

UNIVERSITY EXAMINATIONS



JUNE/JULY 2021

INF3708

Software Project Management

100 Marks

Duration 2:30 Hours

EXAMINERS:

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This paper consists of 7 pages.

Instructions:

1. Answer ALL questions.
2. Non-programmable calculators may be used.
3. Show all calculations and round off all your calculations to two decimal places.
4. The use of textbook is not allowed.
5. Candidates must complete the online declaration of own work when accessing the assessment tools. Module specific declarations must be submitted as part of the answer file in a single PDF document, if so instructed in the examination question paper.
6. The final document containing your answer should be converted to a pdf document – similar to your INF3708 assignment 03.
7. Ensure that a complete PDF document containing all answers is uploaded on the official platform at the conclusion of the examination. Only the last PDF document uploaded and submitted will be marked.
8. The final pdf document should not be password protected
9. Examination responses that are submitted with a password protected PDF will not be marked.

- 10. Examination responses that are illegible due to poor image quality or are corrupted will not be marked.**
- 11. Examination responses that contain a virus will not be marked.**
- 12. Students should not communicate with other students, or request assistance from other students during the examination.**
- 13. Plagiarism is a violation of academic integrity and students who do plagiarize or copy verbatim from published work will be in violation of the Policy on Academic Integrity and the Student Disciplinary Code and may be referred to a disciplinary hearing.**

GOOD LUCK!!

Case Study

Duglas IT is a company in the business of installing IT systems and software for businesses. It performs works of developing, upgrading and installing IT systems and software throughout East Africa. Like other companies in the IT business, Duglas IT considers each job a project and deploys project manager to meet its goal. For each job received, an overall responsibility is assigned to a project manager whose responsibility is to oversee the project.

Duglas IT has been approached by Dalaza food. The company future depends on its ability to continuously develop and market new food products. Dalaza specialises in food and drink additives. Dalaza is also a representative of all kind of firms in the industries like biotechnology, pharmaceutical computer and entertainment electronics.

The focus of Dalaza concerns maintaining market share for new food products (particularly product T) through good online marketing as that accounts for the major part of its profit. It came to Dalaza's attention that another company is beginning to market a similar product (product D) with the same functionalities to product T to their customers. To beat the competition, they decided to embark on a project for a new and a better marketing software. The exact requirements of what the system will cover were outlined. In that regards Dalaza considers the following criteria very important to them and that need to be prioritized in their project selection: Reliable marketing tools 30%; High customer reach 40%; Strong system (system that can stand the test of time) 15%; a system with high buy-in from all the stakeholders 15%. Nonetheless, there is still a possibility of adding and removing requirements. The issue of the project cost and time will emerge as the project progresses.

For this reason, Dalaza approached Duglas for a guidance of a project manager/s as there are many considerations in deciding, selecting, developing and/or modifying IT projects. Assume that you are the project manager assigned to handle the Dalaza project and you will require assistance from people who will form part of your team.

QUESTION 1**[12 Marks]**

- 1.1 As a project manager, you do not only strive to meet scope, time, cost and quality of Dalaza's project you manage, but you also facilitate the entire process to meet the needs and expectations of people involved in the project activities

Discuss at least 3 key capabilities you should or have developed to help you run the assigned project successfully (include in your discussion why you need to develop those capabilities. (6)

- 1.2 Dalaza's project is an IT project which is slightly different from ordinary project. Provide a discussion on the unique issues of IT industry that makes IT projects different from other type of projects. Your discussion should include how you think project managers should adjust to the differences. (6)

QUESTION 2**[12 Marks]**

(FOR SUPPLEMENTARY AND FI CONCESSION STUDENTS PLEASE ANSWER QUESTION 2.1B:

- 2.1A Briefly explain the actions you will take with your team to perform the following process: **Initiating and Planning** (7)
- 2.1B Briefly explain the actions you will take with your team to perform the following process: **Feasibility and Planning**
- 2.2 Given the presented case, what project development life cycle approach will your team follow for the Dalaza's project and why. (5)

QUESTION 3**[17 Marks]**

Table 1 gives the estimated cash flow for the two different projects: **Project 1 and 2** in South Africa Rand (R) that Dalaza is contemplating.

Year	Project 1	Project 2
0	-R350 000	-R255 000
1	+R75 000	+R5 000
2	+R75 000	+R20 000
3	+R65 000	+R35 000

4	+R55 000	+R50 000
5	+R53 000	+R80 000

Table 1: Projects Cash Flow

Based on the information provided in **Table 1** answer questions 3.1 – 3.4 that follow.

- 3.1 Calculate the net profit for the two projects. (4)
- 3.2 Calculate the Return on Investment (ROI) for the two projects. (4)
- 3.3 Calculate the payback period for each of the two projects in Table 1. (6)
- 3.4 Advise your client company Dalaza on the best project it should consider for development and why? (3)

QUESTION 4**[23 Marks]**

N:B – PLEASE DO NOT ANSWER QUESTION 4.3 IF YOU ARE A SUPPLEMENTARY OR FI CONCESSION STUDENT. ANSWER ONLY QUESTION 4.1 AND 4.2 THEM ANSWER QUESTION 7.

- 4.1 Given a discount rate of 8% in Table 2 below; calculate the Net Present Value (NPV) for **project 1 and 2**. Use the cash flow in Table 1 above. Please show all your calculations. (8)

Year	8% Discount rate
1	0.9259
2	0.8573
3	0.7938
4	0.7350
5	0.6806

Table 2: 8% discount rate

- 4.2 Based on your calculation of the project Net Present Value (NPV), would you still maintain your advice on Q3.4? Motivate your answer. (3)
- 4.3 The assessments your project team performed so far on projects 1 and 2, which the advice of 3.4 was based, did not take into consideration criteria that are important to the client company. Put those criteria into consideration and calculate the weighted score for the two projects and **re-advise accordingly**. The project scores are in Table 3 below.

Criteria	Weight	Project 1	Project 2
		56	70
		48	53
		30	27
		70	55
Weighted project score			

Table 3: weighted scoring as a method of project selection

(12)

QUESTION 5**[23 Marks]**

The project you advised Dalaza for development has the following activities with their precedents and durations listed in Table 4. The activity durations are in days.

Activity	Duration in days	Predecessor
A	3	-
B	7	A
C	8	A
D	6	A
E	14	B & C
F	9	C & D
G	11	D & F
H	5	G & E

Table 4: Activity precedents and their durations

- 5.1 Draw a network diagram Activity-on-Arrow (AOA). Indicate the activity duration, the event number, earliest date, latest date and float on each node by completing both a forward and backward pass. (14)

(N:B) 5 marks will be deducted from students for not drawing the correct activity diagram.

- 5.2 How would you describe what a critical path is? (2)

Why is it important to know and identify a critical path in an activity network? (2)

Indicate the critical path of your AOA diagram (2)

- 5.3 How many paths does the project have? Which is the longest path and why do you consider it the longest path? (3)

QUESTION 6**[13 Marks]**

Based on some of the project activity depicted on Table 4. Assuming that at week 20 into the 35 weeks project the Dalaza project status is as follow:

Planned Value (Planned) = R60 000

Actual Cost (AC) = R90 000

Earned Value (EV) = R45 000

Take the budget at complete for each project to be the initial investment on the project as depicted on Table 1.

Irrespective of the project you recommended for development in Q3, still use the PV, AC and EV values presented above to calculate the following for the project you recommended:

- (a) Cost variances. (2)
- (b) Schedule valances. (2)
- (c) Cost performance index (2)
- (d) Estimate at completion for the project you recommended after weighted score calculation (3)
- (e) What does the a-d calculations tell you about the project? (4)

QUESTION 7**[12]**

- 7.1 Identifying and managing risks are important part of IT project management. As a project manager for the case study, **what could you have foreseen as problems that could be identified as risks that are likely to occur for the development of the marketing system and what are the reduction techniques you would employee to reduce the chances of the risks.** (6)
- 7.2 List and discuss at least two common risk identification approaches you used in identifying listed in Q7.1. (6)