Primavera Project Manager for the Enterprise
Version 6.1
Custom Training Manual
June 27, 2003

This publication is produced as a custom training document for The University of North Carolina. Reproduction for any other means without written permission from Primavera Systems, Inc. and CDP, Inc. is strictly prohibited. This document is a customization by CDP, Inc. of Primavera’s P102 Course, Primavera Project Planner for Enterprise with custom information provided by The University of North Carolina and CDP, Inc.
Course Contents

Lesson 1: Introduction to Primavera Enterprise

Introduction to Primavera Enterprise
Primavera Enterprise Suite Products
  P6
  Enterprise Primavision
  Project Web Site
Citrix
Primavera Enterprise Data – Enterprise vs. Project-Specific
  Enterprise Data
  Centralized Project Management
  Centralized Resource Management
  Project-Specific Data
  Enterprise/Project-Specific Data
  Enterprise/User-Specific Data
User Rights

Lesson 2: PE and the Project Management Life Cycle

Project Management Life Cycle
  Project Management Process Flow Diagram
  UNC Project Types
    Bond Projects
    COPS Projects
    Campus Projects
    R&R Projects
    What-If Project
    Templates

Lesson 3: Navigating in PE

Starting P6
  Logging In to Citrix
  Login Dialog Box
Opening an Existing Project
  Open Project Dialog Box
  Access Modes
P6 Workspace
  Home Window
  Activities Window
What is a Layout?
  Opening an Existing Layout
Lesson 4: Enterprise Project Structure (EPS) 4-1

Enterprise Project Structure
The University of North Carolina’s EPS
Viewing the EPS
  Viewing the EPS in the Projects Window

Lesson 5: Organizational Breakdown Structure (OBS) 5-1

Organizational Breakdown Structure/Responsible Manager
The University of North Carolina’s OBS
Viewing the OBS/Responsible Managers
  General Tab
  Responsible Tab

Lesson 6: Creating a Project 6-1

Creating a Project
  Using the Wizard
  Using the Templates
  Importing a File
Create a Project from the Template
Projects Window
Projects Detail Tabs
  General Tab
  Dates Tab
  Notebook Tab
  Codes Tab
  Defaults Tab
  Resources Tab
  Settings Tab
  Calculations Tab
Lesson 7: Work Breakdown Structure (WBS) 7-1

Work Breakdown Structure (WBS)
The University of North Carolina’s WBS
Viewing WBS Elements
Adding to the WBS Hierarchy
Creating the WBS Hierarchy

Lesson 8: Activities 8-1

What are Activities?
   Activity Components
The University of North Carolina’s Activities
Cleanup Template Activities
   Deleting Activities
   Dissolving Activities
Adding Activities
   General Tab
   Status Tab
   Notebook Tab
   Codes Tab
   Steps
Copying Activities
Undo
Workshop 2: Adding and Modifying Activities

Lesson 9: Maintaining the Project Documents Library 9-1

Project Documents
   Creating a Project Document
   Assigning a Project Document

Lesson 10: Creating Relationships 10-1

Network Logic Diagram
   Precedence Diagramming Method (PDM)
Relationship Types
   Finish-to-Start (FS)
   Start-to-Start (SS)
   Finish-to-Finish (FF)
   Start-to-Finish (SF)
Relationships with Lag
Creating Relationships in the Activity Network
   Creating a Finish-to-Start Relationship
Course Contents

Creating Relationships in Activity Details
   Creating a Finish-to-Start Relationship
   Assigning Lag
View Relationships in the Gantt Chart

Workshop 2: Creating Relationships

Lesson 11: Scheduling  11-1

Critical Path Method (CPM) Scheduling
   Critical Path
Scheduling Concepts
   Forward Pass
   Backward Pass
   Total Float
   Circular Relationships (Loops)
   Open Ends
Scheduling a Project in P6
   Schedule Log
Driving Relationships
Scheduling Summary

Lesson 12: Assigning Constraints  12-1

Constraints
Commonly Used Constraints
   Must Finish By
   Start On or After
   Adding Notebook Topics

Additional Constraints
   Start On
   Start On or Before
   Finish On
   Finish On or Before
   Finish On or After
   As Late as Possible
   Mandatory Start and Finish

Lesson 13: Viewing Schedule Data  13-1

Grouping Data in P6 Windows
   Group and Sort Dialog Box
   Grouping Activities by Date

Primavera Project Manager for the Enterprise  i-6
Revision 4, September 2008
Custom for The University of North Carolina
Course Contents

Collapsing/Expanding Grouped Data
Sorting Activities
  Sorting by a Single Criteria
  Sorting by Multiple Criteria
Filtering Activities
  Filter Dialog Box
  Applying a Default Filter
Creating Filters
  Filtering by a Single Criteria
  Filtering by Multiple Criteria
  Applying the All Activities Filter

Lesson 14: Resources and Costs 14-1

Definition of a Resource
Steps for Resource/Cost Management
Viewing the Resource Dictionary
  Units & Prices Tab
Assigning Resources
  Adding a Resource
  Assign Cost
  Assign Budget
  Assigning Activity Codes
Resource Curves
  View Resource Curves
  Adding a Resource Curve
Mixed Funding Projects

Workshop 3: Assigning/Adjusting Resources and Costs

Lesson 15: Analyzing Resources and Costs 15-1

Resource Analysis Settings
Resource Usage Profile
  Displaying the Units Profile
  Formatting the Profile
  Displaying the Cost Profile
  Formatting the Timescale

Lesson 16: Optimizing the Project Plan 16-1

Analyzing the Project
Analyzing Schedule Dates
  Steps for Analysis
Course Contents

Compare the Finish date to the Must Finish by Date
Focus on Critical Activities
Analyzing the Budget

Lesson 17: Baselining the Project Plan  17-1

What is a Baseline?
Creating a Baseline
  Categorizing the Baseline
  Assigning a Baseline
  Displaying Baseline Bars

Lesson 18: Statusing the Current Schedule  18-1

Updating a Project
What is the Data Date?
Entering Actuals
  Highlighting Activities for Updating
  Statusing Milestones
  Statusing Activities to Completion
  Statusing Activities in Progress
Rescheduling the Project

Lesson 19: Reporting Performance  19-1

Methods for Performance Reporting
Reports
  Running an Existing Report
  Print Preview
  Page Setup
  Printing Reports
Report Wizard
  Creating a Report with the Report Wizard
  Saving a Report
Creating a Report Using the Current Layout

Appendix A: User Preferences  A-1
Lesson 1

Introduction to Primavera Enterprise

Purpose and Objectives

This lesson introduces the Primavera Enterprise Suite. At the completion of this lesson, you will be able to:

- Describe the products available to The University of North Carolina.
- Describe the role of Citrix in the UNC implementation.
- Explain the difference between enterprise and project-specific data.
Introduction to Primavera Enterprise

Primavera Enterprise is a suite of products/tools used for enterprise-wide project management.

It provides comprehensive information on all the projects in the enterprise, from executive-level summaries to detailed work assignments for each team member.

It is an integrated solution with Web-enabled, client/server and desktop software that provides role-specific tools to satisfy each team member’s needs, responsibilities, and skills. The tools within the Primavera Enterprise suite are multi-project and multi-user.

Enterprise-Wide Solution

- Works identically in single and multiuser modes
- Scalable client/server architecture
- Relational database (Oracle)

Easy to Use

- Simple, intuitive interface
- Extensive wizards
- Customized to meet The University of North Carolina’s needs

Primavera Enterprise Suite Products

- Primavera Project Manager (PM)
- Project Web Site
- Primavera Methodology Manager
- Primavera Portfolio Analyst
- Progress Reporter
The University of North Carolina has chosen a combination of tools from the Primavera Enterprise Suite. This should provide all users with the functionality and ease of use needed.

**PM**

- PM is a system for planning, tracking and controlling your projects.
- By using PM, an organization can store and manage projects in a central location.
- PM is the core application for the Primavera Enterprise Suite.
**Project Web Site**

- PM can be used to publish project plans as a Web site on an intranet or the Internet.
- The Project Web site allows project staff and other interested parties to view project information using a Web browser.

**Citrix**

- Provides access to virtually any Windows application, across any type of network connection to any type of client
- A cost-effective, proven solution
- Provides centralized management, universal access, exceptional performance and improved security for all business critical applications and data
- Thin-client/server architecture reduces network traffic
Primavera Enterprise Data – Enterprise vs. Project-Specific

In Primavera Enterprise, a project consists of a combination of enterprise and project-specific data.

Enterprise Data

Enterprise data provides the enterprise structure needed to manage multiple projects. It is available to all projects across the enterprise and provides the structure necessary for centralized project and resource management.

Centralized Project Management

- Enterprise project structure (EPS)
- Organizational breakdown structure (OBS)
- Project codes
- Admin categories and preferences

Centralized Resource Management

- Resources
- Cost accounts
- Resource Curves
Project-Specific Data

Project-specific data is only available to the Project in which it is defined.

- Dates
- Work Breakdown Structure (WBS)
- Activities
- Activity relationships
- Baselines
- Expenses
- Risks
- Thresholds and issues
- Work products & documents
- Project Web site
Enterprise/Project-Specific Data

The following types of data may be enterprise, as well as project-specific.

System administrators define enterprise data. Project managers may define project-specific data to further control their projects.

- Calendars
- Reports
- Activity Codes

Calendars

Reports

Activity Codes
Enterprise/User-Specific Data

The following types of data may be enterprise, as well as user-specific.

System administrators define enterprise data. Project managers may define user-specific data for their own use.

- Layouts
- Filters
- Global Changes
User Rights

Rights are set at the Enterprise and Project levels. User rights may vary from project to project. Enterprise rights are defined by The University of North Carolina, and in general are set so only Resource Curves are available to the institutions.

Project level security can be requested on an institution by institution basis if needed.
Lesson 1 – Introduction to Primavera Enterprise
Lesson 2

P6 and the Project Management Life Cycle

Purpose and Objectives

This lesson provides an overview of how P6 can assist you in various stages of the project management life cycle. At the completion of the lesson, you will be able to:

➢ Understand the relationship between P6 and the project management life cycle.
Project Management Life Cycle

The Primavera Enterprise suite is used for enterprise-wide project management.

Project Management Process Flow Diagram

Project Management is the process of achieving set goals within the constraints of time, budget, and staffing restrictions. The project management life cycle is made up of these process groups:

- Initiating process group
- Planning process group
- Executing process group
- Controlling process group
- Closing process group
UNC Project Types

The University of North Carolina has identified several types of projects that will be managed in P6. Institutions may also manage non-mandatory projects in P6 if they choose.

Bond Projects

Bond projects must be maintained in P6 until all projects are administratively closed.

COPS Projects

All COPs funded projects approved by the legislature beginning with the 2004 Session of the General Assembly, excluding 2003 COPs funded R&R projects will be maintained in this node. The Project ID will be Code-Item assigned by CAPSTAT.

Campus Projects

Capital projects authorized by the legislature must be maintained in P6 and will be created under the Campus. All non-COPs funded projects approved by the legislature beginning with the 2007 Session of the General Assembly. Self-liquidating projects and projects approved by consultation with the Joint Legislative Commission on Governmental Operations are to be included.

R&R Projects

This node was created for the 2003 COPS projects when it was anticipated that all of them would be reported and cash flowed through Primavera. It is optional for campuses to use P6 to manage R&R projects.

What-If Projects

This node is for the campuses to test projects or different scenarios.
Templates

Templates have been created for Single Prime and Construction Manager at Risk projects. Each of these templates includes the required structures that will be discussed later in this training manual. They also include required milestones and activities needed for global reports.
Lesson 3

Navigating in Primavera

Purpose and Objectives

In this lesson, you will be introduced to the basic elements of P6. At the completion of this lesson, you will be able to:

- Login to Primavera
- Open an existing project
- Navigate the Home and Activities windows
- Open an existing layout
- Customize a layout
- Save a layout
Introduction to the Training Scenario

In this course we will create a project using one of the templates created for The University of North Carolina system. We will set up a schedule based on information provided to us in this manual.

There are many factors that will determine the make up of the project. We will discuss these factors, review examples and determine the structure for our project.

We will take this project through two cycles of updates. General project level reporting will be needed at the completion of the updates.

For training purposes we are the Project Manager for the institution we are working for. Our security rights will be based on this scenario.
Starting P6

Before using P6, you must enter a valid login name and password. If you do not know your login name/password, contact the Rich Cox or Miriam Tripp.

➢ Passwords are case sensitive

Logging In to Citrix
Lesson 3 – Navigating in P6

Welcome

MetaFrame Presentation Server Applications

Welcome to your personalized view of your MetaFrame Presentation Server applications. The Applications box contains icons for the applications that you can use. Click an icon to launch an application. Click Refresh to view the latest applications. Click Settings to change your settings. Click a folder icon to display its contents. If you have problems using an application, please contact your help desk or system administrator for more information.

Message Center

The Message Center displays any information or error messages that may occur.

Web Interface server: ITSCXW681  Client Name:  
ICA Client Version: 10.200.2650  Client IP: 66.32.17.66

Primavera Project Manager for the Enterprise  
Revision 4, September 2008  
Custom for The University of North Carolina
Login Dialog Box

Steps:

1. Choose **Primavera Project Manager** icon to start the application.
   Note: This procedure will be published for Citrix use when activated.
2. Type a **Login Name** `<tharris>` and password `<tharris>`
3. Click **OK**.
Opening an Existing Project

Open Project Dialog Box

Lists all the projects you have access to open. By default, the projects are grouped by EPS.

- Open a single project, indicated by .
- Open a single Enterprise Project Structure (EPS) node, indicated by .
  - All projects under the node will be opened.
- Open multiple projects under the same or different EPS nodes.
  - Press Ctrl + click to select more than one project.

Access Modes

You have the option to select an access mode prior to opening a project.
Lesson 3 – Navigating in P6

- **Read Only**
  - You can view data, but cannot input or change data.
- **Shared**
  - Multiple users can view, input and change data.
  - This is the PE default setting.
- **Exclusive**
  - The current user is the only user who can edit data on these projects.
  - Other users can access these projects in Read Only mode.

Steps:
1. Highlight a project <40000-203>.
2. Click *Open.*
P6 Workspace

The main windows in P6 have different functions, but the navigation options are consistent.

Home Window

The Home window is a starting point for navigation through the various windows within P6.

Table 1: Home Window

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Title bar - Displays application and open projects</td>
</tr>
<tr>
<td>2</td>
<td>Menu bar – Standard P6 functions</td>
</tr>
<tr>
<td>3</td>
<td>Directory bar – Use to quickly display P6 windows</td>
</tr>
<tr>
<td>4</td>
<td>Navigation bar – Standard navigation and opens Help</td>
</tr>
<tr>
<td>5</td>
<td>Status bar – General information</td>
</tr>
</tbody>
</table>
Activities Window

The Activities window is used to create, view, and edit activities for open projects. It can be divided into a top and bottom layout.

Table 2: Activities Window

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Toolbar – Icons that allow you to format the layout.</td>
<td>5. Horizontal Split bar – Extends information on top and bottom.</td>
</tr>
<tr>
<td>3. Gantt Chart – Graphical display of activities</td>
<td>7. Activity Table – Activities in spreadsheet</td>
</tr>
</tbody>
</table>
What is a Layout?

A layout is a customizable view of project information. The layout is a combination of all the visual elements that appear onscreen. The Activities window provides the option of viewing data in top/bottom layouts.

- Choose one of the following layout types to show on top:
  - Activity Table
  - Gantt Chart
  - Activity Usage Spreadsheet
  - Activity Network

- Choose one of the following layout types to show on bottom:
  - Activity Details
  - Activity Table
  - Gantt Chart
  - Activity Usage Spreadsheet
  - Resource Usage Spreadsheet
  - Activity Usage Profile
  - Resource Usage Profile
  - Trace Logic
Opening an Existing Layout

You can choose from a number of layouts to present your project from different perspectives. This allows you to spend more time managing projects instead of repeatedly preparing the displays.

➤ You can create your own layouts or use global layouts provided by your company.

Steps:
1. From the Layout Options bar, choose Layout, Open.
2. When prompted to save changes to the layout, click No.
3. Select a layout to apply to the project Classic WBS Layout.
4. Click Open.
Using Hint Help

Hint Help provides onscreen help for various items. Click on any pre-defined column to view a definition of that field.

Steps:
1. From the Layout Options bar, choose **Hint Help**.
2. Place the mouse over a column **<Original Duration>**.
3. Click the tack to keep the onscreen help in one location.
4. From the Layout Options bar, choose **Hint Help** to disable the onscreen help dialog box.
Customizing a Layout

By creating custom layouts, you can easily view data in a manner specific to your needs. The Activities window can be customized and saved as a layout. Saving the layouts for future use allows you to quickly retrieve information.

- The Layout Options bar is a centralized menu for layout customization. You can perform key layout changes from this options bar.
- The following list contains the layout elements that are customizable.
  - Bars
  - Bar Chart Options
  - Columns
  - Timescale
  - Table font and colors
  - Row height
  - Filters
  - Grouping and Sorting
  - Top/bottom layouts
Selecting Columns

You are able to select which columns are visible in the Activities window, as well as the order in which they appear from left to right.

- Use single arrows to move highlighted data items.
- Use double arrows to move all data items.
- Use up/down arrows to configure the order of the data items.

Steps:

1. From the Layout Options bar, choose Columns.
2. Click on the Plus sign by Activity Codes
3. Select a data item to display in the Activity Table <UNC Milestones>.
4. Click the single right arrow key to move the item into the Selected Options column.
5. Use the up/down arrows to position the order.
6. Click OK.
Displaying Activity Details

The display of information in the Activity window may be customized.

- The width of the columns may be adjusted to accommodate the data being displayed.
- Activity Details display detailed information for an activity highlighted in the Activity Table or Activity Network.
  - Use the tabs to enter and edit activity information.

Steps:

1. Place your cursor between the two column titles <Activity Name and Original Duration> until the cursor changes to a double arrow, and then double click.
2. From the Layout Options bar, choose Show on Bottom, Activity Details.
Selecting Detail Tabs

➤ The tabs displayed in Activity Details are customizable.

Steps:

1. From the Layout Options bar, choose **Bottom Layout Options**.
2. From the Display Tabs column, select a data item `<WPs & Docs>`.
3. Click the left arrow key to remove it from the list.
4. Click **OK**.
Saving Layouts

Layouts can be saved and shared with other users to facilitate project communication.

- Layout, Save saves changes to the existing layout.
- Layout, Save As prompts you to save the layout with a new name.
- Layouts can be global or user-specific.
  - Current User – only the user creating the layout will have access to it in the future.
  - All Users – all licensed users will have access to the layout. This requires an enterprise security level.
  - Another User – a specified user will have access to the layout.
    - The current user will not have access to the layout.

Steps:

1. From the Layout Options bar, choose Layout, Save As.
2. Type the Layout Name <My Classic WBS Layout>.
3. Click in the Available to field.
4. Select Current User.
5. Click Save.

The layout name now shows as “My Classic WBS Layout”
Closing a Project

You should close the project when you are finished working with it. You will be prompted to verify that you want to close the project.

Data is saved automatically or when changes are committed. There is no project save button or any undo button.

Steps:
1. Choose File, Close All.
2. When prompted, click Yes.

Note: Closing the project takes you back to the Home window.
Lesson 4

Enterprise Project Structure (EPS)

Purpose and Objectives

This lesson describes the hierarchical structure for projects. At the completion of this lesson, you will be able to:

- Describe UNC’s Enterprise Project Structure.
- View the Enterprise Project Structure.
Enterprise Project Structure

The Enterprise Project Structure (EPS) is a hierarchy developed in P6 to help organize projects.

Attributes

- The EPS is a structure made of roots and nodes.
  - Each root in the EPS can be subdivided into many nodes.
  - Nodes represent different levels within your EPS.
    - For example, nodes can represent divisions within your company, departments, or site locations.
- All projects must be included in the EPS node.
  - Each node can contain an unlimited number of projects.
  - Projects always represent the lowest level of the hierarchy.
  - Placement of a project in the hierarchy determines the summary level in which it is included.

Benefits

- View project priorities, scope, and budgets across the enterprise.
- Manage projects separately while retaining the ability to roll up and summarize data across multiple projects.
- View cost distribution across projects.
- Assign security at any level of the structure to provide users with appropriate access to project information.
The University of North Carolina’s EPS

UNC will divide the Office of the President into all associated institutions. Beneath each institution will be divisions for capital projects, campus projects, and what-if projects.

Each division has been structured into nodes. These nodes can be rolled up individually, to the institution level or to General Administration for reporting.

Viewing the EPS

The enterprise Project Structure is a global framework that should be established by your system administrator.
Viewing the EPS in the Projects Window

The Projects window displays the projects in the EPS that the user has access to open. Project data can be viewed in the tabular, Gantt, and chart view.

![Projects Window](image)
Lesson 5

Organizational Breakdown Structure (OBS)

Purpose and Objectives

This lesson describes the hierarchical structure for the individuals or departments that are responsible for managing projects. At the completion of this lesson, you will be able to:

➢ Describe UNC’s Organizational Breakdown Structure.

➢ View the Organizational Breakdown Structure.
Organizational Breakdown Structure/Responsible Manager

An organizational breakdown structure (OBS) is a hierarchical arrangement of institutions’ project management structures. The OBS is rolled up to The Office of the President, and in general is a list of the responsible managers.

- The OBS supports larger projects, which involve several projects managers with different areas of responsibility.
- The OBS is assigned to EPS nodes, projects, WBS elements, risks, issues, and thresholds to designate responsibility.
  - Example: The OBS element assigned to a project is the project manager responsible for all work included in the project.
- The OBS controls user access to project information.
The University of North Carolina’s OBS

UNC has created the following OBS to organize the managers responsible for projects within the institutions. This is a flexible structure and can change to meet individual needs.

UNC uses a more general approach where functional responsibilities are modeled in the structure. This structure will be used to assign responsibility to all projects under the Office of the President.

As John Smith, you will review the OBS. In other modules, you will assign the OBS/responsible managers to projects and WBS elements to establish responsibility.
Lesson 5 – Organizational Breakdown Structure (OBS)

Viewing the OBS/Responsible Managers

The Organizational Breakdown Structure dialog box displays the responsible managers in the organization. This data can be viewed in a tabular or chart view.

General Tab

This tab displays the OBS Name and OBS Description for the selected responsible manager (OBS element).
Responsibility Tab

Use to quickly view where the selected responsible manager (OBS element) is assigned throughout the enterprise.
Lesson 5 – Organizational Breakdown Structure (OBS)
Lesson 6

Creating a Project

Purpose and Objectives

In this lesson, you will learn how to create a project in P6 using the UNC templates. At the completion of this lesson, you will be able to:

- Create a project
- Navigate the Projects window
- View and modify information on the Projects Details tabs
- Define the use of the UNC templates
Creating a Project

A project can be created using a variety of methods.

Using the Create a Project Wizard

- Create the project
- Set default project tabs
- Add project codes
- Create the work breakdown structure (WBS)
- Add activities and codes
- Assign resources and costs

Using Templates

- Copy a template
- Review and adjust project codes
- Review and adjust the work breakdown structure (WBS)
- Review and adjust activities and codes
- Assign resources and costs

Importing a File

- Import projects using the following file formats:
  - PE projects (XER)
  - Microsoft Project (MPP) projects
  - Third-party projects (MPX)
  - Primavera Project Planner projects (P3)
- Review and adjust project codes
- Review and adjust the work breakdown structure (WBS)
- Review and adjust activities and codes
- Assign resources and costs
Creating a Project from the Template

UNC-GA has created templates to use for all capital projects. This will add to the ease-of-use and the consistency of the project tools. The templates were created as a minimum of required information. Institutions can add to the structure for more detailed management if desired.

We will be creating a new capital construction project for our institution in the class. We will use the templates provided to assist in our efforts.

Select the Template

- You will add the UNC Project Management Building project to the Construction Projects EPS. We will use 40000-203 template for this.
Steps:

1. Highlight the template you wish to copy <40000-203>.
2. Click **Copy** on the *Command bar*.
3. Highlight the level of the EPS for the new project *Construction Projects*.
4. Click **Paste**.

5. Click **OK** to all screens.
Projects Window

The project has been created and opened. The template is opened as well. To view high-level information about the project, open the Project window.

The Project window displays the projects in the EPS that you can access. You can also:

- Group projects by EPS, project codes, or other project-related items.
- Filter projects
- Modify column data
Projects Window (Continued)

Table 3: Projects Window

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Command bar – options for editing project data</td>
<td>5. Projects Table – spreadsheet of project information</td>
</tr>
<tr>
<td>2. Gantt Chart – graphical display of project information</td>
<td>6. Layout Options bar – menu of project data format options</td>
</tr>
<tr>
<td>3. Vertical Split bar – hide/show information in top layout of Project Table or Gantt Chart</td>
<td>7. Toolbar – icons that allow you to change the look of the current window</td>
</tr>
<tr>
<td>4. Horizontal Split bar – hide/show information from top to bottom</td>
<td>8. Project Details tabs – edit detailed project information</td>
</tr>
</tbody>
</table>
Projects Detail Tabs

The Project Detail tabs are located in the bottom layout of the Projects window. They can be used to define the projects properties and defaults that will be applied throughout the selected project.

You will use the Project Details tabs to define information about your projects. Just like the tabs on the activities screen these tabs can be adjusted to meet your needs.

The Project Details can also be toggled on and off by clicking on the show/hide bottom layout button.

1. Click on the newly created project.
2. Right click to get drop down menu.
3. Click Open Project.
4. Click on the Projects tab on the Directory Bar
General Tab

Enables you to view or modify general information about the selected project. The project ID, project name, and responsible manager can be set when you create the project. If necessary, you can change them here. The remaining fields are set by default.

- Change the Project ID and Project Name as desired.
- Change Status to ‘Planned’.
  - Planned – Progress Reporter users cannot access activities.
  - Active – Progress Reporter users can access activities.
  - Inactive – Progress Reporter users cannot access activities.
  - What-If - Progress Reporter users cannot access activities, and closed projects do not show in resource profiles.
- Responsible Manager – Set to the OBS level of management. This will set security and access levels to the Project.
- Risk Level – This setting is not required by UNC.
- Leveling Priority – This setting is not required by UNC.
- Check-out Status – For integrity purposes user cannot check-out projects.
- Project Web Site URL – displays the project’s web address.

Steps:

1. Change the Project ID to <40800-301>.
2. Change the Project Name to <New UNC Building>.
3. Click on Status drop-down arrow and select Active.
Dates Tab

Enable you to edit date information for the selected project.

- **Planned Start** – Set to the scheduled start date.
- **Data Date** – Prior to Project start this should be equal to the Planned Start.
- **Must Finish By** – Deadline date if defined.
- **Finish** – Non-editable field indicating the latest early finish date calculated when the project was last scheduled.
- **Actual Start and Actual Finish** – Non-editable fields indicating the actual start and finish dates of the project.
- **Anticipated Start and Anticipated Finish** – expected dates that can be used for high level planning – not used by UNC.

![Dates Tab](image-url)
Notebook Tab

Enable you to view or modify project notes, such as the project’s purpose, core requirements, or any other project-specific details.

- **Notebook Topic** – list of topics assigned to the selected node/project.
- **Detail** – user-defined description of the selected topic. You can use HTML editing features, including formatting text, inserting pictures, copying, pasting and adding hyperlinks.

**Steps:**

4. From within the *Notebook Topic* section, click *Add*.
5. Assign a *Notebook Topic* `<Purpose>`.
6. Close the *Assign Notebook Topic* dialog box.
7. In the Details section, type desired text.
Codes Tab

Project Codes allow for grouping, sorting, and filtering project information. For proper reporting and project control, Project Codes must be set.

Steps:

1. Click on Assign at the bottom of the screen.
2. Select one value beneath each Project Code.
3. You may double-click the value or hit the assign button to the right.
4. It is recommended to minimize the Project Code after assigning a value to help you keep track of where you are.
Defaults Tab

- **Duration Type** – The duration type determines whether the schedule, resource availability, or costs are most important when updating activities. The duration type applies only when you have resources assigned to the activity.
- **Activity percent complete based on activity steps**. Check this if you want resources to check off steps and allow the system to compute remaining duration. Set activities with weighted steps to a Percent Complete Type of Physical.

**UNC’s scheduling procedures dictate that normal use will require Fixed Duration and Units to be set.** Project Managers can change this setting if necessary. To help you understand the effects of the duration type, you should first review how P6 Project Manager calculates resource data. The following equation must hold true regardless of which data you update:

\[
\text{Remaining Units (resource)} = \frac{\text{Units}}{\text{Time}} \times \text{Remaining Duration (activity)}
\]

<table>
<thead>
<tr>
<th>Activity duration type</th>
<th>When you change units, P3e changes…</th>
<th>When you change duration, P3e changes…</th>
<th>When you change units/time, P3e changes…</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Units/Time</td>
<td>Duration</td>
<td>Units</td>
<td>Duration</td>
</tr>
<tr>
<td>Fixed Duration &amp; Units/Time</td>
<td>Units/Time</td>
<td>Units</td>
<td>Units</td>
</tr>
<tr>
<td>Fixed Units</td>
<td>Duration</td>
<td>Units/Time</td>
<td>Duration</td>
</tr>
<tr>
<td>Fixed Duration &amp; Units</td>
<td>Units/Time</td>
<td>Units/Time</td>
<td>Units</td>
</tr>
</tbody>
</table>

- **Percent Complete Type** – Define the percent complete type for an activity based on how you will report progress. **Duration is the preferred setting by UNC.**
  - **Duration** – Use if activity progress can most easily be reported based on actual days of work accomplished and scheduled days of work remaining. The activity’s percent complete is calculated from the actual and remaining
duration. For example, if you have a 10-day activity that has 5 days remaining, it is 50% complete.

- **Units** – Use if activity progress is best reported according to the accomplished work effort (units) and how much work remains. The activity’s percent complete is calculated from the actual and remaining units. For example, if an activity has an assigned resource with 40 hours of work to complete and the resource has actually completed 20 hours with 20 hours remaining, the activity is 50% complete.

- **Physical** – Use Physical if activity progress is most accurately described by personal judgment. In this case, you manually enter the percent complete for the activity. You must also enter the actual units for the resource and days remaining, as they are not linked in this mode.

- **Activity Type** – This should be set to Task Dependent.

- **Cost Account** – This can be filled in with the appropriate cost account for the project or left blank if there will be multiple cost accounts.

- **Calendar** – Set the default calendar type to the appropriate workweek. This can be changed at the activity level.

- **Auto-numbering Defaults** – Sets the default number sequence for P6. Check the Increment Activity ID based on selected activity. When working with multi-phase projects this is important.
Resource Tab

- **Timesheets** – UNC system is not using timesheets.
- **Assignment Defaults** – This would be used if there were different rates charged for resources. Leave Commercial as default.
- **Resource Assignments** – Uncheck Resources can be assigned… to prevent accidentally adding the same resource multiple times to the same activity.
- **Price/Unit** – N/A, this field is not used by UNC.

- Progress Reporter – Progress Reporter is not being used and these settings can be skipped.
Lesson 6 – Creating a Project in P6

Settings Tab

- **Summarize to WBS Level** – Summery level should never be set below 2. If you are using a large WBS you may increase this level.
- **Summarize project based on** – This will remain Detail activity resource assignments.
- **Project Settings** – These do not need to be changed.
- **Fiscal year** – Begins on the 1st day of July.
- **Critical Activities** – This can be set to Total Float less than or equal to 0 for review of all critical activities, or to Longest Path to review the critical path.
The Calculations Tab

Activities
- The Default Price / Unit entry is for using roles without resources, this will give an average cost for all roles. If you want to use steps for activity updating check.
- Activity percent complete based on activity steps and use Physical for the Percent Complete Type.
- Link Budget and At Completion for not started activities. You will want this to be checked.
- Reset Remaining Duration and Units to Original – This will keep your budgeted and at completion dollars the same.

Resource Assignments
- When updating Actual Units or Cost – This should be changed to Subtract Actual from At Completion to adjust remaining units when actuals are entered. To calculate this, manually use Add Actual to Remaining.
- Recalculate Actual Units and Cost when duration % complete changes should be checked.
- Update units when costs change on resource assignments should be checked.
- Link Actual and Actual This Period Units and Cost should be checked.
Lesson 7

Creating a Work Breakdown Structure (WBS)

Purpose and Objectives

This lesson describes the hierarchical structure for projects. At the completion of this lesson, you will be able to:

- Describe UNC’s Work Breakdown Structure (WBS).
- Create multiple levels of a WBS hierarchy
- Assign a responsible manager to a WBS element
Work Breakdown Structure (WBS)

The WBS is a hierarchy arrangement of the products and services produced during and by a project.

Attributes

- Each project has a unique WBS hierarchy.
  - P6 sets the root level of the WBS equal to the project ID and name.
- Elements within the WBS have a “child/parent” relationship, which means that you can roll up and summarize information from the lower levels.
- WBS elements can be used to assign responsibility, via the OBS, for groups of activities to different managers for planning/accountability purposes.
- By default, P6 groups activities, tracks costs, and monitors schedule data according to the WBS.

Benefits

- Allows you to divide a project into meaningful and logical smaller pieces for the purpose of planning, control and reporting.
The University of North Carolina’s WBS

The default WBS elements were copied with the default template information. The project makes up the top level of WBS and two additional levels are used in the template. This structure is a minimum and can be added to.

Viewing WBS Elements

When the project is created, PE adds a root level WBS element with the same ID and name as the project.

This is the default setting for a CM at Risk, multi-phase project. A single phase project would not contain Phase I and Phase II under Construction Documents, Bid and Award, and Construction.
Creating the WBS Hierarchy

The WBS elements added after the root level element are automatically indented to form the child levels of the hierarchy.

Steps:

1. Highlight the Design phase in the WBS table.
2. Click *Add* on the *Command* bar.
3. Click on *WBS Name* and type the phase *< Commissioning Agent Selection >*.
4. Press *Enter*.
5. Use arrows on *Command* bar to move new WBS to position after CM Selection.
Lesson 8

Activities

Purpose and Objectives

This lesson describes how to add activities to a project and modify various activity components. You will also add supporting information to an activity. At the completion of this lesson, you will be able to:

- Define an activity
- Define activity types
- Add activities
- Delete and Dissolve activities
- Copy and Move activities
- Add a notebook topic to an activity
- Add steps to an activity
- Change a calendar assignment
What are Activities?

Activities are the fundamental work elements of a project. They are the lowest level of the WBS and the smallest functional area tracked in the project.

- Contains all information about the work to be performed.
- Also known as a task (sub-task in MSP), item, event, or work package.

Activity Components
The University of North Carolina’s Activities

The required list of activities was copied with the default template information. This activity set is a minimum and can be added to. The following is a list of activities for a CM at Risk contract:

<table>
<thead>
<tr>
<th>New UNC Building</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Design</strong></td>
</tr>
<tr>
<td><strong>Designer Contract</strong></td>
</tr>
<tr>
<td>A1050 Preparation of Designers Fee Proposal</td>
</tr>
<tr>
<td>A1060 Negotiation of Designers Fee</td>
</tr>
<tr>
<td>A1070 Preparation of Designers Contract</td>
</tr>
<tr>
<td>A1080 Execution of Designers Contract</td>
</tr>
<tr>
<td>A1090 Design Contract Milestone</td>
</tr>
<tr>
<td><strong>Designer Selection</strong></td>
</tr>
<tr>
<td>A1000 Advertisement for Designer</td>
</tr>
<tr>
<td>A1001 Designer Advertise Milestone</td>
</tr>
<tr>
<td>A1020 Shortlist Designers</td>
</tr>
<tr>
<td>A1030 Interview Designers</td>
</tr>
<tr>
<td>A1040 Designer Selected Milestone</td>
</tr>
<tr>
<td><strong>Pre-Design</strong></td>
</tr>
<tr>
<td>A1100 Programming</td>
</tr>
<tr>
<td>A1110 Review and Approval of Program</td>
</tr>
<tr>
<td><strong>CM Selection</strong></td>
</tr>
<tr>
<td>A1120 Advertise for Construction Manager</td>
</tr>
<tr>
<td>A1130 Shortlist Construction Managers</td>
</tr>
<tr>
<td>A1140 Interview CM @ Risk</td>
</tr>
<tr>
<td>A1150 Selection CM @ Risk</td>
</tr>
<tr>
<td>A1150 Preparation of CM Preconstruction Contract</td>
</tr>
<tr>
<td>A1170 Approval of CM Preconstruction Contract</td>
</tr>
<tr>
<td>A1180 Execution of CM Preconstruction Contract Milestone</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Construction Documents</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Phase 1 Construction Documents</strong></td>
</tr>
<tr>
<td>A1380 CD Production</td>
</tr>
<tr>
<td>A1440 CD Submission to DCO Milestone</td>
</tr>
<tr>
<td>A1450 CD Review by DCO</td>
</tr>
<tr>
<td><strong>Phase 2 Construction Documents</strong></td>
</tr>
<tr>
<td>A1490 CD Cost Estimate From CM @ Risk</td>
</tr>
<tr>
<td>A1500 CD Cost Estimate From Designer</td>
</tr>
<tr>
<td>A1520 CD Review by Owner</td>
</tr>
<tr>
<td>A1510 CD Cost Reconciliation Meeting</td>
</tr>
<tr>
<td>A1470 CD Final Approval Milestone</td>
</tr>
<tr>
<td>A1480 CD Approval by DCO Milestone</td>
</tr>
<tr>
<td>A1430 CD Approval by DCO Milestone</td>
</tr>
<tr>
<td>A1530 CD Final Approval Milestone</td>
</tr>
</tbody>
</table>
Lesson 8 – Activities in P6

<table>
<thead>
<tr>
<th>Phase II Construction Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1390</td>
</tr>
<tr>
<td>B1440</td>
</tr>
<tr>
<td>B1450</td>
</tr>
<tr>
<td>B1390</td>
</tr>
<tr>
<td>B1400</td>
</tr>
<tr>
<td>B1490</td>
</tr>
<tr>
<td>B1500</td>
</tr>
<tr>
<td>B1520</td>
</tr>
<tr>
<td>B1510</td>
</tr>
<tr>
<td>B1410</td>
</tr>
<tr>
<td>B1460</td>
</tr>
<tr>
<td>B1420</td>
</tr>
<tr>
<td>B1470</td>
</tr>
<tr>
<td>B1480</td>
</tr>
<tr>
<td>B1430</td>
</tr>
<tr>
<td>B1530</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bid and Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1540</td>
</tr>
<tr>
<td>A1550</td>
</tr>
<tr>
<td>A1560</td>
</tr>
<tr>
<td>A1600</td>
</tr>
<tr>
<td>A1570</td>
</tr>
<tr>
<td>A1610</td>
</tr>
<tr>
<td>A1580</td>
</tr>
<tr>
<td>A1590</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase II Bid and Award</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1540</td>
</tr>
<tr>
<td>B1550</td>
</tr>
<tr>
<td>B1560</td>
</tr>
<tr>
<td>B1600</td>
</tr>
<tr>
<td>B1570</td>
</tr>
<tr>
<td>B1610</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1520</td>
</tr>
<tr>
<td>A1530</td>
</tr>
<tr>
<td>A1700</td>
</tr>
<tr>
<td>A1580</td>
</tr>
<tr>
<td>A1520</td>
</tr>
<tr>
<td>A1550</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Phase I Construction (Early Site Package)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1520</td>
</tr>
<tr>
<td>B1530</td>
</tr>
<tr>
<td>B1580</td>
</tr>
<tr>
<td>B1540</td>
</tr>
<tr>
<td>B1740</td>
</tr>
<tr>
<td>B1550</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Closeout</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1380</td>
</tr>
<tr>
<td>B1570</td>
</tr>
<tr>
<td>B1710</td>
</tr>
<tr>
<td>B1720</td>
</tr>
<tr>
<td>B1750</td>
</tr>
<tr>
<td>B1730</td>
</tr>
</tbody>
</table>
Cleanup Template Activities

We have created a project but there is some cleanup necessary. We will modify the template in the following ways:

- Deleting Activities
- Dissolving Activities
- Adding Activities
- Copying Activities

Deleting Activities

Deleting activities simply removes the activities from the schedule. To delete an activity, perform one of the following actions:

- Click Delete from the Command bar
- Choose Edit, Delete
- Press Delete on the keyboard.
- Right-click and choose Delete.

We will remove all the activities from the Pre-Design WBS element and selected activities from the Phase I Construction.

Steps:

1. Highlight all activities in the section to be deleted
   a. Click on first activity in the section
   b. Hold the Shift key and click the last activity
2. On the Command bar, click Delete.
3. Click Yes.

<table>
<thead>
<tr>
<th>Activity ID</th>
<th>Activity Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1690</td>
<td>Asbestos Abatement</td>
</tr>
<tr>
<td>A1700</td>
<td>Demolition</td>
</tr>
</tbody>
</table>
Lesson 8 – Activities in P6

Dissolving Activities

Dissolving activities removes the activity, but retains logic to its predecessors and successors. This is the safest way of removing activities. You must dissolve activities one at a time. We will remove the following activities using the dissolve function:

<table>
<thead>
<tr>
<th>Activity ID</th>
<th>Activity Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1410</td>
<td>CD Redline Corrections (SCO)</td>
</tr>
<tr>
<td>A1420</td>
<td>Resubmit &amp; Re-Review by SCO</td>
</tr>
<tr>
<td>A1460</td>
<td>CD Redline Corrections (DOI)</td>
</tr>
<tr>
<td>A1470</td>
<td>Resubmit &amp; Re-Review by DOI</td>
</tr>
</tbody>
</table>

Steps:

1. Highlight an activity you wish to dissolve
2. On the Menu bar, click Edit, Dissolve.
   Note: This is the same process of Delete.
3. Click Yes.
4. Repeat for all activities to be dissolved or deleted.
Adding Activities

Use the Activities window to create, view, and modify activities for the open project.

To add an activity to a project, perform one of the following actions:

- Click Add from the Command bar
- Choose Edit, Add
- Press Insert on the keyboard.
- Right-click and choose Add.

Activities can be added in the follow ways:

- Activity Wizard
- Activity Detail tabs
- Activity Table

The UNC template created most activities needed for this project. We will copy the CM selection activities into Commissioning Agent Selection and add review activities in appropriate Design elements.

We will start with creating the activities for reviews.

Adding Activities to a UNC Project

To add an activity to a specific group in the Activity Table, select the group title band or an activity within the band. You can then use the Activity Detail tabs or the Activities Table to add additional information to the activity.

Steps:

1. Highlight **Phase II Construction Documents** in the Activity Table.
2. Click **Add** on the **Command** bar.
3. Type the new name **<CD Review by Commissioning Agent>**.
Lesson 8 – Activities in P6

General Tab

You can add the information about this activity in the Activity Details tab.

The following information can be added or modified:

- **Activity ID** and **Name**
- **Activity Type**
  - **Task Dependent** – This uses the Activity Calendar and is the default activity type for UNC.
  - **Resource Dependent** – This is not used due to the use of Resources discussed later in this manual.
  - **Level Of Effort** – This type is typically used for ongoing tasks dependent on other activities.
    - Duration is determined by it’s logic
    - You cannot assign constraints
General Tab (Continued)

- **Start Milestone** – This marks the beginning of a phase or communicates project deliverables.
  - Zero duration activity
  - Only has a start date
  - You cannot assign resources
- **Finish Milestone** – This marks the end of a phase or communicates project deliverables.
  - Zero duration activity
  - Only has a finish date
  - You cannot assign resources

- **Duration Type** – Fixed Duration and Units
- **% Complete Type** – Duration
- **Activity Calendar** – 5 x 8 workweek
- **WBS** – Phase II Construction Documents
- **Primary Resource** – Not used by UNC
Calendar Assignments

Calendars can be created and assigned to activities. PE uses calendar assignments to schedule activities.

- UNC has identified two (2) calendars.
  - 5 day workweek
  - 7 day workweek
- Holidays are not used
- Project specific calendars can be created if needed
- Calendars can be assigned at the activity level
- They are found under the General tab
Status Tab

You can enter the estimate of how long it will take to complete the activity.

- You can enter the Original Duration of the activity on this screen.
- Constraints and other items will be used later in this manual.

Steps:

1. Enter \(<20>\) in the *Original Duration*. Do not enter the “d”.
Notebook Tab

The Notebook tab enables you to assign notes to an activity. Notebook topics are typically instructions or descriptions that further describe the activity according to specific categories of information.

- Notebook Topics can be added at the EPS, project, WBS and activity levels.
**Codes Tab**

The Codes tab enables you to assign activity codes to an activity. Activity codes are used for grouping, sorting and filtering activities within a project. Global activity codes can be used on multiple projects at the same time.

- Activity Funding must be set for all activities with resource/cost information attached.
**Steps Tab**

Activity steps allow you to break activities into smaller units and track the completion of those units.

Attributes

- You can assign an unlimited number of steps per activity.
- Steps can be marked completed.
- Steps do not have duration estimates or dates.
- Each step can have an additional explanation in the text area on the right side of the *Steps* tab.

Benefits

- Steps provide a list of procedures required to complete the task.
- Steps provide extra guidance to the resources assigned to the activity.
- Activities can be updated based on steps.
Copying Activities

Activities can be copied one at a time or in groups. Coping groups of activities allows you to maintain logic ties within the group.

Steps:

1. Highlight the first activity in the band you wish to copy <A1120>.
2. Hold down the Shift key and click on the last item in the group <A1190>.
3. Click Copy on the Command bar.
4. Highlight the WBS element you want to copy the activities into <Commissioning Agent Selection>.
5. Click Paste on the Command bar.
6. Click OK.
Now, to complete the process, we need to change CM to Commissioning Agent in each activity. We can do this by typing in the correction in the General Tab, or in the Activity Table. Or we can use the find and replace function.

**Steps:**
1. Click on <A1760>.
2. Click on Edit>Replace
3. Type <CM> in the Find what:
4. Type <Commissioning Agent> in the Replace with:
5. Click on Replace to step through the rest of the activities in this WBS element.
6. Delete <Preconstruction> from Activity Name in A1800 - A1830
**Undo**

Undo capability is provided in some areas of Primavera, enabling you to undo errors in the Activities window and the Resource Assignments window.

- You can only undo modifications in the General, Status, Resources, and Relationships tabs of Activity Details.
- You can only undo activity code value assignments that were assigned using the *columns* in the Activities window.
- An option to clear the Undo history in the database is available in the Admin Preferences, Options tab in the Admin menu. You must have Admin Superuser privileges to clear the Undo history.

The following actions clear stored values from the Undo history — in other words, Undo will not work after these actions are performed:

- Application — Exiting the application.
- Data — Summarizing data, refreshing data.
- Schedule/status — Auto scheduling, updating progress, applying actuals.
- Project/portfolio — Creating projects, opening and closing projects, importing, changing portfolios, opening portfolios.
- Dialog boxes — User Preferences, Admin Preferences, and Time Approval.

Scheduling, leveling, making layout changes, and opening a new layout do not clear the Undo history.
Steps

1. Select an activity, A1200 – SD Production
2. Click in the Activity Name column and type <45d>.
3. Press Enter on your keyboard.
   You realize that you meant to type <5d> in the Original Duration column — not the Activity Name column.
4. In the Edit menu, click Undo Modify Activity
Workshop 1

Adding and Modifying Activities

• Change the Activity ID for activity A1750 to B1760.

• Add the following activities:

<table>
<thead>
<tr>
<th>Activity Name</th>
<th>Activity Type</th>
<th>WBS Node</th>
</tr>
</thead>
<tbody>
<tr>
<td>Order FF&amp;E</td>
<td>Start Milestone</td>
<td>Project Closeout</td>
</tr>
<tr>
<td>Completion of Punch list</td>
<td>Finish Milestone</td>
<td>Project Closeout</td>
</tr>
</tbody>
</table>

• Change durations on the following activities.

<table>
<thead>
<tr>
<th>Activity Name</th>
<th>Activity Type</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1380 CD Production</td>
<td></td>
<td>30d</td>
</tr>
<tr>
<td>A1400 CD Review by SCO</td>
<td></td>
<td>45d</td>
</tr>
<tr>
<td>A1450 CD Review by DOI</td>
<td></td>
<td>45d</td>
</tr>
<tr>
<td>A1520 CD Review by Owner</td>
<td></td>
<td>30d</td>
</tr>
<tr>
<td>A1550 GMP Negotiations</td>
<td></td>
<td>15d</td>
</tr>
<tr>
<td>A1560 Prepare and Issue Recommendation</td>
<td></td>
<td>5d</td>
</tr>
<tr>
<td>A1600 Solicitation for Bid Packages</td>
<td></td>
<td>20d</td>
</tr>
<tr>
<td>A1590 Preparation of CM Contract</td>
<td></td>
<td>10d</td>
</tr>
<tr>
<td>A1630 Construction Phase</td>
<td></td>
<td>120d</td>
</tr>
<tr>
<td>A1660 Construction Administration</td>
<td></td>
<td>120d</td>
</tr>
<tr>
<td>B1380 CD Production</td>
<td></td>
<td>90d</td>
</tr>
<tr>
<td>B1400 CD Review by SCO</td>
<td></td>
<td>45d</td>
</tr>
<tr>
<td>B1450 CD Review by DOI</td>
<td></td>
<td>45d</td>
</tr>
<tr>
<td>B1520 CD Review by Owner</td>
<td></td>
<td>45d</td>
</tr>
<tr>
<td>B1760 CD Review by Commissioning Agent</td>
<td></td>
<td>20d</td>
</tr>
<tr>
<td>B1550 GMP Negotiations</td>
<td></td>
<td>15d</td>
</tr>
<tr>
<td>B1560 Prepare and Issue Change Order</td>
<td></td>
<td>10d</td>
</tr>
<tr>
<td>B1600 Solicitation for Bid Packages</td>
<td></td>
<td>21d</td>
</tr>
<tr>
<td>B1630 Construction Phase Ph II</td>
<td></td>
<td>360d</td>
</tr>
<tr>
<td>B1660 Construction Administration Ph II</td>
<td></td>
<td>427d</td>
</tr>
<tr>
<td>B1740 Construction Phase – Other Funds</td>
<td></td>
<td>60d</td>
</tr>
<tr>
<td>B1670 Installation of FF&amp;E</td>
<td></td>
<td>30d</td>
</tr>
<tr>
<td>B1710 User Move-in</td>
<td></td>
<td>5d</td>
</tr>
<tr>
<td>B1720 Project Closeout Phase</td>
<td></td>
<td>90d</td>
</tr>
<tr>
<td>B1680 Uncommitted Funds/Contingency</td>
<td></td>
<td>5d</td>
</tr>
</tbody>
</table>

Primavera Project Manager for the Enterprise
Revision 4, September 2008
Custom for The University of North Carolina
Lesson 8 – Activities in P6

Use the following picture to help you finish your activity list in P6. Check all of the following:

- WBS elements
- Activities
- Activity Types
- Original Duration

<table>
<thead>
<tr>
<th>Activity ID</th>
<th>Activity Name</th>
<th>Original Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>40800-208</td>
<td>New One Building</td>
<td>315d</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>40800-208.1 Design</th>
<th>77d</th>
</tr>
</thead>
<tbody>
<tr>
<td>40800-208.1.1 Design Selection</td>
<td>52d</td>
</tr>
<tr>
<td>A1010 Advertisement for Designer</td>
<td>21d</td>
</tr>
<tr>
<td>A1000 Design Review Milestone</td>
<td>0d</td>
</tr>
<tr>
<td>A1020 Shortlist Designers</td>
<td>15d</td>
</tr>
<tr>
<td>A1030 Interview Designers</td>
<td>30d</td>
</tr>
<tr>
<td>A1040 Designer Selected Milestone</td>
<td>0d</td>
</tr>
</tbody>
</table>

| 40800-208.1.2 Design Contract | 15d |
| A1050 Preparation of Designers Fee Proposal | 1d |
| A1060 Negotiation of Designers Fee | 15d |
| A1070 Preparation of Designers Contract | 10d |
| A1080 Execution of Designers Contract | 15d |
| A1090 Design Contract Milestone | 0d |

| 40800-208.1.3 Pre-Design | 23d |
| A1070 Programming letter agreement | 5d |
| A1100 Programming | 20d |
| A1110 Review and Approval of Program | 15d |

| 40800-208.1.4 CM Selection | 21d |
| A1120 Advertisement for CM | 21d |
| A1130 Shortlist CM | 15d |
| A1140 Interview CM | 15d |
| A1150 Selection CM @ Risk | 1d |
| A1160 Preparation of CM Preconstruction Contract | 10d |
| A1170 Approval of CM Preconstruction Contract | 5d |
| A1180 Execution of CM Preconstruction Contract | 15d |
| A1190 Execution of CM Preconstruction Contract Milestone | 0d |

| 40800-208.1.5 Schematic Design | 22d |
| A1200 SD Production | 30d |
| A1210 SD Submittal to SC2 Milestone | 0d |
| A1220 SD Review by SC2 | 20d |
| A1240 SD Submittal to DDI Milestone | 0d |
| A1250 SD Review by DDI | 20d |
| A1270 SD Review by Owner | 20d |
| A1280 SD Approval by SC2 Milestone | 0d |
| A1260 SD Approval by DDI Milestone | 0d |
| A1280 SD Final Approve Milestone | 0d |

| 40800-208.1.6 Design Development | 63d |
| A1280 DD Production | 90d |
| A1300 DD Submittal to SC2 Milestone | 0d |
| A1310 DD Review by SC2 | 20d |
| A1330 DD Submittal to DDI Milestone | 0d |
| A1340 DD Review by DDI | 20d |
| A1360 DD Review by Owner | 20d |
| A1730 DD Review by CM | 20d |
| A1740 DD review by Commissioning Agent | 20d |
| A1320 DD Approval by SC2 Milestone | 0d |
| A1350 DD Approval by DDI Milestone | 0d |
| A1370 DD Final Approve Milestone | 0d |

| 40800-208.1.7 Construction Documents | 72d |
| 40800-208.1.7.1 Phase I Construction Documents | 46d |
| A1380 CD Production | 30d |
| A1440 CD Submittal to DDI Milestone | 0d |
| A1450 CD Review by DDI | 46d |
| A1380 CD Submittal to SC2 Milestone | 0d |
| A1400 CD Review by SC2 | 45d |
| A1490 CD Cost Estimate from CM @ Risk | 1d |
| A1500 CD Cost Estimate from Designer | 1d |
| A1520 CD Review by Owner | 30d |
| A1510 CD Cost Reconciliation Meeting | 1d |
| A1480 CD Approval by DDI Milestone | 0d |
| A1430 CD Approval by SC2 Milestone | 0d |
| A1530 CD Final Approve Milestone | 0d |

| 40800-208.1.7.2 Phase II Construction Documents | 77d |
# Lesson 8 – Activities in P6

## 40800-208.2 Construction
- **40800-208.2.1 Phase I Construction (Early Site Prep)**: 8d
  - B1630: Notice to Proceed Milestone Ph I 0d
  - A1630: Construction Administration 120d
  - A1630: Construction Phase 120d
  - A1630: Beneficial Occupancy Milestone 0d

## 40800-208.2.2 Phase II Construction
- B1630: Notice to Proceed Milestone Ph II 0d
  - E1630: Construction Phase Ph II 325d
  - E1630: Construction Administration Ph II 420d
  - E1630: Commissioning 1d
  - E1630: Construction Phase - Other Funds 55d
  - E1630: Beneficial Occupancy Milestone Ph II 0d

## 40800-208.3 Project Closeout
- B1790: Order FF&E 0d
  - B1790: Completion of Punch List 0d
  - B1680: Uncommitted Funds/Contingency 0d
  - B1670: Installation of FF&E 30d
  - B1790: Use Move-In 5d
  - B1720: Project Closeout Phase 90d
  - B1750: CM Fee (50%) 1d
  - B1790: Project Closeout Milestone 0d

## Activity ID Table

<table>
<thead>
<tr>
<th>Activity ID</th>
<th>Activity Name</th>
<th>Original Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>40800-208.1.1.2</td>
<td>Phase II Construction Documents</td>
<td>77d</td>
</tr>
<tr>
<td>B1760</td>
<td>CD Review by Commissioner's Agent</td>
<td>20d</td>
</tr>
<tr>
<td>B1300</td>
<td>CD Production</td>
<td>90d</td>
</tr>
<tr>
<td>B1440</td>
<td>CD Submittal to DOl Milestone</td>
<td>0d</td>
</tr>
<tr>
<td>B1450</td>
<td>CD Review by DOl</td>
<td>45d</td>
</tr>
<tr>
<td>B1390</td>
<td>CD Submittal to SCO Milestone</td>
<td>0d</td>
</tr>
<tr>
<td>B1400</td>
<td>CD Review by SCO</td>
<td>45d</td>
</tr>
<tr>
<td>B1430</td>
<td>CD Cost Estimate From CM &amp; Risk Surveying</td>
<td>1d</td>
</tr>
<tr>
<td>B1500</td>
<td>CD Cost Estimate From Designer</td>
<td>1d</td>
</tr>
<tr>
<td>B1520</td>
<td>CD Review by Owner</td>
<td>45d</td>
</tr>
<tr>
<td>B1510</td>
<td>CD Cost Reconciliation Meeting</td>
<td>1d</td>
</tr>
<tr>
<td>B1410</td>
<td>CD Redline Corrections (SCO)</td>
<td>1d</td>
</tr>
<tr>
<td>B1460</td>
<td>CD Redline Corrections (DOl)</td>
<td>1d</td>
</tr>
<tr>
<td>B1420</td>
<td>CD Redline Re-Review/SCM</td>
<td>1d</td>
</tr>
<tr>
<td>B1470</td>
<td>CD Redline Re-Review/DOl</td>
<td>1d</td>
</tr>
<tr>
<td>B1460</td>
<td>CD Approval by DOl Milestone</td>
<td>0d</td>
</tr>
<tr>
<td>B1430</td>
<td>CD Approval by SCO Milestone</td>
<td>0d</td>
</tr>
<tr>
<td>B1530</td>
<td>CD Final Approval Milestone</td>
<td>0d</td>
</tr>
<tr>
<td>40800-208.1.1.3</td>
<td>Phase I Bid and Award</td>
<td>24d</td>
</tr>
<tr>
<td>A1540</td>
<td>GMP Proposal</td>
<td>1d</td>
</tr>
<tr>
<td>A1550</td>
<td>GMP Negotiations</td>
<td>1d</td>
</tr>
<tr>
<td>A1560</td>
<td>Prepare &amp; Issue Recommendation for Letter</td>
<td>5d</td>
</tr>
<tr>
<td>A1520</td>
<td>Solicitation for Bid Packages</td>
<td>20d</td>
</tr>
<tr>
<td>A1570</td>
<td>Issue Award Letter</td>
<td>1d</td>
</tr>
<tr>
<td>A1510</td>
<td>Bid Packages Opening Milestone</td>
<td>0d</td>
</tr>
<tr>
<td>A1580</td>
<td>Award Letter Milestone</td>
<td>0d</td>
</tr>
<tr>
<td>A1590</td>
<td>Preparation of CM Contract</td>
<td>20d</td>
</tr>
<tr>
<td>40800-208.1.5.2</td>
<td>Phase II Bid and Award</td>
<td>17d</td>
</tr>
<tr>
<td>B1540</td>
<td>GMP Change Order Proposal</td>
<td>1d</td>
</tr>
<tr>
<td>B1550</td>
<td>GMP Negotiation</td>
<td>15d</td>
</tr>
<tr>
<td>B1560</td>
<td>Prepare &amp; Issue Change Order</td>
<td>10d</td>
</tr>
<tr>
<td>A1520</td>
<td>Solicitation for Bid Packages</td>
<td>21d</td>
</tr>
<tr>
<td>A1570</td>
<td>Issue Award Letter</td>
<td>1d</td>
</tr>
<tr>
<td>B1510</td>
<td>Bid Packages Opening Milestone</td>
<td>0d</td>
</tr>
</tbody>
</table>

Primavera Project Manager for the Enterprise
Revision 4, September 2008
Custom for The University of North Carolina
Lesson 9

Maintaining the Project Documents Library

Purpose and Objectives

This lesson describes how to utilize the Work Products and Documents window to catalog and track all project-related documents. At the completion of this lesson, you will be able to:

- Describe the difference between a work product and a reference document.
- Link to a project document.
- Specify the location of the actual document file.
- Assign a project document to an activity.
Project Documents

The Work Products and Documents window enables you to maintain general information about project documents, including links to the actual document files.

Attributes

- Create a link to the actual document file
- Document files can be stored on a network file server, configuration management system, or Web site
- Maintain general information about project documents, such as version, revision date, and author
- Can be assigned to WBS elements/activities
- Can be organized in a hierarchical manner
  - Work Product
    - Includes project or activity deliverables that will be turned over to the end user or customer
    - Examples: CAD files, testing plans, blueprints
  - Reference Document
    - Includes documents that can be referenced by a project participant to provide standards and guidelines for performing work.
    - Examples: guidelines, policies, procedures, design templates, checklists, and worksheets.

Benefits

- Catalog and track project-related documents and deliverables
- Provide standards and guidelines for performing work on an activity
Creating a Project Document

Before you can assign a project document to a WBS element/activity, you must create a link to the document in the Work Products and Documents window.

The OSHA Manufacturing Safety document outlines safety regulations for operating powered conveyors.

Steps:

1. From the **Directory** bar, click **WPs & Docs**.
2. From the **Command** bar, click **Add**.
3. Type a Title **<OSHA Safety Regulations>**, then press **Enter**.

General Tab

The General tab enables you to enter general information for the selected document.
You will assign a document category, status, and revision date to the new document.

**Steps:**

1. Click the General tab.
2. Click the ellipsis in the **Document Category** field to select a document category *<Regulatory/Compliance>.*
3. Click the drop down arrow in the **Status** field and choose a status *<Completed>.*
4. Click the ellipsis to select a **Revision Date** *<1-Aug-08>.*
Files Tab

After you add the document, you must indicate the location of the file that will be referenced by the document. P3e supports two kinds of document location references:

- Private Location – references can be viewed only by PE Project Manager users.
  - Examples: invoices, purchase orders, or contracts.
- Public Locations – references can be viewed by all project participants, including Primavision users.
  - Examples: procedure guidelines or project checklists.

Steps:

1. Click the Files tab.
2. In the Public Location field, click the ellipsis to browse to the file location <C:\Training Docs\OSHA.txt>.
3. In the Select File Name dialog box, click Open.
4. Click Launch to view the document.
5. From Notepad, choose File, Exit.
Assigning a Project Document to an Activity

Project documents can be assigned to both WBS elements and activities. For example, during a project’s planning phase, you may assign a document to a WBS element. As the details of your project develop, you can assign the same document to activities.

- In the Work Products and Documents window, use the Assignments tab.
- In the Activities window, use the WPs & Docs tab.

Steps:

1. Click the Assignments tab.
2. From the Display Options bar, choose Expand All.
3. Select an activity <B1630 – Construction Phase Ph II>.
4. Click assign to set the document.
5. From the Directory bar, click Activities.
7. Select WPs & Docs detail tab
8. Click on OSHA Safety Regulations
9. Select **Details** at the bottom of the tab.

![Work Product and Document Details]

10. Select **Launch** to view the document.
11. When done viewing, **File>Exit** and **Close**.
Lesson 10

Creating Relationships

Purpose and Objectives

This lesson describes how to create relationships between activities. At the completion of this lesson, you will be able to:

- Create a network logic diagram.
- Differentiate between P6’s four relationship types.
- Create relationships in the Activity Network.
- Create relationships in Activity Details.
Network Logic Diagram

A network logic diagram is a logical representation of all the activities in a project showing their dependency relationships.

Precedence Diagramming Method (PDM)

PDM is a technique for creating network logic diagrams.

- A box or rectangle represents each activity.
- Lines with arrows connect the boxes and represent the logical relationships between the activities.
  - Predecessor – controls the start or finish of another activity.
  - Successor – depends on the start or finish of another activity.
- Start with either the first activity in the network and enter each successor, or start with the last activity in the network and enter each predecessor.
**Relationship Types**

P6 supports four types of relationships. In the following diagrams, activity A represents the predecessor and activity B represents the successor.

**Finish to Start**

- When A finishes, B can start.
- This is the default relationship type in P6.
- Used about 90% of the time.

![Diagram](image1)

**Start to Start**

- When A starts, B can start.
- Used 8-9% of the time.

![Diagram](image2)
Finish to Finish

- When A finishes, B can finish.
- Used 1-2% of the time.

Start to Finish

- When A starts, B has to be finished.
- Not used.
Relationships with Lag

Lag specifies an offset or delay between an activity and its successor.

➢ Always expressed in days.
➢ Scheduled based on the calendar of the successor activity.
➢ Can be added to any type of relationship
➢ Can be a positive or negative value

Finish-to-Start with Lag

➢ The following example shows that the Construct Building Foundation activity must be finished for seven days before the Construct Building Exterior and Structure activity can start.

Start-to-Start with Lag

➢ The following example shows that the Install Interior Belt Conveyors activity can start five days after the Construct Building Exterior and Structure activity starts.
Creating Relationships in the Activity Network

The Activity Network is useful when sequencing activities because it presents the activities graphically as you draw relationships between them. You can create, modify, or review activity relationships at various levels of detail.

Steps:

1. From the Directory bar, click Activities.
2. Select an activity <B1700 – Completion of Punch List>.
3. From the Toolbar, choose Activity Network.
4. Click on the activity hold down the Alt key and drag to zoom.
Creating a Finish-to-Start Relationship

You can create a relationship between activities by clicking and dragging your mouse between the two activities.

- The left edge of the activity represents the start of the activity.
- The right edge of the activity represents the finish of the activity.

After the Completion of Punch list milestone finishes, the CM Fee (50%) activity can start. You will create a Finish-to-Start relationship between theses activities.

Steps:

1. Drag and Drop the box to desired positions.
2. To create a FS relationship, place the mouse pointer to the right edge of an activity <B1700 – Completion of Punch list>.
3. Click and drag the mouse to the left edge of a successor activity <B1750 CM Fee (50%) >.
Creating Relationships in Activity Details

It is very helpful to use the *Relationship* Activity Detail tab when creating relationships within the project.

When creating a relationship in Activity Details, the default relationship type is Finish-to-Start.
Steps:

1. From the **Layout Options** bar, choose **Show on Top, Gantt Chart**.
2. Select an activity <B1700 – Completion of Punch list>.
3. Click the **Relationship** tab.
4. From the **Relationship** tab, click **Assign** under **Predecessors**.
5. Assign predecessor activities <B1650 – Beneficial Occupancy Milestone Ph II>.
Viewing relationships in the Gantt Chart

You can also view/modify relationships in the Activity Table and Gantt Chart.
- Activity Table – display the **Predecessors** and **Successors** columns.
- Gantt Chart – click the **Relationship Lines** icon on the Toolbar to toggle relationship lines on and off.

Steps:

1. From the Toolbar, click the Relationship Lines icon to view the relationships between the activities.

Note: Even though relationships were added, the activities did not move from the project start date. When the project is scheduled, the activities will be placed in the Gantt Chart according to the relationships.
Workshop 2
Creating Relationships

Background:

Now that the activities have been entered, relationships need to be established. We have determined the order in which the activities should occur.

Assignment:

1. Use the table below to verify/create relationships.

<table>
<thead>
<tr>
<th>Activity ID</th>
<th>Activity Name</th>
<th>Successor</th>
<th>Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1000</td>
<td>Designer Advertisement Milestone</td>
<td>A1760</td>
<td>FS</td>
</tr>
<tr>
<td>A1830</td>
<td>Execution of Commissioning Agent Contract Milestone</td>
<td>A1740</td>
<td>FS</td>
</tr>
<tr>
<td>B1380</td>
<td>CD Production</td>
<td>B1760</td>
<td>FS</td>
</tr>
<tr>
<td>B1760</td>
<td>CD Review by Commissioning Agent</td>
<td>B1530</td>
<td>FS</td>
</tr>
<tr>
<td>B1620</td>
<td>Notice to Proceed Milestone Ph II</td>
<td>B1690</td>
<td>SS</td>
</tr>
<tr>
<td>B1690</td>
<td>Order FF&amp;E</td>
<td>B1670</td>
<td>FS</td>
</tr>
</tbody>
</table>
Lesson 11

Scheduling

Purpose and Objectives

This lesson describes how P6 calculates schedule dates. At the completion of this lesson, you will be able to:

- Perform a forward and backward pass.
- Define float and its impact on a schedule.
- Identify loops and open ends.
- Calculate a schedule using P6.
- Analyze the scheduling log report.
Critical Path Method (CPM) Scheduling

P6 employs the Critical Path Method (CPM) scheduling technique to calculate project schedules. CPM uses activity durations and relationships between activities to calculate schedule dates. This calculation is done in two passes through the activities in a project.

Critical Path

- The critical path is the longest continuous path of activities through a project that determines the project completion date.
- A delay in one activity delays other activities and the project as a whole.
Scheduling Concepts

Forward Pass

- The forward pass calculates an activity’s early dates.
- Early dates are the earliest times an activity can start and finish once its predecessors have been completed.
- The calculation begins with the activities without predecessors.
- Early Start + Duration – 1 = Early Finish

![Diagram of Forward Pass with activities A, B, and C.]

- Activity A starts at ES 1 and finishes at EF 5.
- Activity B starts at ES 1 and finishes at EF 10.
- Activity C starts at ES 11 and finishes at EF 25.
Backward Pass

- The backward pass calculates an activity’s late dates.
- Late dates are the latest times an activity can start and finish without delaying the end date of the project.
- The calculation begins with the activities without successors.
- Late Finish – Duration + 1 = Late Start

![Backward Pass Diagram]
Total Float

- The amount of time an activity can slip from its early start without delaying the project.
- The difference between an activity’s late dates and early dates.
- Activities with zero total float are critical.
- Late date – Early date = Total Float

Positive float

Zero float (critical)

Negative Float (extremely critical)
Backward Pass with Required Finish

One of the most common project scenarios is a required finish date for the project.

- Used only during the backward pass.
- Required finish date specifies when the project must finish regardless of the network’s duration and logic.
- Late Finish – Duration + 1 = Late Start.

**Backward pass**

A

ES 1  EF 5
TF = 0

B

ES 1  EF 10

C

ES 11  EF 25
TF = -5

Must Finish By:
Day 20*

LS 1  LF 5

LS -4  LF 5

LS 6  LF 20*

Primavera Project Manager for the Enterprise
Revision 4, September 2008
Custom for The University of North Carolina
Circular Relationships (Loops)

- Loops indicate circular logic between two activities.
- PE will not calculate the schedule until the loop is eliminated.
  - Determine proper logic.
  - Rerun the schedule.

P6.1 displays a dialog box listing the activities in the loop.
Open Ends

- Activities without a predecessor or successor.
  - No predecessor – activity uses data date as its early start
  - No successor – activity uses project finish as its late finish
- Open-ended activities can portray an unrealistic amount of positive total float.

Note: We recommend that each project have only two open ends, the first milestone activity and the last milestone activity.
Scheduling a Project in P6

When you schedule a project, P6 calculates activity dates according to durations and logic.

Although you established relationships in the project, the activities have not yet been placed in time according to those relationships.

Steps:

1. Open Project 40080-311
2. Choose Tools, Schedule.
3. Verify the Current Data Date <01-Jul-08>.
4. Click the ellipses in Log to File to select a file location <C:\Documents and Settings\CDP\Desktop\SCHEDLOG.TXT>.
5. From the Specify Log File dialog box, click Open.
6. If prompted to create the file, click Yes.
7. Click Schedule.

Note: Notice the position of the activities on the Gantt Chart has changed according to their calculated start and finish dates. Critical activities are displayed in red.
Lesson 11 – Scheduling in P6

**Schedule Log**

The schedule log records scheduling results, including:

- Scheduling/leveling settings
- Statistics
- Errors
- Warnings
- Scheduling/leveling results
- Exceptions

---

### Steps:

1. Choose **Tools, Schedule** or Press **F9**.
2. Click **View Log**.

---

Primavera Project Manager for the Enterprise 11-10
Revision 4, September 2008
Custom for The University of North Carolina
Steps:

1. From Notepad, choose **File, Exit**.
2. Click **Cancel** to exit the **Schedule** dialog box.
Driving Relationship

An activity may have a relationship from a predecessor that determines its early start. This logic tie is called a driving relationship.

- A solid relationship line indicates a driving relationship
- A dashed relationship line indicates a non-driving relationship.

Steps:

1. Click on the Activity Network box on the Toolbar.
2. Highlight a WBS element <Phase II Construction>.
3. Select an activity <B1740> and click the Relationships tab.
   a. B1630 drives the start of B1740
   b. B1740 does not drive the start of B1650.
Scheduling Summary

- The forward pass calculates early start and finish dates.
- The backward pass calculates late start and finish dates.
- Total float is the number of work periods that an activity’s early start can be delayed without delaying the end date of the project.
  - Total float is calculated by subtracting an activity’s early dates from its late dates.
- P6 will not calculate the schedule until the loop is eliminated.
- Open ends are activities without a predecessor or successor.
- A driving relationship determines its successor’s early start.
Lesson 11 – Scheduling in P6
Lesson 12 – Assigning Constraints in P6

Lesson 12

Assigning Constraints

Purpose and Objectives

This lesson describes the various types of constraints and how to apply them. At the completion of this lesson, you will be able to:

- Apply an overall deadline to a project.
- Apply a constraint to an individual activity.
- Add notebook topics to constrained activities.
- Describe the available constraint types.
Constraints

Constraints are imposed date restrictions used to reflect project requirements that cannot be built into the logic.

Attributes

- Constraints are user-imposed.
- Two constraints can be assigned to an activity.
- After applying a constraint, the project must be rescheduled to calculate the new dates.

Benefits

- Build a schedule that more accurately reflects the real-world aspects of the project.
- Provide added control to the project.
- Use to impose a restriction on the entire project or an individual activity.
Commonly Used Constraints

Must Finish By

- Used when an overall project deadline must be met.
- Forces all activities in the project to finish by the date (and time) specified.
- Affects the total float of the entire project.
- Must be applied in the Project window on the Dates tab.

The current early finish of the UNC Project is 3-Aug-11. You will apply a project deadline of 12-Aug-11.

Steps:

1. From the Directory bar, click Projects.
2. From the Display Options bar, click Expand All.
3. Click the Dates tab.
4. Highlight the project
5. Click the ellipses in the Must Finish By field to select a date <12-Aug-11>.
Must Finish By (Continued)

The next step is to reschedule the project to see the effect of the imposed deadline on the late dates and total float in the project plan.

6. In the Activities window, open a layout <Constraints and Notes>.
8. Click Schedule.

Note: Notice the Must Finish By date (12-Aug-11) is later than the calculated early finish by of the project (3-Aug-07); therefore, all of the activities contain positive total float.
Start On or After

Use the Start On or After constraint to set the earliest date an activity can begin.

- Forces the activity to start no earlier than the constraint date.
- Pushes the early start date to the constraint date.
- Affects the early dates of its successors.

The *GMP Change Order Proposal* is currently scheduled to start on 18-Dec-09. However, the approval of the final CDs will not be given until 4-Jan-10. You will apply a constraint to the activity to reflect this date.
Steps:

2. Verify the Status tab is selected.
3. In the Constraints section, click the drop down arrow in the Primary field.
4. Select a constraint type <Start On or After>.
5. Click the ellipses in the Date field to specify the constraint date <4-Jan-10>.
7. Click Schedule.

Note: The early start date is pushed out because the constraint date (4-Jan-10) is later than original early start date (18-Dec-09). The total float has gone from 6 days to -4 days, which means the project will not finish on time unless other adjustments are made in the schedule.

Adding Notebook Topics

When a constraint is assigned to an activity, it is recommended that you add a note to document why the constraint was assigned. You can use the Notebook tab in the Activities window to document these reasons.
Steps:

1. Click the Notebook tab.
2. Click Add.
3. Assign a Notebook Topic <Constraint Log>.
5. Type a note <CD’s will not be approved until Jan 4, 2010>.

Additional Constraints

Start On

➢ Forces the activity to start on the constraint date.
   - Shifts both early and late start dates.
   - Delays an early start or accelerates a late start.
   - Used to specify dates submitted by contractors or vendors.

Start On or Before

➢ Forces the activity to start no later than the constraint date.
   - Shifts the late start to the constraint date.
   - Affects the late dates of its predecessors.
   - Used to place a deadline on the start of the activity.
Lesson 12 – Assigning Constraints in P6

Finish On

➢ Forces the activity to finish on the constraint date.
  o Shifts both early and late finish dates.
  o Delays an early finish or accelerates a late finish.
  o Used to satisfy intermediate project deadlines.

Finish On or Before

➢ Forces the activity to finish no later than the constraint date
  o Pulls the late finish date to the constraint date.
  o Affects the late dates of its predecessors.
  o Used to place a deadline on the finish of the activity.

Finish On or After

➢ Forces the activity to finish no earlier than the constraint date
  o Shifts the early finish to the constraint date.
  o Affects the early dates of its successors
  o Used to prevent an activity from finishing too early.

As late as Possible

➢ Delays an activity as late as possible without delaying its successors
  o Shifts the early dates as late as possible.
  o Also called a zero free float constraint.

Mandatory Start and Finish

➢ Forces early and late dates to be equal to the constraint date.
  o Affects late dates of predecessors and early dates of successors.
  o May violate network logic.
Lesson 13 – Viewing Schedule Data in P6

Lesson 13

Viewing Schedule Data

Purpose and Objectives

This lesson discusses some of P6’s formatting capabilities, which allow you to view project data from many different perspectives. At the completion of this lesson, you will be able to:

- Group activities according to specific criteria.
- Sort activities.
- Apply a filter.
- Create a filter.
- Modify the bars on the Gantt Chart.
- Adjust the row height.
- Wrap text.
Grouping Data in P6 Windows

Grouping is a flexible way to organize data into categories that share a common attribute. You can group data to customize your layouts. These layouts can be used for reporting purposes.

Attributes

- Grouping is available in all the windows throughout P6. It is also available in most dialog boxes.
  - Each window or dialog box has its own grouping options.
  - Some windows have customizable/pre-defined groups.
- Activities can be grouped by hierarchical fields, such as, WBS, responsible manager (OBS), activity codes, and project codes.
- Activities can be grouped by data fields, such as dates, costs, total float, and other numeric data.
- The default grouping criteria is WBS.

Benefits

- Quickly view subtotal data in the group title bands.
- Quickly view summary bars in the Gantt Chart.
- Easily summarize data for reporting purposes.
Group and Sort Dialog Box

The Group and Sort dialog box is for organizing activities onscreen.

- **Show Grand Totals** – displays summary information for group in group band.
- **Show Summaries Only** – hides the activities within each group.
- **Shrink vertical grouping bands** – reduces height of grouping bands to minimum.
- **Group By** – lists data items used to group the current display.
- **Indent** – available if the data item selected is hierarchical.
- **To Level** – indicates the number of levels of hierarchy.
- **Group Interval** – indicates the interval by which you want to group the selected data item.
- **Font & Color** – displays the font/color for each group title band.
- **Hide if empty** – mark to hide empty group title bands.
- **Sort bands alphabetically** – arranges groups alphabetically (does not apply to WBS).
- **Show Title** – displays the name Group By item.
- **Show ID /Code** – displays grouping value.
- **Show Name / Description** – displays group name.
➢ From the **Layout Options** bar, choose **Group and Sort**.
Grouping Activities by Date

Grouping a layout by date allows you to identify which activities are due to occur within a particular time period.

You have been asked to create a report that shows which activities are scheduled to start in each month over the course of the project. To accomplish this task, you will group the activities by start date.

Steps:

1. Click under Group By to select a data item <Start>.
2. Double-click in the first cell under Group Interval to select a timeframe <Month>.
3. Click **Apply** to preview the results of your grouping selection.
4. Click **OK** to close the **Group and Sort** dialog box.

The layout is now grouped by the start date of the activities. You can see the activities scheduled to occur each month. Since you would like to use this layout in the future, you will save the layout with a new name, **Monthly Schedule**.

---

**Steps:**

1. From the **Layout Options** bar, choose **Layout, Save As**.
2. Type a layout name *Monthly Schedule*.
3. Click *Save*.

**Collapsing/Expanding Grouped Data**

You can collapse group bands to control the level of detail you are viewing at any point in time.

- In the Activity Table, you can view summary information for the displayed columns.
- In the Gantt Chart, summary bars are displayed to represent the start/finish dates in each group band.

Produce this report by collapsing the project and expanding a single group band.

---

**Steps:**

1. Open a layout *Classic WBS Layout*.
2. From the *Layout Options* bar, choose *Collapse All*.
3. Click (+) to expand group bands.
Sorting Activities

Sorting determines the sequence in which activities are listed within each group band. Based on the data item you choose, you can sort alphabetically, numerically, or chronologically.

- indicates descending sort order
- indicates ascending sort order

Sorting by a Single Criteria

To sort by single criteria, click the data item’s column title.

Steps:

1. From the Layout Options bar, choose Expand All.
2. Click on a column title <Start>.
Sorting by Multiple Criteria

To sort by more than one criterion at a time, open the Group and Sort dialog box and click the Sort button.

Steps:

1. From the Layout Options bar, choose Group and Sort.
2. From the Command bar, click Sort.
3. Verify the first sort criteria <Start>.
4. Click Add to specify a second sort criterion.
5. In the Field Name column, click the drop down arrow to select a data item <Total Float>.
6. Verify the Sort Order <Ascending>.
7. Click OK to close the Sort dialog box.
8. Click Apply to preview the results of your grouping selection.
9. Click OK to close the Group and Sort dialog box.
Filtering Activities

A filter is a set of instructions that determines which activities should display onscreen.

Attributes

- A set of pre-defined filters is provided, as is the ability to create user defined filters of your own.
- Filters are divided into the following groupings:
  - Default
    - Available to all users
    - 14 pre-defined filters
    - Cannot be deleted or modified
  - Global
    - Available to all users
  - User Defined
    - Available to current users for all projects to which they have access
- One or more filters may be applied to a layout at a time.
- Multiple criteria for selection may be used within a single filter.
- Filter specifications can be saved and reapplied.
- Filters can be saved as part of a layout.

Benefits

- Allows the user to focus on specific data by limiting the number of activities in the layout.
- Enables the user to create and customize layouts
- Facilitates updating
- Use to analyze critical activities
Lesson 13 – Viewing Schedule Data in P6

Filter Dialog Box

- **All Activities** – mark to show all activities in the layout.
- **Show activities that match** – define the join between multiple filters.
  - **All selected filters** – include the activities that meet the criteria of each selected filter.
  - **Any selected filter** – include the activities that meet the criteria of at least one of the selected filters.
- **Replace activities shown in current layout** – displays only the activities that meet the criteria of each selected filter.
- **Highlight activities in current layout, which match criteria** – highlights selected activities.

![Filters Dialog Box]

Steps:

1. From the **Layout Options** bar, choose **Filters**.
Applying a Default Filter

To view monitored milestones, you can run the *Milestone* default filter.

Steps:

1. Mark the checkbox in the **Select** column next to a filter "Milestone".
2. Click **OK** to execute the filter.
Applying a Default Filter (continued)

The Organizing Activities layout displays only the milestone activities.
Creating Filters

P6 allows you to create filters using various levels of complexity.

Filtering by a Single Criteria

A convenient filter to use throughout the life cycle of a project is a lookahead filter. It displays the activities that are scheduled to start or finish within the given amount of time, e.g., the next 1 month.

Steps:

1. From the *Layout Options* bar, choose *Filters*.
2. From the *Command* bar, click *New*.
3. Type a *Filter Name* `<1 Month Lookahead>`.
4. Double-click on *(All of the following)* and then click on *(Any of the following)*.
5. Click in the *Parameter* cell to select a data item `<Start>`.
6. Double-click in the *Is* cell to select a filter criteria *<is within range of>*.
7. Double-click in the *Value* cell to select a low date `<DD>`.
8. Double-click in the **High Value** cell to select a high date <DD+1M>.
9. Click the **Add** button to bring up another line.
10. Choose **<Finish>** for the Parameter, and duplicate the line above for other values.
11. Click **OK** to close the filter specification dialog box.

You will execute the new filter to display all activities scheduled to occur within the next month. You will save the **Layout** with a new name, 1 Month Lookahead.

12. Verify the new filter is selected **<1 Month Lookahead>**.
13. Click **OK** to execute the filter.
14. From the **Layout Option** bar, choose **Layout, Save As**.
15. Type a **Layout Name** **<1 Month Lookahead>**.
16. Click **Save**.

**Applying the All Activities Filter**

To refresh your screen with all activities, you can run the **All Activities** filter.
Steps:

1. From the *Layout Options* bar, choose *Filters*.
2. Mark the *All Activities* checkbox.
3. Click *OK* to execute the filter.
Lesson 14

Resources and Costs

Purpose and Objectives

This lesson outlines the procedures for resource and cost management in a project plan. At the completion of this lesson you will be able to:

- Define resources.
- Describe the steps for resource management.
- View the resource dictionary.
- Assign resources to activities.
- Assign costs to activities.
- Define a resource curve.
- Assign resource curves to an activity.
Definition of a Resource

A resource is anything used to complete an activity. Resources are divided into two categories.

- **Labor (people)**
  - Time-based
  - Generally reused between activities/projects
  - Recorded in terms of price/unit, e.g., 8 hours/day

- **Non-labor (equipment)**
  - Recorded in terms of price/unit, e.g., 8 hours/day

- **Materials (block, stone, etc.)**
  - Recorded in terms of price/unit e.g., $/cubic yard

Steps for Resource Management

1. Define resources
   - In the Resource window:
     - Define resource availability.
     - Setup the resource name, description, cost, roles, and attributes that control the resource.

2. Assign resources
   - In the Activity window:
     - Enter the resource name and amount of work planned for the activity.
     - P6 calculates the cost based on the resource quantity and price/unit as defined in the Resource window.

3. Analyze resources and costs
   - In the Activities or Tracking windows:
     - Use a resource profile to view resource quantity/cost graphically, displaying when and how much of the resource will be used.
     - Use columns to view total costs.
Viewing the Resource Dictionary

The Resources window contains information about all resources within the enterprise. These resources are shared by all projects in the organization, allowing for centralized resource management. UNC’s focus is on cost, not resource management, therefore, only one resource (Dollars) has been created.

Dollars are a non-labor resource and will not be tracked for man-hour utilization.

Steps:

1. From the Directory bar, click Resources.
2. Select a resource <Dollars>. 
Units & Prices Tab

This tab enables you to set prices and availability according to time.

- **Price/Unit** – sets the resource’s price for a single work unit, according to the effective date. UNC uses $1/hour. This will make non-labor units and cost equal for the resource.
Assigning Resources

Add Resource

An unlimited number of resources can be assigned to an activity. The same resource can be assigned to an activity more than once if this function is not turned off on the Resource tab on the Project Details screen.

Activities will need to be separated for activities funded from different sources. We will use both activity codes and cost account codes to enable tracking of the COPS funded projects.

Steps:

1. Select an activity *<A1290 – DD Production>*.
2. From the Resource tab, click Add Resource.
3. Assign Dollars.
4. Close the Assign Resources dialog box.
Assign a Cost Account Code

Assigning a Cost Account Code will enable the Bond 2000 budget to be tracked separately on tabular reports.

The Cost Account Code is assigned at the resource level on an activity.

Steps:

1. Click two times in the Cost Account Column on the Resource tab.
2. Select App and click to assign.
Assign a Budget to an Activity

To assign a budget to an activity you must adjust the Budgeted Units.

Steps:

1. Click in the Budget Units column on the Resource tab.
2. Type in Budget <55000>.

Note: Cost is adjusted to match units.
Budgeted Units x Price/Unit = Budgeted Cost
Assigning Activity Codes

Currently the only activity code that is used for all projects are the UNC Milestones code. These are used to track milestones in the schedule, primarily for reporting purposes. If you use the templates, these codes are already assigned to the appropriate activities. Do not delete them from Bond or COPS projects.

Steps:

1. Click on the Codes tab
2. Click Assign on the Codes tab
3. Select AE and click [ ]
Resource Curves

Resource curves are used to better project the distribution of resource units or costs over a long activity. Several standard Resource Curves are pre-built into the system. By default P6.1 distributes units and cost linearly across an activity.

Selected users can build their own Resource Curves. Resource Curves are not protected at the user level; therefore, users must be responsible not to modify other user’s curves.

Viewing Resource Curves

Steps:

1. From the Menu bar, select Enterprise, Resource Curves
Adding Resource Curves

The design and construction activities in our schedule are long and have enough cost to warrant a more accurate method of distributing our cost. You will need to assign costs to the Construction Phase activities, and assign a Bell Shaped curve to each.

Steps:

1. Double click in the Curve column
2. Select Linear and click 🔄.
## Mixed Funding Projects

Projects with mixed funding will need to be managed in the following way.

- **Activities with multiple funding** – will be broken into two (2) activities.
- **Dollars** – will be associated with each activity and have the following for each:
  - Cost Accounts
  - Budgeted Units
  - Curves
  - Durations

### Table: Mixed Funding Projects

<table>
<thead>
<tr>
<th>Activity</th>
<th>Start</th>
<th>End</th>
<th>Cost Accounts</th>
<th>Budgeted Units</th>
<th>Curves</th>
<th>Durations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity 1</td>
<td>Jan 1</td>
<td>Dec 31</td>
<td>$10,000</td>
<td>100 units</td>
<td>Linear</td>
<td>2 years</td>
</tr>
<tr>
<td>Activity 2</td>
<td>Feb 1</td>
<td>Apr 30</td>
<td>$20,000</td>
<td>200 units</td>
<td>Quadratic</td>
<td>3 years</td>
</tr>
</tbody>
</table>
Workshop 3
Assigning/Adjusting Resources and Costs

Since we used a template to build our project, the Resources have already been assigned to the necessary activities. We will need to modify the budgeted cost, set the cost account, assign activity codes, and adjust curves where necessary.

Follow the table below to complete resource information in this project.

<table>
<thead>
<tr>
<th>Act ID</th>
<th>Bud Cost</th>
<th>Cost Account</th>
<th>Curve</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1100</td>
<td>$30,000</td>
<td>App</td>
<td>Back Loaded</td>
</tr>
<tr>
<td>A1200</td>
<td>$35,000</td>
<td>App</td>
<td>Linear</td>
</tr>
<tr>
<td>A1290</td>
<td>$55,000</td>
<td>App</td>
<td>Linear</td>
</tr>
<tr>
<td>A1380</td>
<td>$35,000</td>
<td>App</td>
<td>Linear</td>
</tr>
<tr>
<td>B1380</td>
<td>$70,000</td>
<td>App</td>
<td>Linear</td>
</tr>
<tr>
<td>B1490</td>
<td>$70,000</td>
<td>COPS2008</td>
<td>Back Loaded</td>
</tr>
<tr>
<td>A1630</td>
<td>$500,000</td>
<td>COPS2008</td>
<td>Bell Shaped</td>
</tr>
<tr>
<td>A1660</td>
<td>$20,000</td>
<td>COPS2008</td>
<td>Linear</td>
</tr>
<tr>
<td>B1630</td>
<td>$8,540,000</td>
<td>COPS2008</td>
<td>Bell Shaped</td>
</tr>
<tr>
<td>B1660</td>
<td>$120,000</td>
<td>COPS2008</td>
<td>Linear</td>
</tr>
<tr>
<td>B1740</td>
<td>$1,200,000</td>
<td>Nonapp</td>
<td>Front loaded</td>
</tr>
<tr>
<td>B1680</td>
<td>$700,000</td>
<td>COPS2008</td>
<td>Front Loaded</td>
</tr>
<tr>
<td>B1750</td>
<td>$150,000</td>
<td>COPS2008</td>
<td>Back Loaded</td>
</tr>
</tbody>
</table>
Lesson 15

Analyzing Resources and Costs

Purpose and Objectives

This lesson describes various methods for analyzing resources and costs in a project plan. At the completion of this lesson, you will be able to:

- Display a resource usage profile
- Format a resource usage profile
- Display a cost profile
- Format the timescale
- Display a resource usage spreadsheet
- Format columns to view project costs.
Resource Analysis Settings

Each user can determine the level of detail displayed on resource/cost usage profiles/spreadsheets.

➤ **All Projects**
  - *All closed projects* – select to display resource/cost usage across all projects that have been summarized in the EPS.
  - *Opened projects only* – select to focus on resource/cost usage in the projects currently opened on screen.
  - Since UNC is using the same resource across all institutions **Open Projects Only** should be used for all individual use.

➤ **Time-Distributed Data**
  - Display data based on remaining Early or Forecast dates
  - Select the time interval for storing live resource allocations: Day, Week, or Month.
Steps:

1. Choose **Edit, User Preferences**.
2. Click the **Resource Analysis** tab.
3. Select **Opened projects only**.
4. Click **Close**.

Resource Usage Profile

Resource usage profiles provide a graphical view of unit/cost distribution over time. They display the amount of effort needed from each resource/role on the project during each time period.

Attributes

- View unit/cost distributions from a specific project or across all projects in the EPS.
- View resource or role allocations
- Can display separate bars for one or all of the following
  - Budgeted units/costs
  - Actual units/costs
  - Remaining Early units/costs
  - Remaining Late units/costs
- The resource usage profile timescale matches the timescale provided in the Gantt Chart.
- Format columns, group, sort, and filter resources/roles in the profile.
- The resource usage profile can be saved as part of a layout.

Benefits

- Determine how many hours each resource/role is scheduled to work.
- Identify overallocated resources
- Track expenditures per time period
- Display a “banana” curve to compare early and late dates
Displaying the Units Profile

You can use resource usage profile information to determine the distribution of costs over an activity, project, group of projects, or your entire institution.

Steps:

1. In the activities window, open a layout <Classic WBS Layout>
2. From the Layout Options bar, choose Show on Bottom, Resource Usage Profile.
Table 4: Resource Usage Profile

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Right Pane Display Options bar</strong></td>
<td>menu of the formatting options for the resource profile</td>
<td>4. <strong>Display Activities for selected</strong></td>
<td>for use when view Open Project only</td>
<td></td>
</tr>
<tr>
<td>2. <strong>Legend</strong></td>
<td>Can be move or turned off</td>
<td>5. <strong>Resource Hierarchy</strong></td>
<td>list available resources.</td>
<td></td>
</tr>
<tr>
<td>3. <strong>Timescale</strong></td>
<td>adjust date intervals.</td>
<td>6. <strong>Left Pane Display Options bar</strong></td>
<td>menu of formatting options for resource hierarchy.</td>
<td></td>
</tr>
</tbody>
</table>
Formatting the Profile

All aspects of the resource usage profile can be modified by adjusting the settings in the *Resource Usage Profile Options* dialog box.

Data Setting

- *Display* – select to display units or costs.
- *Show Bars/Curves* – mark to display *By Date* (periodic) bars and/or *Cumulative* curves and format their colors.

**Note:** If *Show All Projects* is marked, different color bars can be displayed to distinguish open projects from closed projects.

- *Additional Data Options* – mark to display a line indicating resource limits, resource/role overallocation in red, a line indicating resource availability, or resource overtime units.

Steps:

1. From the right pane *Display Options* bar, choose **Resource Usage Profile Options**.
2. Select *Cost* and *Budgeted Bars and Cumulative*
Graph Setting

- *Vertical Lines* – choose to display major/minor sight lines based on the timescale interval.
- *Horizontal Lines* – choose the line style and color.
- *Additional Display Options*
  - *Show Legend* – display the data item each color represents.
  - *3-D Bars* – add a third dimension to the bars.
  - *Background Color* – specify the color displayed in the background of the resource usage profile.
Displaying the Cost Profile
Formatting the Timescale

You can specify the timescale you want to display in the resource usage profile and the Gantt Chart.

- **Timescale Start** – specify the date from which the timescale should start for the profile or Gantt Chart
- **Date Interval** – choose the units of the timescale in years, quarters, months, weeks, days, hours, and shifts
- **Date Format** – select the format in which to display date intervals: Calendar, Fiscal, Week of the Year, or Ordinal Dates

Steps:

1. From the right pane *Display Options* bar, choose **Timescale**.
2. Verify the **Type**
3. Choose a **Date Interval**, select **Year/Quarter**
4. Click **OK**.
Formatting the Timescale (continued)

You can also format the timescale by using click and drag in the timescale onscreen.

- Place your mouse on the minor date interval on the timescale. Click and drag to expand or contract the timescale.

- Place your mouse on the major date interval on the timescale (the cursor will change to a hand). Click and drag to move the entire timescale.
Lesson 16

Optimizing the Project Plan

Purpose and Objectives

This lesson illustrates techniques used to optimize a project plan, including shortening the schedule, removing overallocation, and analyzing the budget. At the completion of this lesson, you will be able to:

- Analyze schedule dates.
- Analyze project costs
Analyzing the Project

Once you have created the project plan, verify that it meets the project stakeholder’s date, resource, and cost requirements. If a disconnect exists between the information in the project plan and the project requirements, you will be able to identify the source of the problem and define a solution.

Analyzing Schedule Dates

Evaluate the schedule to ensure that milestone dates and project dates are achieved.

Analyzing Resource Allocation

Evaluate the resources to ensure that the resources are not overallocated.

Analyzing Cost Budget

Evaluate the costs to ensure that the project is within its cost budget.
Analyzing Schedule Dates

The most important date in the schedule is the calculated project finish date. If the calculated finish date of the project is beyond the required project finish date, the project must be shortened. In addition, each deliverable in the project should be scheduled to finish by the dates imposed by the project stakeholders.

Steps for Analysis

- Compare the calculated finish to the Must Finish By date.
- Copy the project.
  - Use the copy for what-if analysis or to keep as a backup.
- Focus on critical activities.
- Shorten the project.
Compare the Finish Date to the Must Finish By Date

You can quickly determine whether the project will finish on time by viewing Dates tab in the Project window.

Steps:

1. Open the project 40800-315
2. From the Directory bar, click Projects.
3. From the Display Options bar, choose Expand All.
4. Highlight a project
5. Click the Dates tab.

Focus on Critical Activities

To shorten the project, you should now focus on critical activities. The critical activities are the longest continuous path of activities through a project that determines the project finish date. If you adjust a critical activity, this should adjust the project finish date.
Steps:

1. From the Directory bar, click Activities.
2. Click F9 on your keyboard to bring up schedule
3. Click Options
4. On the General Tab, Set Define critical activities as Longest Path
5. Click Close and Schedule
6. From the Display Options bar choose Filters
7. Run a default filter <Critical>.
Analyzing the Budget

There are many options for analyzing the budget. By displaying cost columns in the Activity Table, you can analyze the budgeted cost of the entire project, as well as each individual activity.

Steps:

1. Hide the bottom layout
2. Show the Activity Table on the Top Layout
3. Change the columns to match the above picture
4. Set Filter to All Activities
Analyzing the Budget (Continued)

The budgeted dollars are shown for each activity and rolled up by WBS and Project. To determine how much of a type of funding is included, use a filter.

Steps:

1. Create a new filter
2. Name the filter COPS2008 Filter
3. Select Cost Account ID, equals, and UNC.COPS2008
4. Set Filter to COPS2008 Filter
Lesson 17

Baselining the Project Plan

Purpose and Objectives

This lesson will show how to create a baseline plan from an optimized project plan. At the completion of this lesson, you will be able to:

- Create a baseline plan.
- Display baseline bars on the Gantt Chart.
What is a Baseline?

A baseline is a copy of a project. You can compare a baseline to the current project to evaluate progress.

- Before updating a schedule for the first time, you should create a baseline plan.

Attributes

- Can set the number of baselines per project.
- Designate one primary and up to three additional baselines at a time for comparison to the current project.
- Assign a baseline type that categorized its purpose.
  - This helps organizations benchmark performance across multiple projects.
  - Examples: initial planning, what-if, or mid-project baselines.

Benefits

- Baselines provide a target against which a user can track a project’s cost, schedule, and resource performance.
- “What-if” project baselines allow you to enter different scenarios to examine how they affect the current schedule.
Creating a Baseline

To create a baseline, you must first open the desired projects. You must have at least one project open to access the Baselines dialog box.

- The Baseline dialog box displays group title bands for each open project, with any existing baseline projects beneath its current project.

Steps:

1. Open a layout <Classic WBS Layout>.
2. Choose Project, Maintain Baselines.
3. Click Add.
4. Verify that Save a copy of the current project as a new baseline is selected.
5. Click OK.
Categorizing the Baseline

You can assign a baseline type to categorize its purpose. This assignment will help you organize the baselines for the project.

The baseline you just created is the initial baseline for the project.

Steps:

1. Select the baseline.
2. Type a new Baseline Name if desired.
3. Click the drop down arrow from the Baseline Type filed to select a baseline type <Initial Plan>.
4. Close
Assigning a Baseline

Use the Assign Baselines dialog box to choose an active baseline for the project.

- If no baseline is designated as active, the current project plan is used as the baseline.
- Only one baseline can be designated as Project Baseline at any point in time.
- Assignments are user-specific.
  - Each user can choose a different baseline for comparison to the current project.

Steps:

1. Choose Project, Maintain Baselines.
2. On Project Baseline, select \textit{UNC Building – B1}.
3. Click \textit{OK}.
**Displaying Baseline Bars**

By displaying baseline bars in the Gantt Chart, you can visually compare the baseline plan’s schedule dates to the current project plan’s schedule dates.

Steps:

1. From the *Layout Options* bar, choose *Bars*.
2. Mark the checkbox in the *Display* column next to the desired bars *<Primary Baseline and Baseline Milestone>*.
3. To determine the placement of the Baseline bar in the Gantt Chart, verify a Row *<2>*.
4. You may adjust the size and shape of the bar and end points.
5. Click *OK* to close the *Bars* dialog box.
Saving the Layout

The layout now displays the baseline bars in the Gantt Chart. If you would like to deep these changes, you can save the layout.

Steps:

1. From the Layout Options bar, choose Layout, Save As.
2. Type the Layout Name <Current vs. Baseline Bars>.
3. Click Save.
Lesson 18

Statusing the Current Schedule

Purpose and Objectives

This lesson examines the process of updating activities. At the completion of this lesson, you will be able to:

- Describe several methods for updating the project schedule.
- Define the “Data Date”.
- Reschedule your project schedule.
Updating a Project

Project schedules should be updated on a regular basis, no less than monthly. The Program Controls office at the Office of the President will need to run regular quarterly reports and general status and cash flow reports throughout the project lifecycle. It is important that the data be accurate at the beginning of each month.

How Collected?

- Project managers collect actual dates, progress, and cost information.
- Record actual dates and progress.

Campuses

- Actual dates of milestones and activities should be recorded.
- Best estimates of remaining durations and/or percent complete should be entered.
- Resources for At Completion Units should be equal to Budgeted Units.
- Actual dollars will not be tracked in P3e.
- Reschedule the project to see effects.

Program Controls Office (GA)

- Saves a baseline schedule each quarter.
- Schedules all projects at the beginning of each month.
  - Non-updated schedules will be pushed out.
- Compares to baseline schedules.
What is the Data Date?

When updating a project, actual dates are recorded for each activity relative to the data date.

The data date is the date up to which actual performance data is reported and the date from which future work is scheduled.

- The date that P6 uses as the starting point for its schedule calculations.
- Always starts at the beginning of the workday.
- Typically it’s the last day of the month.

Entering Actuals

Once a project is underway, you must enter actual scheduled dates on each activity and milestones. Each project is different: so you may need to update weekly or monthly, depending on the time span of your project and how frequently you want to adjust your forecasts.

Enter schedule data in the following order:

For Completed Activities

- Actual start and actual finish dates.

For Activities In-Progress

- Actual start date.
- Percent complete, or
- Remaining duration, or
- Forecasted finish date.
Highlighting Activities for Updating

The Progress Spotlight feature highlights the activities that should have been worked on during a specified time period. You can also drag the data date line to a specific date to highlight the activities that fall between the last data date and the new data date. Once you spotlight activities, you can automatically status them, manually update them.

Unlike selected activities, when Progress Spotlight is active, activities remain spotlighted even when you click in another area of the workspace.
Use the Progress Spotlight feature

Steps
1. Choose **View, Progress Spotlight**, or click the **Progress Spotlight** icon to highlight a timeperiod equal to the smallest increment of the displayed timescale from the previous data date. To increase/decrease the highlighted area between the previous data date and the new date by one or more timescale increments, drag the data date line to the right or the left.

2. Drag the data date line

3. Click the data-date line; when it changes to an arrow, drag the line to the right until you reach the new data date. The Project Management module spotlights the activities between the last data date and the new data date. Update activities as described later in this chapter, or reschedule the project immediately according to the new data date by pressing F9.
Statusing Milestones

To update a start milestone, you mark the activity started and enter the actual start date.

Steps:
1. Select an activity (A1000 – Designer Advertisement Milestone)
2. Click the Status tab
3. Mark the Started checkbox
4. Browse to select the actual finish date (1-Jul-08)

Note: The Duration % is automatically set to 100% and the Finished box is automatically checked.
Statusing Activities To Completion

Steps:
1. Go to the Activities Window
2. Select an activity (A1010 – Advertisement for Designer)
3. From the Status tab, mark the Started checkbox
4. From the Status tab, mark the Finished checkbox and browse to select the actual finish date (28-Jul-08)

Note: Notice the original duration was 21 days and the actual duration was 27. The line on the Gantt chart is now all blue.
Statusing Activities in Progress

Two steps must be performed to update an activity in progress:

- Enter the actual start date.
- Enter percent complete or remaining duration and/or finish date.

Steps:

1. Select an activity (A1020 – Shortlist Designers)
2. From the Status tab, mark the Started checkbox and browse to select the actual start date (28-Jul-08)
3. From the Status tab, type the Remaining Duration (10), then press Enter
   Or enter 33% Percent Complete, then press Enter
   Or browse the predicted Finish Date, then press Select
Rescheduling the Project

Now that actuals have been applied, it is time to reschedule the project based on the new *Data Date*. Any activities that were delayed during the apply actuals operation will delay their successor activities.

Steps:
1. Choose *Tools, Schedule* (*F9*)
2. Browse to select the *Current Data Date* (Aug 1, 2008)
3. Click *Select*, then click *Schedule*
Results of Rescheduling the Project

- Analyze the activities on the critical path.
- Review the project’s performance to date.
- Develop strategies for getting the project back on track.
Lesson 19

Reporting Performance

Purpose and Objectives

This lesson demonstrates how to run and create tabular reports as a means of reporting performance information. At the completion of this lesson, you will be able to:

➢ Describe reporting methods
➢ Run a schedule report
➢ Print a report
➢ Create a cost report with the Report Wizard
➢ Summarize project data

Methods for Performance Reporting

PE provides many methods to distribute schedule, resource and cost performance information to the project team. These methods include:

➢ Printed Layouts
➢ Printed reports from PE’s Report Wizard
➢ Printed reports from PE’s Report Writer
➢ Project Web site
➢ Infomaker
Reports

P6 provides standard reports for schedule, resource and cost analysis.

Steps:
1. Choose Tools, Reports, Reports.
Running an Existing Report

You can report schedule performance using a pre-defined schedule report.

Steps:
1. Select a report <ST-O1 Status by WBS, Activity>.
2. From the Command bar, click Run Report
Run Report Dialog Box

Use the Run Report dialog box to compile and print the selected report.

- **Print Preview** — preview the report before printing it
- **Directly to Printer** — compile and print report
- **HTML File** — compile and save the report or report batch as an HTML file
- **ASCII Text File** — compile and save the report as a delimited text file (.txt)
  - **Field Delimiter** — select the character used to separate categories of information that you save in delimited text (.txt)
  - **Text Qualifier** — select the character used to separate categories of data that you save in delimited text format (.txt), if the data contains the field delimiter you specify.
- **Output file** — If you choose HTML or ASCII Text File, click to specify the file location and name where you want to save the report.
- **View file when done** — Mark this checkbox to automatically open the report in your default browser for an HTML file, or your default text viewer for an ASCII text file.
- **Notes** — add comments about the selected report
Steps:

1. From the Run Report dialog box, verify that Print Preview is selected.
2. Click OK.
Lesson 19—Reporting Performance in P6

Print Preview

Print preview allows you to make modifications to the layout before printing.
Lesson 19—Reporting Performance in P6

Page Setup

Use to determine scaling, orientation, margins, text and logos for headers and footers, text and logos for a legend, which layout areas to print, and the date range of the printed report.

Steps:

1. Click on the Page Setup button at the top of the Print Preview.
2. Verify that the Page tab is selected.
Lesson 19—Reporting Performance in P6

Page Setup (Continued)

Margins Tab
3. Click the *Margins* tab.
Lesson 19—Reporting Performance in P6

**Page Setup (Continued)**

**Header/Footer Tab**

4. Click the *Header* tab.

5. Click the *Footer* tab.
Report Wizard

The Report Wizard enables the user to create a wide variety of ad-hoc reports very easily. The reports can be modified as they are being built, or they can be reopened at a later point in time to be modified.

Wizard reports are created by first selecting a base table and pertinent data fields, then organizing the data via grouping, sorting and filtering options.

Creating a Report with the Report Wizard

You can report cash flow by type of funds for your projects.

Steps:

1. Click on the Reports button on the Directory bar
2. Select the Cost Project Group
3. From the Command bar, click Add.
4. Verify the report option <New Report>
5. Click Next

6. Select a subject area <Activities>
7. Verify Time Distributed Data is checked.
8. Click Next
8. Click on *Columns*

9. Verify the *Selected Options* column are **Activity ID** and **Activity Status**

10. Click **OK**
11. Click the *Group and Sort* button
12. Mark *Show Grand Totals, Show Summaries Only* and *Hide if empty*
13. Mark *Hide if empty*
14. Click *OK*
15. Click the Filter button
16. Click the Add button
17. Under the Parameter column, press drop down menu arrow and select <Cost Accounts>
18. Under Value double click and type in **COPS2008**
19. Click OK
20. Click Next
21. Click *Timescale*
22. Click on *Date Interval* drop down arrow and select *Quarter*
23. Click *OK*
24. Add **Budgeted Total Cost** to the *Selected Options* column.
25. Click **OK**
26. Click **Next**
27. Type in report title *Quarterly COPS2008 Cash Flow*
28. Click *Next*
29. Click *Run Report*
30. View pages of report, then close
31. Click Next
32. Click *Save Report*
33. Click *Finish*
Lesson 19—Reporting Performance in P6

Creating a Report Using the Current Layout

The Report wizard can also be used to create reports based on the layout that is currently displayed. Reports can be modified as they are being built through the wizard.

Steps

1. Adjust columns in layout to look like above.
2. In the Tools menu, click Report Wizard
3. In the Create or Modify Report window, select *Use Current Screen*.
4. Click *Next* for the next three screens, reviewing the data selected for each screen.
5. On the Report Title screen, type in **Project Cost Loading**.
6. Click *Next*.
Lesson 19—Reporting Performance in P6

![Project Cost Loading]

<table>
<thead>
<tr>
<th>Activity ID</th>
<th>Activity Name</th>
<th>Start</th>
<th>Finish</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>40800-316</td>
<td>UNC Building</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40800-316.1</td>
<td>Design</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40800-316.1.1</td>
<td>Designer Selection</td>
<td>01-Jul-08</td>
<td>28-Jul-08</td>
<td>$0</td>
</tr>
<tr>
<td>40800-316.1.2</td>
<td>Designer Contract</td>
<td>01-Dec-08</td>
<td>01-Jan-09</td>
<td>$0</td>
</tr>
<tr>
<td>40800-316.1.3</td>
<td>Pre-Design</td>
<td>01-Oct-08</td>
<td>01-Oct-08</td>
<td>$0</td>
</tr>
<tr>
<td>40800-316.1.4</td>
<td>Construction Manager Selection</td>
<td>01-Jul-08</td>
<td>01-May-08</td>
<td>$0</td>
</tr>
</tbody>
</table>

Subtotal

<table>
<thead>
<tr>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0</td>
</tr>
</tbody>
</table>

Primavera Project Manager for the Enterprise
Revision 4, September 2008
Custom for The University of North Carolina

19-24
User Preferences

Select **Edit...User Preferences** for the drop down menu. Set the parameters as follows:

1. **Time Units**

![Image of User Preferences window]

- **Units Format**
  - **Unit of Time**: Hour
  - **Sub-unit**: Minutes
  - **Decimals**: 0

  - **Example**: 41h

- **Durations Format**
  - **Unit of Time**: Day
  - **Sub-unit**: Hours
  - **Decimals**: 0

  - **Example**: 10d

- **Units/Time Format**
  - Resource Units/Time can be shown as a percentage or as units per duration
  - **Show as a percentage (50%)**
  - **Show as units/duration (4h/d)**

- **Hours per Time Period**
  - Specify the number of work hours for each time period.

<table>
<thead>
<tr>
<th>Hours/Day</th>
<th>Hours/Week</th>
<th>Hours/Month</th>
<th>Hours/Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.0</td>
<td>40.0</td>
<td>172.0</td>
<td>2000.0</td>
</tr>
</tbody>
</table>

[Image of User Preferences window]
User Preferences

2. Dates

3. Currency – No Change

4. E-Mail – Type your return address

5. Assistance – Unchecking all is recommended
User Preferences

6. Application – Startup Window - Projects recommended

7. Password – Set as needed
User Preferences

8. Resource Analysis

![User Preferences Screen]

When All Projects are shown in the Resource Usage Profile and Spreadsheet, all opened projects are included as well as the closed projects specified below.

- All closed projects (except what-if projects)
- All closed projects with a leveling priority equal/higher than [input field]
- Opened projects only

**Time-Distributed Data**

In the Resource Usage Profile and Spreadsheet, display time-distributed Remaining Early data using:

- Remaining Early dates
- Forecast dates

Interval for time-distributed resource calculations:

- Week [input field]

Display the Role Limit based on:

- Custom role limit
- Calculated primary resources' limit

[Help] [Close]
User Preferences

9. Calculations

[Image of User Preferences window with options for Resource Assignments and Assignment Staffing]
10. Startup Filters

Choose the default filters to start the application. If you choose to view all data the application may take longer to start. These filters can be modified in the individual views.