

# GTO Graduate Training

## Finding the Critical Path Module

### Leader Guide





## Table of Contents

Table of Contents .....	1
Introduction .....	2
Exercise 1. Benefits of knowing the critical path.....	4
Exercise 2. The Importance of Communicating the Critical Path.....	4
Exercise 3. Identify the Critical Path .....	7

Copyright 2015 by Computer Generated Solutions, Inc.

All rights reserved. It is a violation of the law to reproduce or utilize in any form or by any means, electronic or mechanical, including photocopying, recording, or by information storage and retrieval systems, without written permission from the copyright owner. It is a violation of the law to alter this document, change the formatting, delete sections, or substitute/alter the Deutsche Bank logo without express written permission from the copyright owner. Content that Computer Generated Solutions, Inc. does not own or have the legal right to use or reproduce cannot be added to this document or this training workshop. Individuals in violation of the law will be held personally liable.

This page is intentionally left blank.

INSTRUCTOR NOTES

*Make sure that you have checked the following:*

- *Sticky notes, pencils and a copy of the student guide for each student.*
- *Pre-load the intro vignette and the Forward/Backward Pass e-learning module.*

## Introduction

Welcome to the “Finding the Critical Path” Student Guide. Identifying the critical path and ensuring that all project stakeholders understand the critical path are critical to ensuring that everyone works together effectively for a successful project.

## Goals for the “Finding the Critical Path” Module

*INSTRUCTOR NOTE: Review Slide 1 and Slide 2*

Upon completion of the exercises in this module, you will be able to do the following:

- Understand the importance of identifying the critical path
- Identify the critical path for a project

## Learning Icons

You’ll see the icons below throughout your workbook. They’ll help you know what to do at each step of the exercises.



### Watch

Watch a video or instructor-led demonstration to learn how to perform the activity.



### Do

Try something new, practice, or complete an activity.



### Discuss

For each work back schedule, discuss the following in your small groups and write down your observations.

## Exercise 1. Benefits of knowing the critical path

### Step 1. View the vignette on benefits of the critical path



#### Watch

Watch a video or instructor-led demonstration to learn the benefits of knowing the critical path.

*INSTRUCTOR NOTE: Go to Slide 4. Play the vignette on the benefits of the critical path. Consider sharing a quick personal story about a situation where stakeholders have different understandings of the critical path. Remind the students to make note of the benefits as they are watching the video.*

As you are watching the vignette, make note of the benefits:

---

*Make dependencies visible*

---

*Organize large and complex projects*

---

*Encourage reduction of project duration*

---

*Increase visibility of the impact of schedule revisions*

---

*Optimize efficiency through better allocation of resources*

---

*INSTRUCTOR NOTE: Ask about the benefits. Go to Slide 5. This should be a very quick overview.*

## Exercise 2. The importance of communicating the critical path

*INSTRUCTOR NOTE: Go to Slide 6. Mention that the class will be jumping into an exercise right away. Give an overview of the purpose and provide an overview of the exercise. Let students know they will be sharing the tasks with the group. Make sure they have sticky note to secretly identify the critical path tasks.*

The purpose of this group exercise is to help you to understand why it is important for **all** project stakeholders to have a common understanding of the critical path for a project. The critical path identifies all tasks that have zero (or negative) float time—tasks that cannot be started late without impacting the ability to successfully deliver the project on time.

*INSTRUCTOR NOTE: Go to Slide 7 and provide an overview of the terminology.*

### Step 1. Identify the tasks required for you to get ready for work in a typical morning.



#### Try

In this step, you will create a very simple work back schedule that includes all of the tasks required for you to get to work on time in a typical morning.

1. Use the “Project: Getting to Work on Time” table to identify the tasks. Be as detailed as possible in the time allotted and include time of tasks owned by others.

Note: You will be sharing this with your group, so use some discretion.

2. On a separate piece of paper (note card or sticky note) indicate which tasks you believe cannot slip without causing you to arrive late to work. Do not reveal these to your group.

### Step 2. Guess the critical path

*INSTRUCTOR NOTE: Go to Slide 9 and let the students know that they will need to trade their work back schedule with at least one other person. Remind them not to tell others what the critical path is.*



#### Try

Next, you will guess at the critical path for other projects in your small group given only the work back schedule.

1. Trade notebooks with someone in your small group.
2. Review the other person's "Getting to Work on Time" Project work back schedule.
3. Select the tasks you believe cannot slip without impacting the ability to successfully complete the project (i.e., get to work on time). Document the tasks by Task ID on the following line.

Tasks: \_\_\_\_\_

Note: The person who created the work back schedule should **not** give any hints, but can answer questions about what the tasks are.

*INSTRUCTOR NOTE: Go to Slide 10 and have person who created the work back schedule review the critical path that others identified. You should find that people were not able to tell what the critical paths were just by the WBS.*

### Step 3. Discuss the critical paths



#### Discuss

For each work back schedule, discuss the following in your small groups and write down your observations.

Does the person who created the project work back schedule agree with you on the critical path? Why or why not?

---

---

---

---

What are the consequences of missing tasks on the critical path?

---

---

---





### Exercise 3. Identify the critical path

*INSTRUCTOR NOTE: Go to Slide 11 and provide an overview of the exercise.*

So far, we have taken an informal approach to understanding the critical path, but there are formalized methods to provide consistency and accuracy. In this exercise, you will practice using the Forward/Backward Pass method.

#### Step 1. View the video on using the Forward/Backward Pass method

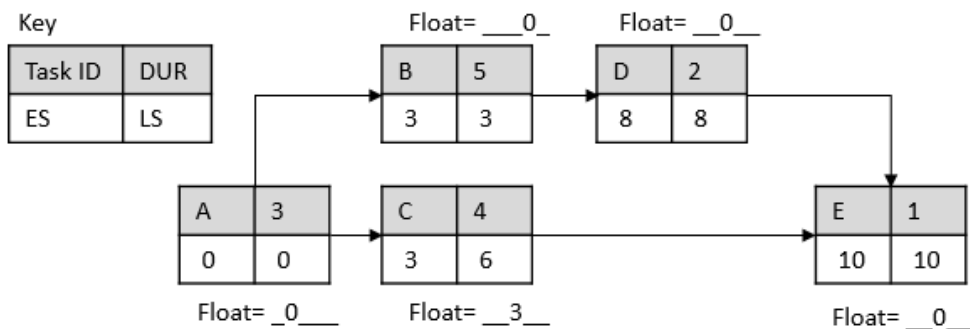


#### Watch

Watch a video or instructor-led demonstration to learn how to identify the critical path using the Forward/Backward Pass method.

*INSTRUCTOR NOTE: Go to slide 12. Let the students know that the video should be available to them after the class, so that they can refer back to it. Play the video and pause as needed to reinforce and reiterate. Take it slowly. Have the students complete the network diagram.*

1. Follow along with the video to complete the network diagram.



*INSTRUCTOR NOTE: Go to slide 13 and confirm that the students have completed the chart correctly. Then go to Slide 14. Ask the students to fill in the blanks in real time with you.*

2. Complete the following:

- The Forward Pass identifies the ES values.
- The ES for the first task is 0, since the earliest possible start time is day 0.
- $ES(\text{Current}) + DUR(\text{Current}) = \underline{\hspace{1cm}}$  (Successor)
- On the Forward Pass join, use the highest value to join.
- The Backward Pass identifies the LS values.
- For the last task, set the LS to the ES value.
- $LS(\text{Current}) - DUR(\text{Predecessor}) = \underline{\hspace{1cm}}$  (Predecessor)
- On the Backward Pass join, use the lowest value to join.
- $\text{Float} = \underline{\hspace{1cm}} - \underline{\hspace{1cm}}$

*INSTRUCTOR NOTE: Go to Slide 15. Have the students complete the following on their own with minimal guidance.*

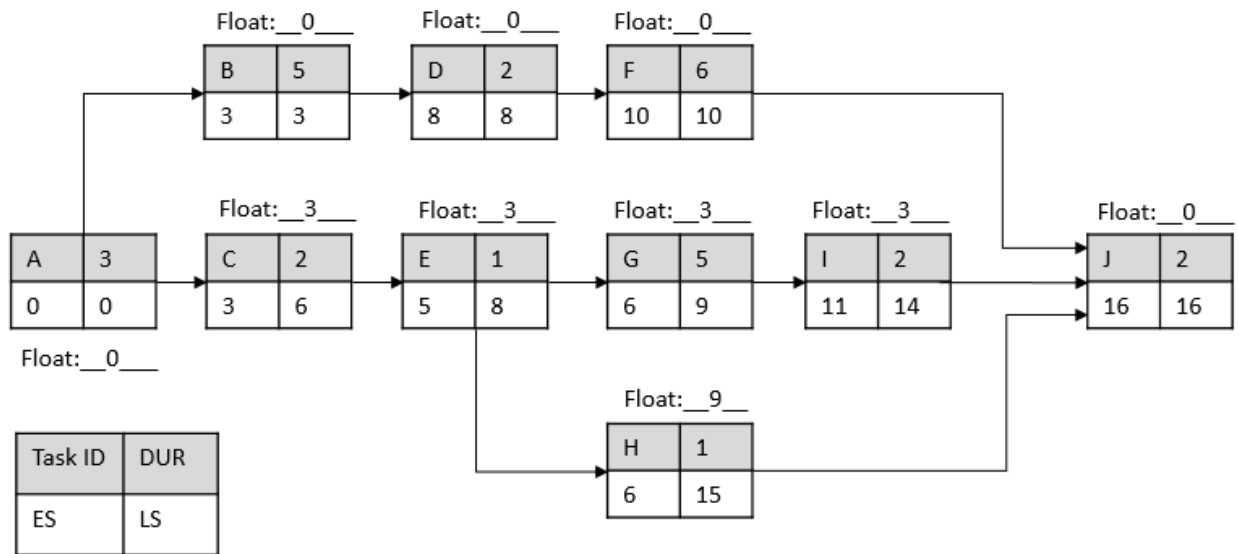
### Step 2. Practice identifying the critical path



#### Try

Complete the following network diagram using the Forward/Backward Pass method.

*INSTRUCTOR NOTES: Go to slide 16 to confirm that students have completed the network diagram correctly.*



### Step 3. Discuss your results with the class



#### Discuss

Discuss your results for this exercise.

1. What are the critical path tasks for this project? Recall that those tasks that have zero or negative float are critical path tasks.

---



---

*INSTRUCTOR NOTE: Go to slide 17. Let students know that they should now understand the importance of identifying the critical path and be able to identify the critical path for a project. Answer any lingering questions and close the class.*