Assignment #3

- **Due Date: 3/10/22 by 11:59pm CST.**
- **Deliverable: post your homework on Blackboard digital dropbox as a zipped file with the name "HW3- YourLastName, FirstName".**
- **Communicate all questions regarding the homework with the TA.**
- **Assignment #3 composed of two parts: Part I and Part II**

High-Level Requirements:

1. For this project in Assignment #3, some tasks are missing and their sizes along with their corresponding productivity rates are unknown.
2. Use the productivity rates used in Assignment #1 and Assignment #2 to establish a baseline (the average of productivity rates for Assignment #1 and Assignment #2) for the **Productivity Rates** of Assignment #3
3. Use the size data for the different tasks used in Assignment #1 and Assignment #2 to establish a baseline (the average size data for Assignment #1 and Assignment #2) as **Estimates** for the **Size** data of Assignment #3
4. Consider WBS for Assignment #1 and Assignment #2 to identity the activities and tasks for Assignment #3.
5. Use sound software engineering judgements for creating new tasks and estimating size of new tasks or their productivity rates; **consider** the data you have seen in other projects in Assignment #1 and Assignment #2 in your judgements.

Part I

Identify and calculate the missing data in the following Estimation Baseline Table

Extrapolate the Estimation Baseline
Based on the Data Given in
Assignment #1 and Assignment #2

Phase	Tasks	Work Size	Productivity Rate
Project Plan	??	??	??
Process Updates			
Requirements	??	??	??
Development/Test Environment			
Analysis	??	??	??
Design	??	??	??
Coding			
	Write Code	4300 SLOC	5 SLOC/Hour
	Unit Testing		
	Prepare/Execute Test Cases	405 test cases	13 test cases/day
	Fix Found Defects	267 defects	8 defects/day
	Test Fixed Defects	267 defects	14 defects/day
	Code Inspection		
	Preparation for Code Inspection		149 SLOC/Hour
	Code Inspection Meeting		195 SLOC/Hour
	Rework	387 defects	5 defects/Hour
Testing			
Documentation	??	??	??

Red Cells	You Need to Calculate
Green Cells	Data Given
Yellow Cells	Walkthrough Example

Part II

Using the data spreadsheet provided below to achieve the following:

1. Use the **Estimation Baseline** calculated in **Part I** in the creation of the project plan for Part II
2. Assume that you have been asked to create the project plan for this project **after** you have created the project plans for Assignment #1 and Assignment #2.
3. Assume it has been requested that this project be started on 3/10/22 after the project in Assignment#1 has been started and Assignment#2 has been started. The projects in Assignment#1 and Assignment#2 will use/share the same resources listed in Assignment#1 and Assignment#2.
4. Feed the information provided in this handout in MS Project to create the Project Plan and the Network Diagram
5. Create a WBS with the required phases and activities to complete this project
6. Assign the Resources to the Tasks making any assumptions you consider appropriate (Software Engineering Assumptions).
7. What is the earliest finish date for this project if it is scheduled to start on 3/10/22?
8. Can this project be completed 2 months after it starts? Explain why yes or no.
9. Submit your MS Project Files; submit all 3 project files.
10. Submit your Comments regarding the start and completion dates and resources assignments for the three projects in a PDF document called Analysis.pdf.
    1. Document and comment on the WBS
    2. Document and comment on the Network Diagram
    3. Document and comment on the resource pool utilization
11. The two documents in step 9 and 10 shall be saved in a zipped file with name "HW#3- YourLastName, FirstName".

Resources Available

Important Note: Use the resources listed in Assignment#1 and Assignment#2 in addition to the following resources:

- **Test Engineer: TE903, TE904, TE905**
- **System Engineer: SE906, SE907, SE908, SE909**
- **Programmers/software engineers: PE907, PE908**
- **Documentation Engineer: DE902, DE903**

Assumptions and Constraints:

1. Use the same engineering assumptions used in Assignment #1 and Assignment #2.

Task/Activity Dependencies:

It is expected that you will find the correct task dependencies based on the material discussed during class and considering the following constraints:

1. There is no technical task prior to requirement phase; project planning is not a technical task it is a managerial task. However, process updates tasks must be completed before Requirement's phase starts.
2. Analysis Activity can start as soon as requirement document is complete
3. Design activity can start as soon as Analysis document is complete
4. Coding can start as soon as design is complete
5. Writing Test Plan can start as soon as requirements are complete
6. Executing Test Plan can start as soon as coding is complete
7. Documentation can start as soon as requirements are complete
8. Any other constraints that you might add, shall be documented clearly when you submit your homework.
9. Build the development and testing lab environment task must be completed before design starts and as soon as the project plan is complete.
10. Any engineer can update the software development process and any engineer can review or fix defects in the changes made to the software development process

Phase	Size	Productivity
Project Plan	82 pages	
Identify the Tasks		*Identify Productivity*
???		*???*
???		*???*
Documented Software Development Process Updates		
Process Changes	*95 Changes*	*4 Changes/Hour*
Review Changes		
Preparation for review		*3 Changes/Hour*
Review Meeting		*5 Changes/Hour*
Rework	*63 defects*	*5 defects/Hour*
Requirement	187 Req	
Identify the Tasks		*Identify Productivity*
???		*???*
???		*???*
Build the development and testing lab environment		
Hardware Environment		
Servers	*21*	*1 server/day*
Clients	*29*	*5 clients/day*
Software Development Tools		
Build/compile tools	*9*	*1 tool/Hour*
Software Testing Tools		
Test Cases Execution tools	*13*	*3 tool/day*
Simulation tools	*5*	*2 tool/day*
Analysis	148 pages	
Identify the Tasks		*Identify Productivity*
???		*???*
???		*???*
Design	157 pages	
Identify the Tasks		*Identify Productivity*
???		*???*
???		*???*
Coding	5825 SLOC	
Identify the Tasks		*Identify Productivity*
???		*???*
???		*???*
Testing		

Write test plan (TP)	146 pages	10 pages/Day
Review TP		
Preparation for TP		4 pages/Hour
Review TP Meeting		10 pages/Hour
Rework	93 defects	5 defects/Hour
Execute TP (test cases)	388 test cases	28 test cases/day
Fix Found Defects	70 defects	10 defects/day
Test Fixed Defects	70 defects	28 defects/day
Documentation	162 pages	
Identify the Tasks		*Identify Productivity*
???		*???*
???		*???*