Course:

Project Management
Module 4: Scheduling

PI: Prof D. Stroumbakis, PE

Module 4: Project Scheduling

Module 4: Objectives: Proficiency in Scheduling

At the end of this Module students should be able to:

- Creating Network Schedules and viewing Critical Path (Video)
- Value of Network Schedule View in Public Works
- Create a Work Breakdown Structure
- Identify the Critical Path (CP)
- In-Class Exercises

Module 4: Develop the Management Plan and Schedule

- Effective scheduling can result in benefits in the critical areas of time, cost, and quality. Consequently, project managers must be good schedulers.

Module 4: Develop the Management Plan and Schedule

- The scheduling process consists of the following steps:
    1. clarify the project's goal
    2. develop the work breakdown structure (WBS)
    3. put the WBS activities in sequence
    4. compute and chart the durations of all WBS activities
    5. develop the network diagram and determine the critical path
    6. update the schedule as needed
    7. monitor the schedule throughout the project

Module 4: WBS for producing a motorcycle with time allocations and numbering.
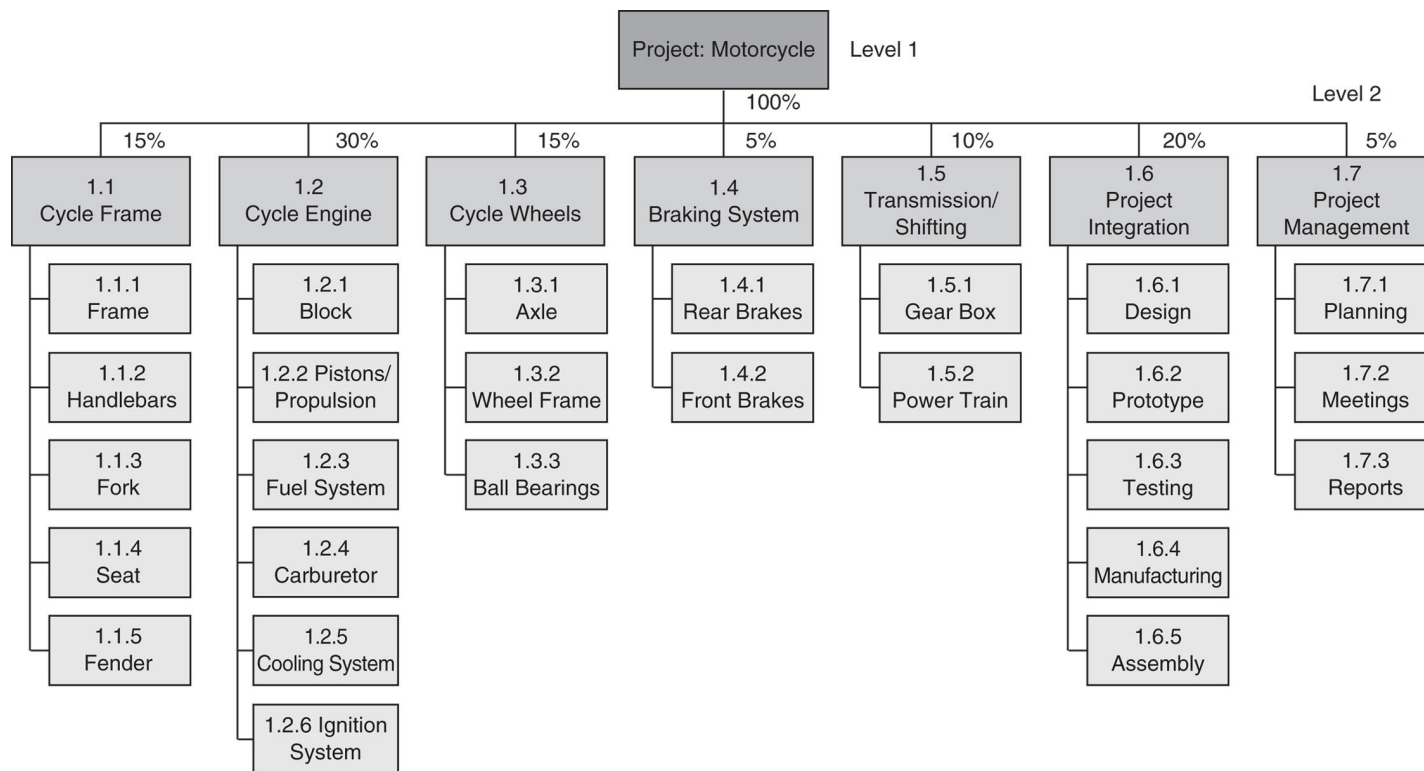
Module 4: Project Monitoring and Control

- Once the project management plan has been implemented, all activities in it must be monitored carefully and controlled.

- Monitoring and control are aimed primarily at the ensuring schedule, costs, technical requirement are NEVER in **JEOPARY**

- These are most likely areas to go awry without close monitoring and control.

- In fact, when monitoring a project, you need to always state risk in only three way: Impact to Schedule (schedule risk), impact to cost (Cost risk), and Impact to Technical Requirements (Technical risk).

Module 4: Applications of PM in Public Sector.

- Limiting our scope to NYC, there are Project Management Integral in the public sector, especially in the Building and construction areas:
  - SCA ,School Construction Authority
  - DoE Department of Education, Division of School Facility
  - NYCHA: New York City of Housing Adoratories'

- In particular, the SCA is responsible for over $13 B budget and Project Management is integral to its operation.

- However, there is host of other agencies (even Public Libraries) where its absence create source of duplication, inefficiencies and missed deadlines.

- One of the most useful attributes of project management is its ability to make managers and team members engage in "adult thinking." Adult thinking is different from "magical thinking," which many organizations and managers like to engage in.
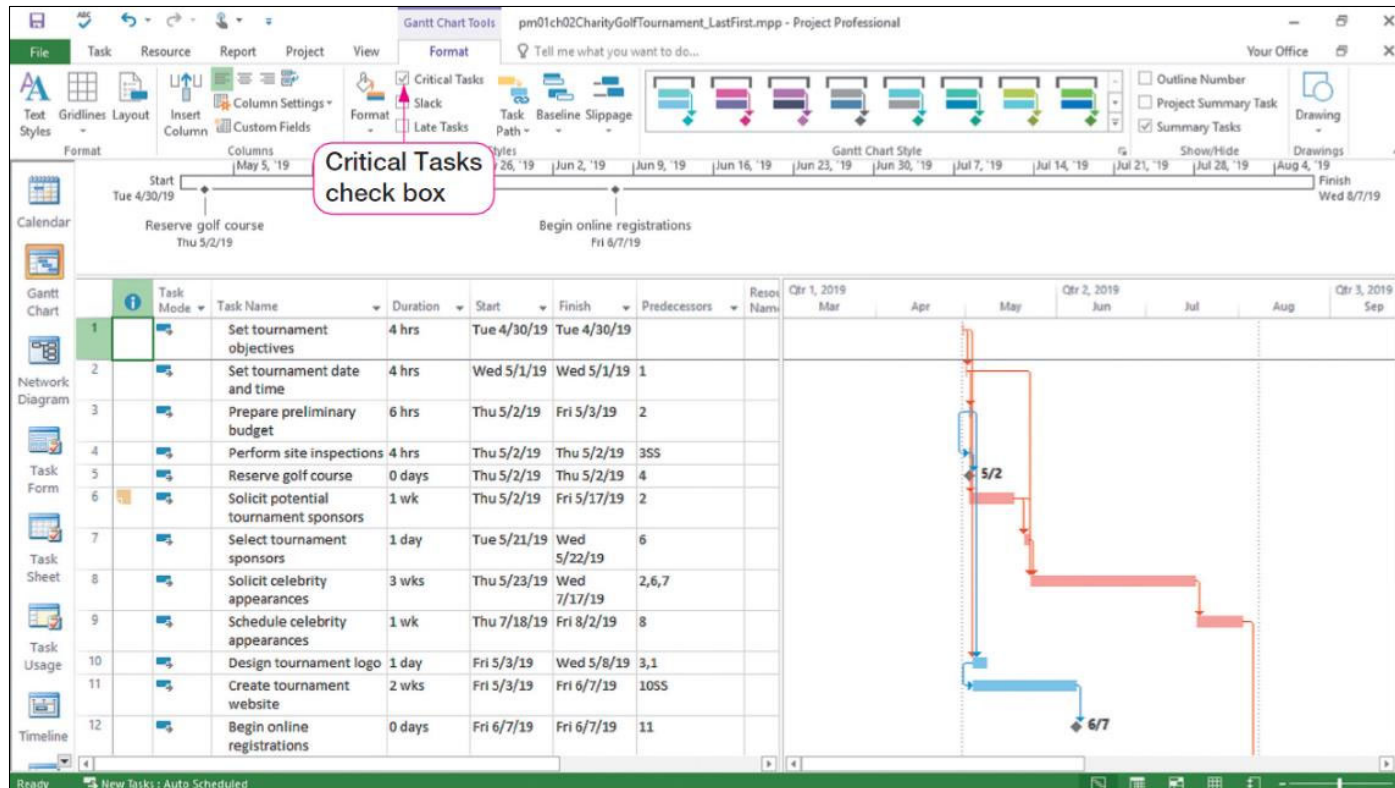
Module 4: Network View & Critical Path
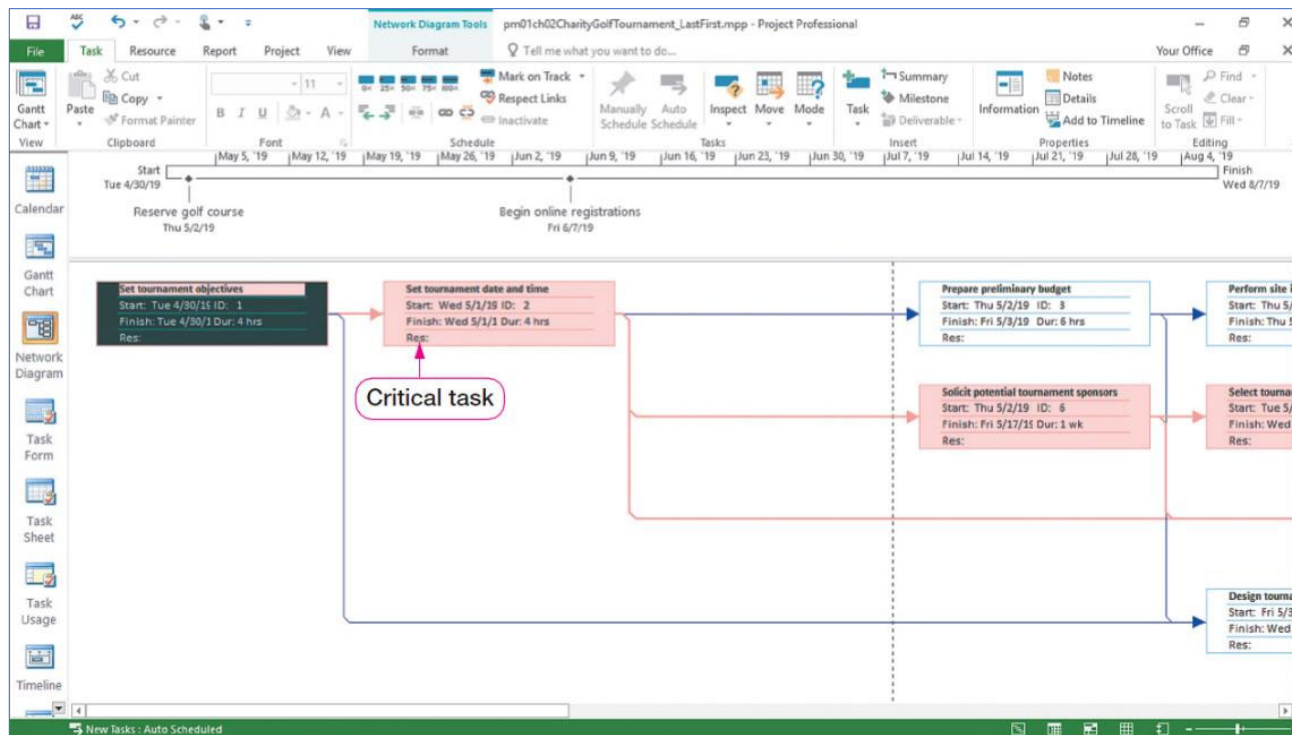
When you set task dependencies, Project will create the critical path, which consists of tasks that must be completed on time in order for a project to stay on track and come to a successful completion. This slide shows the critical path displayed in Network Design view.
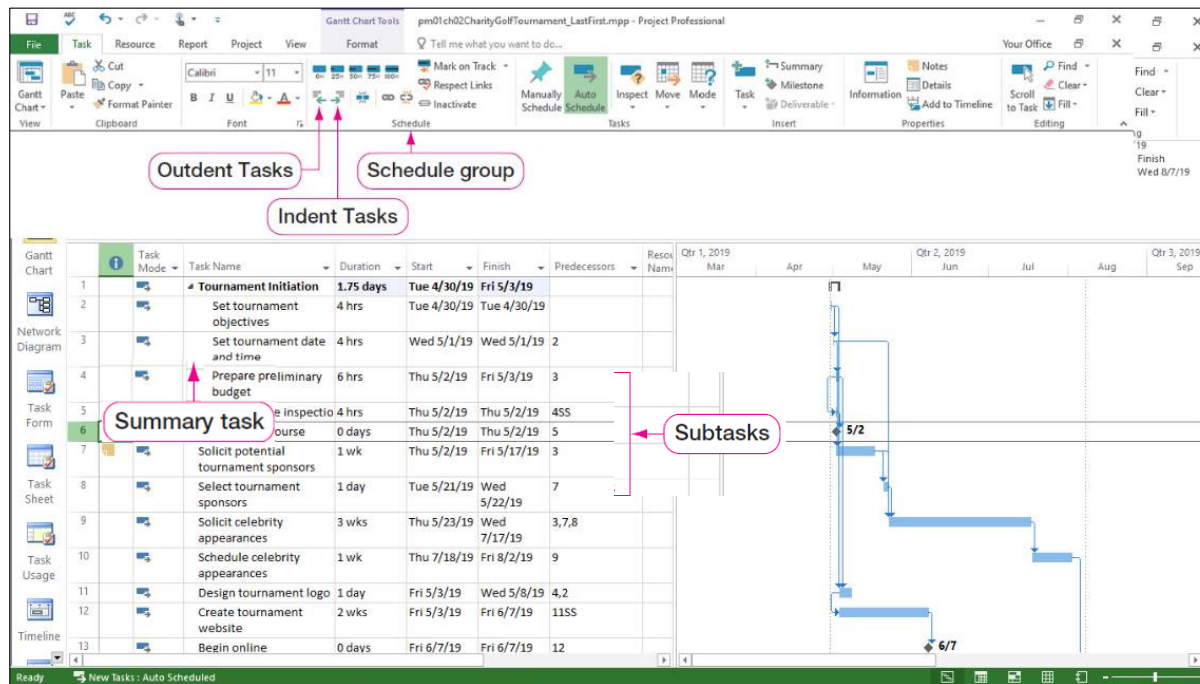
Module 4: Gantt View & Critical Path

Use In-Class Example "Golf Course" later in this module or Instructor may open Other Project file

As shown in this slide, the critical path can also be displayed in Gantt Chart view. Clicking the Critical Tasks check box displays and removes the critical path from view.

Module 4: Create a Work Breakdown Structure

WBS: A list of Summary Tasks and Subtasks

To create summary tasks, you can indent and outdent tasks or use the Summary button in the Insert group on the Task tab. Indenting a task moves a task to the right in the Entry table and makes it a lower-level task in a WBS, such as a task that needs to be completed to achieve the main goal. Outdenting a task moves a task to the left in the Entry table and makes it a higher-level task in a WBS, such as a main goal. As indicated on this slide, indenting and outdenting tasks can be done in the Schedule group on the Task tab

- **Insert Video Insert by instructor Summarizing Network and Gantt Diagram CP Creation and Slack**

Module 4: Create and Assign Project Resources

Resource Sheet view columns:

- Initials

- Max

Additional columns are:
- In the Initials column, you assign initials to a resource for identification instead of a longer resource name.
- The Max column determines the maximum percentage of capacity a resource is available to work.

Module 4: In Class Exercise 4

Hands-On Exercise 4: To Add and Modify Tasks in Network Diagram View

Tasks can be viewed in Network Diagram view as well. This will display tasks and task dependencies. This view will display each task in a detailed box and show the critical path.

a. Click **Network Diagram** on the View Bar and switch to Network Diagram view.

b. Scroll up, if necessary, to **Prepare budget** (ID3).

c. Right-click the task; and click **Notes**. Discuss that this will add a note to the item.

d. Click the **Notes** tab, and type in box; **Check with owner to see if they received any donations.** The owner had mentioned to you that a local vet is interested in donating.

e. Click **OK**.

f. Click **Save.**

g. Click **Gantt Chart** to return to the Gantt chart.

> Use In-Class Example "Golf Course" later in this module or Instructor may open Other Project file

Module 4: In Class Exercise 5

Hands-On Exercise 5: To Set Task Dependencies

You have been asked to identify task dependencies—which tasks hinge on the completion of others. This creates a more detailed project plan.

a. Click **Gantt Chart** on the View Bar, if necessary. Move the **split bar** between the Gantt chart and the Entry table to the right edge of the Predecessors column by dragging the **split bar** to the right.

b. Select **Prepare budget** (Task 3) and **Set Wine Tasting date, time, and location** (Task 4), and then click the **Task** tab. In the Schedule group, click **Link the Selected Tasks**. Linking Task 3 and Task 4 together creates a Finish-to-Start relationship. Note the link line in the Gantt chart as well as the change to the Start date in Task 3. Also take note that a 3 was added to the Predecessors column in row 4.

c. In the Gantt chart on the right-hand side of your screen, click and hold the **Secure location and sign agreement** (Task 5) Gantt bar and then drag to the **Obtain beer and wine vendors** (Task 6) Gantt bar, as those tasks must be done before the website can be created.

d. Release the mouse button to create the linked relationship between Tasks 5 and 6.

e. Double-click **Print tickets and signage** (Task 11) to open the Task Information dialog box. Click the **Predecessors** tab. Click in the ID column of the first row in the Predecessors table. Enter 10 in the ID column, and press Tab to assign a task of 10.

f. Click **OK** and then select Task 10. On the View Bar, click **Network Diagram**. Click and hold **Obtain masters of ceremonies** (Task 9), and then drag to **Print tickets and signage** (Task 11) to link the tasks. Release the mouse button to create a Finish-to-Start relationship between Task 9 and Task 11. Return to Gantt Chart view.

Click **Save**

Module 4: End of Module

Proceed to Module 4 Student Assessment