Faculty of Engineering and Applied Science
SOFE 3490U - Software Project Management

Lab#3 – Software Project Management:
Topic: e-Learning Platform
CRN: 74015
Lab Section 003 Group 12
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Ontario Tech University, Oshawa, Ontario

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Introduction:

In this lab, we are required to further expand on our project documentation for an e-Learning platform by integrating key concepts from lectures on Software Project Estimation, Activity Planning, and Risk Management. The initial requirement involves calculating the estimated effort needed to complete the project, employing formal estimation methods such as function point analysis and the COCOMO model. This step is crucial for understanding the scope of work and allocating resources effectively. We will use the guide provided in the assignment that details how to calculate effort or "person months" using the COCOMO model. Following the estimation, we will design an activity diagram representing the e-Learning platform developmental journey. The diagram will cover all necessary steps, from administrative tasks like acquiring necessary software and hardware, to developmental processes including installation, coding, and testing. Each activity within the project for an e-Learning platform will be estimated in terms of weeks, starting from Week 0, serving as a visual project timeline. Furthermore, this lab also requires documentation of potential risks associated with the project alongside proposed countermeasures. This includes identifying risks such as potential productivity issues among employees and outlining strategies to mitigate these risks, such as through stringent recruitment processes and comprehensive training programs.

Estimated Effort using the COCOMO model

The E-Learning Platform Development Project is classified as a Semi-Detached Project. The project team is of moderate size, with team members possessing considerable experience and expertise relevant to the project. The Intermediate COCOMO Model is employed to estimate the required effort for the project, utilizing constants a and b derived from a specific table provided. We have estimated that our project will have 50,000 LOC (lines of code). So to get KLOC we divide the LOC by 1000. So LOC/1000 = 50,000/1000 = 50 KLOC.
We will use the following COCOMO equations:
- $E = (a(KLOC)^b)$ to determine the person-months
- $D = (a(E)^b)$ to determine the duration in months.

Effort:

Software Project	a	b
Semi-detached	3.0	1.12

$E = (a(KLOC)^b)$
$E = 3 * (50)^{1.12} = 239.87$ person - months
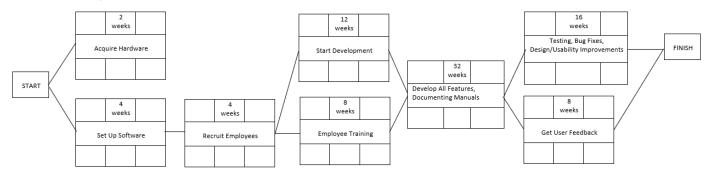
Duration:

Software Project	a	b
Semi-detached	2.5	0.35

D = (a(E)^b)
D = 2.5 * (239.87)^0.35 = 17.02 months

Therefore the effort would be 239.87 person - months and the duration would be 17.02 months

Activity Diagram:

Risk Analysis:

Using a risk analysis we can easily deduce any problems that might occur in the future while working on the project. The following are some risks that could occur while woring on the e-Learning platform project:

Risk	Description
Communication Risk	Risk of communication might cause problems while working on the project such as missing deadlines, we can implement team bonding exercises to prevent this from happening.
Technological Risk:	Risk of technology failing us while we are working on the project, such as servers going down and computers failing to function will hinder our progress on the project. We can implement proper trained IT developers to stay in case something like this happens.
Cost risk	Our project managers might end up spending more money than we estimated, which will end up costing more money
Scope Creep risk	Uncontrolled changes or continuous growth in a project's scope, affecting the timeline and budget
Resource Allocation risk	Inadequate allocation of human and financial resources can lead to project delays or failure
Timeline Delays risk	Delays in project milestones due to various factors, including technical hurdles, resource constraints, or external dependencies
Scalability Risks	Inability to scale the platform to accommodate growing numbers of users can affect performance and user experience
Compliance and Regulatory Risks	Non-compliance with educational standards and regulations can lead to legal issues and loss of credibility

Dependency on Third-Party Services	Reliance on third-party services for key features (e.g., turnitin) can lead to disruptions if these services experience downtime or changes in terms
Project Management and Coordination	Poor project management and lack of coordination among team members can lead to delays, budget overruns, and scope creep