



United International University (UIU)

Dept. of Computer Science & Engineering (CSE)

Exam Name: Final Term Exam **Trimester: Spring 2024**

Course Code: PMG 4101, Course Title: Project Management

Total Marks: 40

Duration: 2 hours

Any examinee found engaging in unfair practices will be expelled from the trimester / program as per UIU disciplinary rules.

Answer all the questions.

Consider the following Scenario:

“Redefine the landscape of education by providing a dynamic learning environment to every student” - with the above vision, ‘X University’ is building a learning platform for both online and combined in-person and online classes. The learning platform is designed to accommodate diverse features, serving various stakeholders such as students, faculty, and administrators. When a new student registers for courses, the system records their personal information, including name, address, contact details, program of study, academic records, and enrollment history in the database. After a student successfully registers for courses, the system generates a confirmation email containing their course plan. Students can submit assignments through the system by attaching files or providing links to external resources. The details about assignments, including assignment types, due dates, submission requirements, grading rubrics, and student submissions are recorded in assignment directories. Faculty members can grade different assessments such as assignments, quizzes, and exams submitted by students. At the end of each semester, students can complete course evaluations to provide feedback on course content. Students can access their grade reports through the system, displaying their grades for individual assessments. Upon request, students can generate official academic transcripts through the system. The course repository stores information about all courses offered within the university, including course details, syllabi, materials, counseling time, and instructor profiles. The system lets prospective students check if a specific course is offered next semester, including any prerequisites and whether there are still open spots. Students can see their course teachers' counseling time through the system. The learning platform integrates with the university's independent library system to provide access to course materials, e-books, journals, and research databases. Suppose there is *simple complexity* in inputs, outputs, and inquiries and *high complexity* in external files. The degree of influence for each of the components in technical complexity factors is *Significant*. Overall, this project has a high level of complexity with a large team size by considering all sets of parameters.

1. For the above scenario, find the DET (Data Element Type) and RET (Record Element Type) for the calculation of ILF (Internal Logical Files) and determine the complexity of ILF. Calculate the Function Point value. Justify the complexity category according to COCOMO of the project. If you want to develop the above-mentioned project in object-oriented language where average lines of code needed for per function point is 30, then find the all the COCOMO parameters according to the project's complexity category.

[CO3] 2+5+3 = 10

2. Define Change Control concept and mention the most important part of it. Discuss how to establish a change control board (CCB) along with different types of members that should be enlisted in CCB. [CO4] 3+3 = 6
3. Develop a Gantt chart for the above project scenario by identifying the tasks and tasks' dependency. Mention different assumptions or consideration need to be considered (e.g., weekly holidays and government holidays) for making a pragmatic estimation. [CO5] 6
4. Considering the nature of the work product for the above project scenario, which review technique—would be more appropriate? Provide the rationale for choosing the review technique. Discuss the basic course of events of Inspection review technique along with the alternative paths. [CO4] 3+3 = 6
5. As a project manager if you want to achieve the Level IV - CMMI Maturity Level, what are the compliance/rubrics/guideline you need to follow during a software project development? Discuss the key principles of six sigma optimization method to execute a project in an effective way. [CO3] 4+3 = 7

Function				PROJECT				
Units	Simple	Avg	Complex	TYPE	a	b	c	d
EI	3	4	6	Organic	2.4	1.05	2.5	0.38
EO	4	5	7	Semidetached	3	1.12	2.5	0.35
EQ	3	4	6	Embedded	3.6	1.2	2.5	0.3
ILF	7	10	15					
EIF	5	7	10					

RETS	Data Element Types (DETs)		
	1-19	20-50	51+
1	L	L	A
2 to 5	L	A	H
6 or more	A	H	H

6. Progress report submission and presentation on estimation through COCOMO model and Function point methods for a group project has been evaluated earlier (**Do not answer this question, already completed in classroom**). [CO3] 5