack
1 Start Milestone	0d	8 Jun	8 Jun	0d	0d
2 Activity	5d	8 Jun	12 Jun	0d	0d
3 Activity	5d	15 Jun	19 Jun	0d	0d
4 Activity	5d	22 Jun	26 Jun	0d	0d
5 Activity	2d	8 Jun	9 Jun	11d	3d
6 Activity	3d	15 Jun	18 Jun	8d	5d
7 Finish Milestone	0d	26 Jun	26 Jun	0d	0d

Page 34

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Risk Analysis and Contingency

- At this point in time you should consider conducting a **Risk Analysis** and adding Risk Mitigation tasks
- Consider what **Contingent Time** should be assigned and these may be added as tasks
- Now print and issue the plan for review and approval.

Page 35

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Level 2 – Monitoring Progress Without Resources

- Set the Baseline
- Tracking and record progress
- Entering in Actual Start Dates, Percent Complete and Actual Finish dates
- Take corrective action.

Task Name	Duration	% Complete	Start	Finish	Finish Variance	Total Slack
1 Start Milestone	0 days	100%	5 Feb	5 Feb	0 days	0 days
2 Task 1	6 days	100%	5 Feb	12 Feb	1 day	0 days
3 Task 2	5 days	0%	13 Feb	19 Feb	1 day	0 days
4 Task 3	5 days	0%	20 Feb	26 Feb	1 day	0 days
5 Task 4	2 days	100%	5 Feb	6 Feb	0 days	0 days
6 Task 5	4 days	25%	12 Feb	15 Feb	2 days	7 days
7 Finish Milestone	0 days	0%	26 Feb	26 Feb	1 day	0 days

Page 36

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Level 3 – Scheduling With Resources and Costs

- Are you estimating or planning for control?
- Consider the balance between the number of Tasks and Resources
- Creating and using Resources
- Creating and using Expenses
- Task Type and Effort Driven option
- Resource Optimization.

Page 37

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Level 4 – Monitoring Progress of a Resourced Schedule

- A decision needs to be made if the actual units and costs are to be collected and entered into the software or the software is to calculate these and then the appropriate options selected,
- Stating Projects with Resources records,
 - The quantities and/or costs spent to-date per task for each resource, and
 - The quantities and/or costs required per resource to complete each task,
- At this point in time it is possible to undertake a great deal of analysis and often Earned Value Performance Measurement is used.

Page 38

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Now lets get our hand dirty!

Page 39

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Module 3 – Creating Projects and Setting up the Software

Topics:

- File Types
- Starting Microsoft Project
- Creating a Blank Project
- Opening an Existing Project
- Creating a New Project from a Template
- Creating a Project Template
- Saving Additional Project Information
- Workshop 1 - Creating Our Project

Page 40

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Microsoft Project File Types

Microsoft Project propriety file formats :

- **Microsoft Project 98 (*.mpp)**. This is the format created by Microsoft Project 98. MSP98 will not open mpp versions created by later software versions.
- Microsoft Project 2000, 2002 and 2003 will open and save to a **Microsoft Project 98 (*.mpp)** file but not to a 2007 version.
- Microsoft Project 2007 will save to 2000 – 2003 versions, but will not save to a **Microsoft Project 98 (*.mpp)** file.
- **MPX (*.mpx)**. This is a text format data file created by Microsoft Project 98 and earlier versions of Microsoft Project. This format may be opened by Microsoft Project 2000 – 2003 and 2007 but cannot be created by Microsoft Project 2000, 2002, 2003 and 2007. mpx is a format that may be imported and exported by many other project scheduling software packages.
- **Template (*.mpt)**. This format is used for creating project templates.
- **Project Database (*.mpd)**. This is a Microsoft Project database format that may be used for exporting data and is intended to replace the mpx format in Microsoft Project 2000 – 2003, but is not available in Microsoft Project 2007.
- **Microsoft Access Database (*.mdb)**. This is the Microsoft Access format in Microsoft Project 2000 – 2003 that is not available in Microsoft Project 2007.
- **XML format (*.xml)**. Introduced in Microsoft Project 2002, this enables files to be saved in XML (eXtended Markup Language) format allowing data to be shared with other applications. This is becoming a more popular format for other software packages to import and export data.

Page 41

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Creating Projects and Setting up the Software

- The instructor will demonstrate the software functions.

Page 42

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Module 4 – Navigating Around the Screen

Topics:

- Identify the Parts of the Project Screen
- Customizing the Screen
- Setting up the Options
- Splitting the Screen Views and Details Forms
- Right-clicking with the Mouse
- Workshop 2 – Setting Your Project Options

Page 43

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Navigating Around the Screen

- The instructor will demonstrate the software functions.

Page 44

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Module 5 – Defining Calendars

Topics:

- Calculation of Durations in Days
- Understanding Default Start and Default End Time
- Assigning a Calendar to a Project
- Editing Calendars in Microsoft Office Project
- Creating a New Calendar
- Effect on 2007 Calendars When Saving to 2000 – 2003
- Renaming and Deleting Calendars
- Copying Calendars Between Projects
- Resource Calendars
- Copying a Base Calendar to Global.mpt
- Selecting Dates
- Printing the Calendar
- Workshop 3 – Maintaining the Calendars

Page 45

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Calendar Calculation

- The finish date (and time) of an task is calculated from the start date (and time) plus the duration over the calendar assigned to the task.
- Therefore, a five-day duration task that starts at the start of the workday on a Wednesday, and is associated with a five-day workweek calendar (with Saturday and Sunday as non-work days) will finish at the end of the workday on the following Tuesday.

Duration	16 Feb '09					23 Feb '09						
	M	T	W	T	F	S	S	M	T	W	T	F
5 days			[Bar]									

Page 46

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Calculation of Duration in Days

- Microsoft Project effectively calculates in hours and the value of the duration in days is calculated using the parameter entered in the **Hours per day**: field in the **Tools, Options, Calendar** tab:

Page 47

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Calculation of Duration in Days


- The picture below shows:
 - Task 1 has the correct duration in days
 - Task 2 shows a duration that is clearly misleading.
 - Task 4 and 5 display the duration in hours and are not misleading when the calendar column is also displayed.

Task	Calendar	Duration	Start	Finish	Mon 1	Tue 2	Wed 3	Thu 4	Fri 5
1	8 Hours per Day	5 days	Mon 8:00 AM	Fri 5:00 PM	[Bar]				
2	24 Hours per Day	5 days	Mon 8:00 AM	Wed 12:00 AM	[Bar]				
3					[Bar]				
4	8 Hours per Day	40 hrs	Mon 8:00 AM	Fri 5:00 PM	[Bar]				
5	24 Hours per Day	40 hrs	Mon 8:00 AM	Wed 12:00 AM	[Bar]				

Page 48

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Understanding Default Start and Default End Time

- The **Default start time**: and **Default end time**: are the times that the software uses when a date is entered and a time is not entered. These times should be aligned to the **Project** calendar and they are used in Microsoft Project when:
 - Constraints are assigned to tasks, and
 - Actual Start or Actual Finish Dates are assigned.
- These times are set in the **Options, Calendar** form:
 

Page 49

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Understanding Default Start and Default End Time

- If these times are not aligned then tasks may be displayed one day longer than the duration as per the picture below, where the calendar start time is 8:00am and the Default start time is 9:00am.

Duration	Start	Finish	Tuesday	Wednesday	Thursday	Friday
3 days	Tue 9:00 AM	Fri 9:00 AM	[Task bar spanning Tue, Wed, Thu, Fri]			

Page 50

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Defining Calendars

- The instructor will demonstrate the software functions.

Page 51

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Module 6 – Adding Tasks

Topics:

- Adding New Tasks
- Reordering Tasks by Dragging
- Copying and Pasting Tasks
- Copying Tasks from Other Programs
- Dynamically Linking Cells to Other Programs
- Task Information Form
- Indicators Column
- Elapsed Durations
- Milestones
- Assigning Calendars to Tasks
- Workshop 4 – Adding Tasks.

Page 52

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Task Definition

- Tasks should be well-defined, measurable pieces of work with a measurable outcome. Task descriptions containing only nouns such as “Bid Document” have confusing meanings,
- The limit for task names is 254 characters, but try to keep task descriptions meaningful yet short and concise so they are easier to print,
- When tasks are created, they are normally organised under the WBS which is created using Summary tasks,
- Normally the WBS would be added first but it is simpler to teach Microsoft Project by showing how tasks are added first and then demonstrate the Creation of Summary Tasks using Outlining,
- Tasks may also be organized under other coding structures such as Task Codes or Custom Fields.

Page 53

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Adding Tasks

- The instructor will demonstrate the software functions.

Page 54

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Module 7 – Organising tasks Using Outlining

Topics:

- Creating an Outline
- Promoting and Demoting Tasks
- Summary Task Duration Calculation
- Summarizing Tasks
- Workshop 5 – Maintaining the WBS.

Page 55

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Organising tasks Using Outlining

- Outlining is used to summarize and group tasks under a hierarchy of **Parent** or **Summary Tasks**,
- They are used to present different views of your project during planning, scheduling and statusing,
- These headings are normally based on your project breakdown structure,
- In projects project these Summary Tasks may be used to represent one or more of the following:
 - The project phases
 - Work Breakdown Structure
 - Areas, floor or physical locations
 - Systems and Sub-Systems.

Page 56

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Organising tasks Using Outlining

- The instructor will demonstrate the software functions.

Page 57

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Module 8 – Formatting the Display

Topics:

- Formatting the Columns
- Formatting the Bars
- Row Height
- Format Fonts
- Format Colors
- Format Timescale
- Format Gridlines
- Format Links, Dependencies, Relationships, or Logic Lines
- Workshop 6 - Formatting the Bar Chart.

Page 58

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Formatting the Display

- This chapter covers the following topics, which are used to format the on-screen display and which are also reflected in print preview and printouts.

Page 59

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Formatting the Display

- The instructor will demonstrate the software functions.

Page 60

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Module 9 – Adding Task Dependencies

Topics:

- Understanding Dependencies
- Understanding Lags and Leads
- Restrictions on Summary Task Dependencies
- Displaying the Dependencies on the Gantt Chart
- Scheduling the Project
- Task Drivers
- Workshop 7 – Adding Relationships.

Page 61

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What is Network Logic

- The next phase of a schedule is to add logic to the tasks
- There are two types of logic:
 - Relationships (Dependencies or Logic or Links between tasks), and
 - Imposed Constraints to task start or finish dates. These are covered in the Constraints chapter,
- Microsoft Project's Help file and other text uses the terms "**Dependencies, Relationships and Links**" for Dependencies but does not use the term "**Logic.**"

Page 62

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Understanding Dependencies

- Two other terms you must understand are:
 - Predecessor**, a task that controls the start or finish of another immediate subsequent task.
 - Successor**, a task whose start or finish depends on the start or finish of another immediately preceding task.
- There are four types of dependencies available in Microsoft Project:
 - Finish-to-Start (FS) (also known as conventional)
 - Start-to-Start (SS)
 - Start-to-Finish (SF)
 - Finish-to-Finish (FF).

Page 63

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What is Closed Network

- To create a **Closed Network** each task will require a Start predecessor and a Finish successor.

Page 64

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Relationship Types

The **FS** (or conventional) dependency looks like this:

While the **SS** dependency is like this:

The **FF** dependency looks like:

The **SF** dependency would be:

Page 65

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Leads and Lags

- A successor task will start or finish later when a positive Lag is assigned. Therefore, a task requiring a 3-day delay between the finish of one task and start of another will require a positive lag of 3 days.
- Conversely, a lag may be negative (also called a Lead) when a new task can be started before the predecessor task is finished.
- Leads and Lags may be applied to any relationship type including Summary Task relationships.

An example of a **FS** with positive lag

An example of a **FS** with negative lag:

Page 66

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Adding Task Dependencies

- The instructor will demonstrate the software functions.

Page 67

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Module 10 – Network Diagram View

Topics:

- Understanding the Network Diagram View
- Adding and Deleting Tasks in the Network Diagramming View
- Adding, Editing and Deleting Dependencies
- Formatting the Task Boxes
- Formatting Individual Boxes
- Formatting the Display and Relationship Lines
- Early Date, Late Date and Float/Slack Calculations
- Workshop 8 – Schedule Calculations

Page 68

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Task Network View

- The instructor will demonstrate the software functions.

Page 69

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Module 11 – Constraints

Topics:

- Assigning Constraints
- Deadline Date
- Schedule From Project Finish Date
- Task Notes
- Workshop 9 - Constraints

Page 70

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Task Constraint Types

Constraints are used to impose logic on tasks that may not be realistically scheduled with logic links. This module will deal with the following constraints in detail:

- Start No Earlier Than** more commonly called an **Early Start constraint** and affects the tasks Early Start date,
- Finish No Later Than** more commonly called an **Late Finish constraint** and affects the tasks Late Start date,

These are the minimum number of constraints that are required to effectively schedule a project. There are many other types that may be used:

Page 71

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Task Constraint Types

Other Constraint Types:

- As Soon As Possible.** This is the default for a new task. A task is scheduled to occur as soon as possible and does not have a Constraint Date.
- As Late As Possible.** A Task will be scheduled to occur as late as possible and does not have any particular Constraint Date. The Early and Late dates have the same date. A task with this constraint has no Total Float and delays the start of all the successor activities.
- Start No Earlier Than.** This constraint sets a date before which the task will not start.
- Start No Later Than.** This constraint sets a date after which the task will not start.
- Must Start On.** This constraint sets a date on which the task will start. Therefore the task has no float. The early start and the late start dates are set to be the same as the Constraint Date.
- Continued.....

Page 72

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Task Constraint Types Continued

Other Constraint Types:

- **Must Finish On.** This constraint sets a date on which the task will finish and therefore has no float. The early finish and the late finish dates are set to be the same as the Constraint Date.
- **Finish No Earlier Than.** This sets a date before which the task will not finish.
- **Finish No Later Than.** This sets a date after which the task will not finish.
- **Deadline Date.** This is similar to applying a Finish No Later Than constraint. This offers the only opportunity of putting a second constraint on a task.

Page 73

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Constraints

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Page 74

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Module 12 – Filters

Topics:

- Understanding Filters
- Applying an Existing Filter
- Creating and Modifying Filters
- Defining Filter Criteria
- AutoFilters
- Workshop 10 - Filters

Page 75

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Filters

- Microsoft Project has an ability to display tasks that meet specific criteria using filters,
- Microsoft Project defaults to displaying all tasks. It has a number of predefined filters available that you may use or edit and you may also create one or more of your own,
- A filter may be applied to display or to highlight tasks that meet a criteria,
- There are Task filters that apply to Task views and Resource filters that apply to Resource views,
- There are two types of filters:
 - The first is where you select a Filter which exists or has been created using the Filters form,
 - The second is to create an AutoFilter which is very similar to the Excel AutoFilter (Drop-down filter) function.

Page 76

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Filters

- The instructor will demonstrate the software functions.

Page 77

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Module 13 – Views, Tables and Details

Topics:

- Understanding a Project Breakdown Structure
- Customize Fields
- Grouping
- Custom Outline Codes
- Outline Codes
- User Defined WBS Function
- Workshop 11 – Organising Your Data

Page 78

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Views

- A **View** is a function where the formatting such as the **Table**, **Details** and **Bar** formatting are saved and reapplied later.
- A filter is saved as part of a **View**.
- In a project a **View** could be created for each type of report and for displaying contract package plan or a Phase Plan activities.
- It is highly recommended that a View be produced for each frequently-created report.

Page 79

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Module 14 – Printing and Reports

Topics:

- Printing
- Print Preview
- Page Set-up
- Print Form and Manual Page Breaks
- Reports
- Workshop 12 - Printing

Page 80

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Printing and Reports

- The instructor will demonstrate the software functions.

Page 81

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Module 15 – Tracking Progress

Topics:

- Setting the Baseline
- Practical Methods of Recording Progress
- Understanding Tracking Progress Concepts
- Updating the Schedule
- Simple Procedure for Statusing a Schedule
- Workshop 13 – Tracking Progress

Page 82

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Tracking Progress Steps

The main steps for monitoring progress are:

- Saving a Baseline schedule,
- Recording or marking-up progress as of a specific date, often titled the Data Date, Status Date, Update Date, Current Date and As-Of-Date,
- Updating or Statusing the schedule with Actual Start and Actual Finish dates where applicable, and adjusting the task's Remaining Durations and Percent Completes,
- Scheduling, moving the Status Date to the new date and recalculating all the tasks,
- Comparing and Reporting actual progress against planned progress and revising the plan and schedule, if required.

Page 83

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Tracking Progress

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Page 84

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Module 16 – Grouping Tasks, Outline Codes and WBS

Topics:

- Understanding a Project Breakdown Structure
- Customize Fields
- Grouping
- Custom Outline Codes
- Outline Codes
- User Defined WBS Function
- Creating a Product Breakdown Structure Using Outline Codes
- Workshop 14 - Reorganization of the Schedule

Page 85

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Grouping Tasks, Outline Codes and WBS

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Page 86

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Module 17 – Options

Topics:

- View
- General
- Edit
- Calendar
- Schedule
- Calculation
- Spelling
- Security
- Save
- Interface

Page 87

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Options

- The **Options** forms allow you to decide how Microsoft Project calculates and displays information,
- Most of the options are self-explanatory,
- Under **Tools, Options...**, there are ten tabs in Microsoft Project 2007,
- There were changes with each version.

Interface	Security	Spelling	Save
Schedule	Calculation	Edit	Calendar
View	General		

Page 88

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Options

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Page 89

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Module 18 – Creating Resources

Topics:

- Creating Resources in the Resource Sheet
- Grouping Resources in the Resource Sheet
- Resources Information Form
- Workshop 15 Defining Resources

Page 90

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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 statused. Therefore the scheduler's workload increases as resources are added to tasks,
- Microsoft Project 2007 has 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.

Page 91

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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.

Page 92

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Resources and Expenses

- The instructor will demonstrate the software functions.

Page 93

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Module 19 – Assigning Resources and Costs to Tasks

Topics:

- Task Type and Effort-Driven
- Fixed Costs
- Assigning Resources using the Resource Assignment Form
- Assigning Resources Using the Task Details Form
- Assigning Task Information Form
- Assignment of Resources to Summary Tasks
- Sharing Resources with Other Projects
- Rollup of Costs and Hours to Summary Tasks
- Contour the Resource Assignment
- Workshop 16 – Assigning resources to Tasks

Page 94

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Assigning Resources and Costs to Tasks

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Page 95

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Module 20 – Resource Histograms, Tables, S-Curves & Leveling

Topics:

- Resource Graph Form
- Resource Graph View
- Resource Tables View
- Detailed Styles Form
- Creating an S-Curve from Microsoft Project
- Printing Resource Profiles and Tables
- Creating Table, S-Curves and Histograms in a Spreadsheet
- Resolving Resource Overloading
- Resource Leveling Function
- Workshop 17 – Histograms and Tables

Page 96

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Resource Histograms, Tables, S-Curves & Leveling

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Page 97

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Module 21 – Stating Projects with Resources

Topics:

- Understanding Baseline Dates, Duration, Costs and Hours
- Understanding the Data Date
- Formatting the Current Date and Status Date Lines
- Information Required to Update a Resourced Schedule
- Updating Dates and Percentage Complete
- Entering a % Complete Against Summary Tasks
- Updating Resources
- Splitting Tasks
- Summary Task Interim Baseline Calculation
- Summary Tasks and Earned Value
- Workshop 18 - Updating a Resourced Schedule.

Page 98

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Stating a Resourced Schedule

- It is often considered best practice to update a project between 10 and 20 times in its lifecycle. Some companies update schedules to correspond with accounting periods, which are normally every month. This frequency is often too long for projects that are less than a year in duration, as too much change may happen in one month. Therefore, more frequent updating may identify problems earlier,
- Stating a project with resources employs a number of preferences and options, which are very interactive and will require a significant amount of practice by a user to understand and master them,
- It must be decided if the software will calculate the Actual costs and units from the percentage complete or if this data is to be collected and entered into the software.

Page 99

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Preparing to Status a Resourced Schedule

After this course and before working on a live project, inexperienced users should gain confidence with the software by:

- Creating a new project and setting the **Options** to reflect the method you wish to enter information and how you want Microsoft Project to calculate the project data,
- Creating two or three tasks and then assigning two or three resources to each task,
- Update the Tasks and Resources as if you were updating a schedule and observe the results,
- Alter the preferences and defaults if you are not receiving the result you require. Re-update and note the preferences and defaults for future reference.

Page 100

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Stating a Resourced Schedule

Stating a project with resources takes place in two distinct steps:

- The dates, durations and relationships are stated using the methods outlined in the **Tracking Progress** chapter, and
- The Resource, Expenses Units (hours and quantities) and Costs, both the Actual to Date and To Complete, are then updated. These values may be automatically updated by Microsoft Project from the % Complete or imported from accounting and timesheet systems or updated by the Microsoft Project Timesheet system.

Page 101

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Stating a Resourced Schedule

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Page 102

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Module 22 – Tools and Techniques for Scheduling

Topics:

- Understanding Menu Options
- Cut, Copy and Paste Row
- Cut, Copy and Paste Cell
- Copy Picture
- Fill
- Clear
- Find and Replace
- Go To
- Insert Recurring Task
- Splitting a Task
- Copy or Cut-and-Paste to and from Spreadsheets
- Paste Link – Cell Values in Columns
- Unique Task, Resource and Assignment ID
- Organizer

Page 103




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Tools and Techniques for Scheduling

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Page 104




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Review Expectations

- Complete Feedback Sheet
- Have we met your expectations?

Page 105

TCC0205-TRG-1M-SP10002



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Thank you for attending

Page 106

