

M&IS 34060 - Operations Management

Computer Exercises - Project Management

INTRODUCTION

These lab exercises are focused on developing student abilities and comfort with the mechanics of using Microsoft (MS) Project to solve project management related issues.

IN-CLASS STUDENTS

We will complete these assignments during class time using MS Project. If you use a campus computer, MS Project will be installed. If you use a personal laptop, you will need to install MS Project as noted below.

ONLINE STUDENTS

Because not every student will have MS Project available for his or her computer, using MS Project to answer exam questions will not be required. **Macs, in particular, cannot run MS Project** unless it can dual-boot Windows via Boot Camp, Parallels, or VM Ware.

While using MS Project is not required, on an exam you may be given screen-shots of Project and be required to answer questions based upon those. Hence, understanding these exercises and MS Project is still pertinent to you. At a minimum, online students should watch the solution videos and understand the process and interpretations. If you are a management major and going to take me for MIS 44152 Project Management, a required course, we will use MS Project extensively and downloading it now should be considered.

OBTAINING AND USING MICROSOFT PROJECT


MS Project is available for Stark Campus students to use on campus in the Main Hall 1st Floor East Wing computer lab, the 208 Main Hall lab, and in 43 Fine Arts. There are also a few computers in the library with Project installed. For a list of campus computer lab software, click [here](#).

For off campus use, and on student laptops, MS Project can be downloaded for free from a site called Azure Dev Tools for Teaching that the Stark Campus pays for. See the instructions for the Azure Dev Tools for Teaching site that will be visible on Blackboard.

STARTING UP AND CONFIGURING MS PROJECT

To see MS Project startup and use information, go to the MS Project Reference Sheet section found towards the end of this packet, [here](#).

BASIC STARTUP PROCESS FOR MS PROJECT


- 1) Open MS Project by clicking on the Project icon  or by searching through your application list via the Windows button or by searching your computer for “Project”. Choose to open a blank project.
- 2) Click on the **Task** tab of the ribbon and make sure that **Gantt Chart** is selected. Note that there are other choices, such as **Network Diagram**, that are available, as we will use network diagrams too. The **View** tab on the ribbon is another way to change the view.
- 3) Change it so that new tasks are automatically scheduled by left-clicking on the **New Tasks: Manually Scheduled** (bottom left of screen) and change it to **Auto Scheduled**. Note: This is for new tasks only. If you had existing tasks that were manually scheduled, you would have to make the change by selecting the task or tasks to change, and making the selection on the ribbon.
- 4) Play around with the interface for a while to get a feel for the program. It is powerful, more than what we will use in this course, but it will be used more intensely in the project management course.

PART ONE—PROBLEM 3-6 FROM THE TEXTBOOK

Consider the following problem and answer the questions using MS Project.

•• **3.6** Shirley Hopkins is developing a program in leadership training for middle-level managers. Shirley has listed a number of activities that must be completed before a training program of this nature could be conducted. The activities, immediate predecessors, and times appear in the accompanying table:

Activity	Immediate Predecessor(s)	Time (days)
A	—	2
B	—	5
C	—	1
D	B	10
E	A, D	3
F	C	6
G	E, F	8

- a) Develop an AON network for this problem.
- b) What is the critical path?
- c) What is the total project completion time?
- d) What is the slack time for each individual activity? 

PART TWO—PROBLEM 3-23 FROM THE TEXTBOOK

Complete problem 3.23 from the textbook. For this problem, you must enter the data into MS Project. Before you do so, make sure Project is set so new tasks are **Auto Scheduled**.

NOTES - the task **Durations** are entered as only the **Most Likely Time** for simplicity. Make sure you use weeks, which can be entered as the letter "w" only (e.g., 2w), instead of days or you can set weeks to be the default time in MS Project as will be demonstrated in the solution video.

To identify the critical path, note that the **Network Diagram** on the **View** menu is useful.

- 3.23 Dream Team Productions is in the final design phases of its new film, *Killer Worms*, to be released next summer. Market Wise, the firm hired to coordinate the release of *Killer Worms* toys, identified 16 activities to be completed before the release of the film.
- a) How many weeks in advance of the film release should Market Wise start its marketing campaign? What are the critical paths? The tasks (in time units of weeks) are as follows:

ACTIVITY	IMMEDIATE PREDECESSORS	OPTIMISTIC TIME	MOST LIKELY TIME	PESSIMISTIC TIME
A	—	1	2	4
B	—	3	3.5	4
C	—	10	12	13
D	—	4	5	7
E	—	2	4	5
F	A	6	7	8
G	B	2	4	5.5
H	C	5	7.7	9
I	C	9.9	10	12
J	C	2	4	5
K	D	2	4	6
L	E	2	4	6
M	F, G, H	5	6	6.5
N	J, K, L	1	1.1	2
O	I, M	5	7	8
P	N	5	7	9

- b) If activities I and J were not necessary, what impact would this have on the critical path and the number of weeks needed to complete the marketing campaign?

Point to ponder ...In part (b), as a project manager with goals of being on time and within budget, what did you learn? What tasks are important to focus on? Were the ones you worked on the correct ones?

PART THREE—PROBLEM 3-26 FROM THE TEXTBOOK

Complete problem 3-26 from the textbook. Use the [file](#) here as a starting point to save time typing in data.

3.26 The Maser is a new custom-designed sports car. An analysis of the task of building the Maser reveals the following list of relevant activities, their immediate predecessors, and their duration.⁵

JOB LETTER	DESCRIPTION	IMMEDIATE PREDECESSOR(S)	NORMAL TIME (DAYS)
A	Start	—	0
B	Design	A	8
C	Order special accessories	B	0.1
D	Build frame	B	1
E	Build doors	B	1
F	Attach axles, wheels, gas tank	D	1
G	Build body shell	B	2
H	Build transmission and drivetrain	B	3
I	Fit doors to body shell	G, E	1
J	Build engine	B	4
K	Bench-test engine	J	2
L	Assemble chassis	F, H, K	1
M	Road-test chassis	L	0.5
N	Paint body	I	2
O	Install wiring	N	1
P	Install interior	N	1.5
Q	Accept delivery of special accessories	C	5
R	Mount body and accessories on chassis	M, O, P, Q	1
S	Road test car	R	0.5
T	Attach exterior trim	S	1
U	Finish	T	0

- a) Draw a network diagram for the project.
- b) Mark the critical path and state its length.
- c) If the Maser had to be completed 2 days earlier, would it help to
 - i) Buy preassembled transmissions and drivetrains?
 - ii) Install robots to halve engine-building time?
 - iii) Speed delivery of special accessories by 3 days?
- d) How might resources be borrowed from activities on the noncritical path to speed activities on the critical path?

PART FOUR—TEXTBOOK CASE: MANAGING THE HARD ROCK'S ROCKFEST

The durations for this case are entered in weeks and not days. See Part Two for information on how to handle this issue. A starting point file is found [here](#).

► Managing Hard Rock's Rockfest

Video Case



At the Hard Rock Cafe, like many organizations, project management is a key planning tool. With Hard Rock's constant growth in hotels and cafes, remodeling of existing cafes, scheduling for Hard Rock Live concert and event venues, and planning the annual Rockfest, managers rely on project management techniques and software to maintain schedule and budget performance.

"Without Microsoft Project," says Hard Rock Vice-President Chris Tomasso, "there is no way to keep so many people on the same page." Tomasso is in charge of the Rockfest event, which is attended by well over 100,000 enthusiastic fans. The challenge is pulling it off within a tight 9-month planning horizon. As the event approaches, Tomasso devotes greater energy to its activities. For the first 3 months, Tomasso updates his Microsoft Project charts monthly. Then at the 6-month mark, he updates his progress weekly. At the 9-month mark, he checks and corrects his schedule twice a week.

Early in the project management process, Tomasso identifies 10 major tasks (called level-2 activities in a work breakdown structure,

or WBS)[†]: talent booking, ticketing, marketing/PR, online promotion, television, show production, travel, sponsorships, operations, and merchandising. Using a WBS, each of these is further divided into a series of subtasks. Table 3.8 identifies 26 of the major activities and subactivities, their immediate predecessors, and time estimates. Tomasso enters all these into the Microsoft Project software.[‡] Tomasso alters the Microsoft Project document and the time line as the project progresses. "It's okay to change it as long as you keep on track," he states.

The day of the rock concert itself is not the end of the project planning. "It's nothing but surprises. A band not being able to get to the venue because of traffic jams is a surprise, but an 'anticipated' surprise. We had a helicopter on stand-by ready to fly the band in," says Tomasso.

On completion of Rockfest in July, Tomasso and his team have a 3-month reprieve before starting the project planning process again.

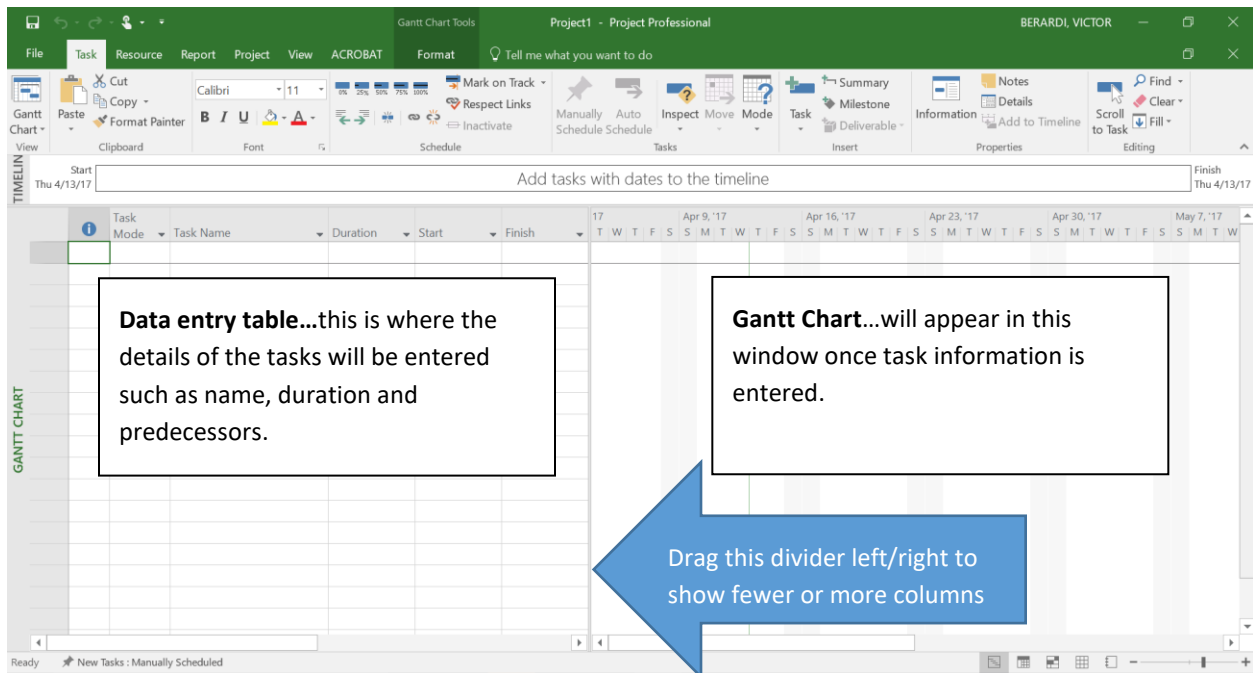
Activity	Description	Predecessor(s)	Time (weeks)
A	Finalize site and building contracts	—	7
B	Select local promoter	A	3
C	Hire production manager	A	3
D	Design promotional Web site	B	5
E	Set TV deal	D	6
F	Hire director	E	4
G	Plan for TV camera placement	F	2
H	Target headline entertainers	B	4
I	Target support entertainers	H	4
J	Travel accommodations for talent	I	10
K	Set venue capacity	C	2
L	Ticketmaster contract	D, K	3
M	On-site ticketing	L	8
N	Sound and staging	C	6
O	Passes and stage credentials	G, R	7
P	Travel accommodations for staff	B	20
Q	Hire sponsor coordinator	B	4
R	Finalize sponsors	Q	4
S	Define/place signage for sponsors	R, X	3
T	Hire operations manager	A	4
U	Develop site plan	T	6
V	Hire security director	T	7
W	Set police/fire security plan	V	4
X	Power, plumbing, AC, toilet services	U	8
Y	Secure merchandise deals	B	6
Z	Online merchandise sales	Y	6

MS PROJECT REFERENCE SHEET

Portions of this resource were created in reference to MS Project 2013/2016 and later versions from the books *The Missing Manual* (Biafore) and *Project Management* (Happy). These books are highly recommended.

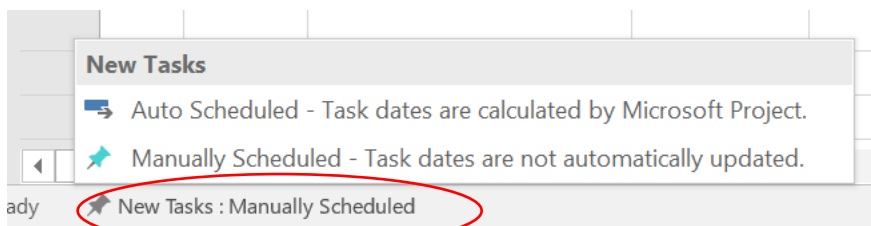
INITIAL MS PROJECT VIEW (GANTT CHART VIEW)

The following window will be visible when you start up MS Project or choose to create a new blank project. This is called the **Gantt Chart View**.



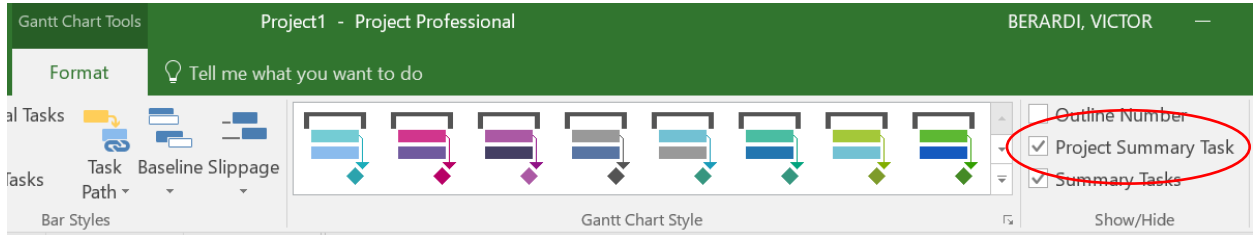
SETTING TASKS TO BE AUTO SCHEDULED

Before entering any task information, you should set each task to be auto scheduled. At the bottom left of the Gantt chart view, click the **New Tasks: Manually Scheduled**, then choose **Auto Scheduled – Task dates are calculated by Microsoft Project**.



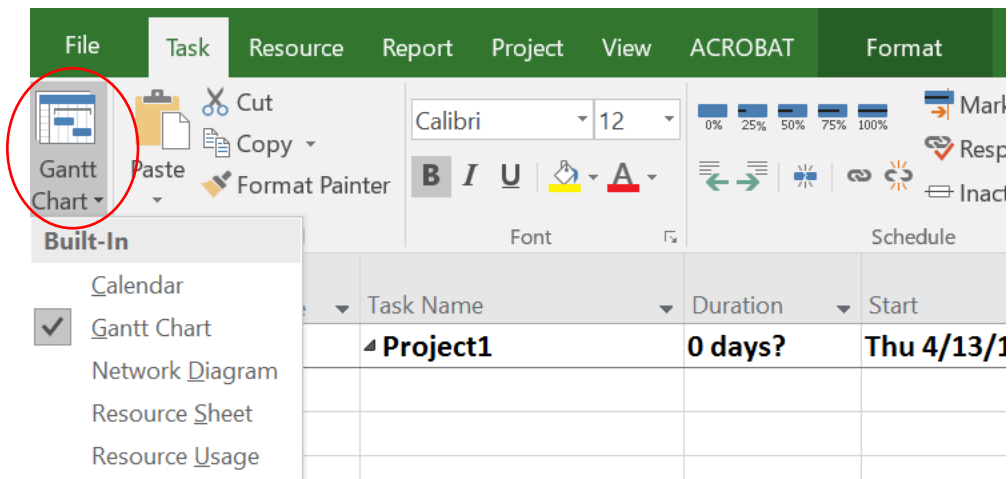
DISPLAYING THE PROJECT SUMMARY TASK

The project summary task is how you can easily see how many working days a project is expected to take. From the Gantt chart view, click on the **Gantt Chart Tools Format** context menu. Then, check the box next to **Project Summary Task**.



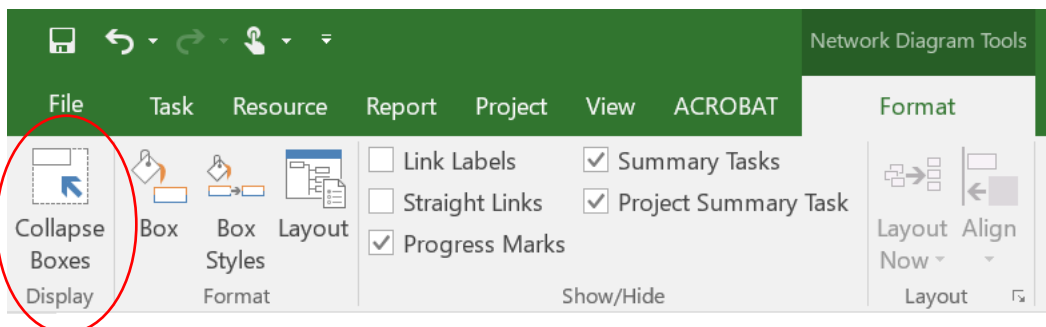
CHANGING BETWEEN THE GANTT CHART & NETWORK DIAGRAM VIEWS

To change between seeing the Gantt chart and the network diagram, from the Task tab, click the **Gantt Chart View** drop-down. Then choose the diagram you desire.



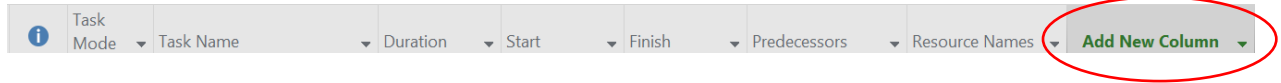
COLLAPSING THE NETWORK DIAGRAM VIEW

The network diagram can be too large to fit on one screen. To make it as small as possible, from the Network Diagram view, go to the **Network Diagram Tools Format** menu tab, then choose **Collapse Boxes**.



DISPLAYING THE SLACK (TOTAL SLACK) FOR ACTIVITIES

From the **Gantt Chart View**, slide the window divider to the right to show more columns. Double-click a column title, such as **Add New Column** and then choose or enter **Total Slack**.



SOLUTION VIDEO LINKS

Links to the video solutions to the above exercises are found below. The streaming version are interactive Flash videos and provide the best user experience. The MP4 videos contain all the same content and can be used if the Flash videos will not run on your machine.

STREAMING SOLUTION VIDEO LINKS

[Part One—streaming version](#)

[Part Two—streaming version](#)

[Part Three—streaming version](#)

[Part Four—streaming version](#)

MP4 SOLUTION VIDEO LINKS

[Part One—MP4 version](#)

[Part Two—MP4 version](#)

[Part Three—MP4 version](#)

[Part Four—MP4 version](#)