



UGANDA INSTITUTE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY WEEKDAY/WEEKEND PROGRAMME END OF SEMESTER TWO EXAMINATIONS

ACADEMIC YEAR 2024/2025

DEPARTMENT: ICT

SEMESTER: TWO

PROGRAMME(S): DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING (DEEE)
DIPLOMA IN COMPUTER ENGINEERING (DECE)

YEAR OF STUDY: ONE

COURSE: ENGINEERING PROJECT MANAGEMENT

COURSE CODE : ENG 211

DATE: MONDAY 16, DECEMBER 2024

TIME: 9:00 AM – 12:00 NOON

DURATION: 3 HOURS

INSTRUCTIONS:

- (i) This paper contains two Sections: A (40 marks) & B (60 marks).**
- (ii) Attempt ALL questions in Section A, and ONLY THREE questions in Section B.**
- (iii) All questions in Section B carry equal marks.**
- (iv) Credit will be given for use of relevant examples and illustrations.**
- (v) Begin each number in Section B on a new page of the answer sheet.**
- (vi) DO NOT write on this question paper.**

SECTION A [40 MARKS]

Attempt **ALL** the Questions in this Section.

1. How does project management software assist in resource management during the control phase?
 - A. It helps in determining the project's financial viability.
 - B. It allocates resources automatically without human intervention.
 - C. It tracks resource utilization, identifies shortages, and suggests adjustments to keep the project on track.
 - D. It primarily focuses on managing project documentation.
2. In the Activity on a Node (AON) method, what does an arrow between two nodes represent?
 - A. The completion of a task.
 - B. The duration of a task.
 - C. The dependency or relationship between tasks.
 - D. The resources required for the task.
3. Which software tools are commonly used to create Gantt charts?
 - A. Excel and Google Sheets
 - B. Microsoft Project and Asana
 - C. Only Microsoft Project
 - D. Photoshop and Illustrator
4. What is the key difference between a Gantt chart and a PERT chart?
 - A. A Gantt chart represents the project timeline, while a PERT chart is used to track costs.
 - B. A Gantt chart is more focused on visualizing the schedule of tasks, while a PERT chart is used to manage task dependencies and durations.
 - C. A Gantt chart focuses on risks, while a PERT chart tracks resources.
 - D. A PERT chart is more commonly used for construction projects, whereas Gantt charts are used for software development.
5. What is the main objective of the project closure phase in project management?
 - A. To begin project execution.
 - B. To evaluate the project's performance and ensure all deliverables are completed.
 - C. To reassign the project team members to other tasks.
 - D. To monitor the project's progress against the schedule.
6. Which of the following is a key task in the project closure phase?
 - A. Risk assessment and mitigation.
 - B. Documenting and recording lessons learned.
 - C. Completing procurement activities.
 - D. Developing a detailed project schedule.
7. Which document is typically created during the project initiation phase to formalize the project's objectives and scope?
 - A. Project Charter
 - B. Risk Management Plan
 - C. Gantt Chart
 - D. Procurement Plan
8. Which of the following is a key benefit of using a WBS in engineering project management?

- A. It eliminates the need for cost estimation.
 - B. It provides a clear, structured view of the project's scope and timeline.
 - C. It automates project scheduling and task assignments.
 - D. It requires minimal stakeholder involvement.
9. What does "Project Scope" refer to in engineering project management?
- A. The financial resources allocated to the project.
 - B. The team members and their roles in the project.
 - C. The timeline required to finish the project.
 - D. The detailed list of activities and deliverables to be completed throughout the project.
10. Which of the following is a critical task for managing quality during the execution phase?
- A. Communicating project risks to stakeholders.
 - B. Conducting regular quality checks and audits to ensure the project deliverables meet the specified standards.
 - C. Finalizing the project deliverables.
 - D. Preparing for project closure.
11. Describe the following key terms in engineering project management and explain their significance in ensuring project success: **(2 marks @)**
- a) Project risk management
 - b) Float
 - c) Milestone
 - d) Resource
 - e) Project sponsor
12. You are overseeing the construction of a new residential building. The project includes multiple activities, each of which must be completed in a specific sequence. Here are the tasks and their dependencies:

Task A: Excavation and site preparation (Duration: 4 days)

Task B: Foundation work (Duration: 6 days)

Task C: Building the structure (Duration: 12 days)

Task D: Electrical wiring installation (Duration: 8 days)

Task E: Plumbing installation (Duration: 7 days)

Task F: Final inspection and handover (Duration: 3 days)

The dependencies are as follows:

Task B (Foundation work) must be completed before Task C (Building the structure) can start.

Task F (Final inspection and handover) cannot begin until both Task D and Task E are completed.

Task A (Excavation and site preparation) must be completed before Task B (Foundation work) can begin.

Task C (Building the structure) must be completed before Task D (Electrical wiring installation) and Task E (Plumbing installation) can begin.

Task D (Electrical wiring installation) and Task E (Plumbing installation) can run in parallel after Task C is finished.

- a) Draw an Activity on Node (AON) diagram for this construction project, showing the relationships and dependencies between the tasks. **(8 marks)**
- b) Draw a Gantt chart for this project. **(8 marks)**
- c) Identify the critical path and explain why this path is critical to the project timeline. **(4 marks)**

SECTION B [60 MARKS]

Attempt **ONLY THREE** Questions in this Section.

Question 1

- a) How do you identify stakeholders in an engineering project? **(5 marks)**
- b) Explain how a stakeholder matrix is used to prioritize stakeholders in engineering projects. **(5 marks)**
- c) List and describe the various types of stakeholders in an engineering project. **(5 marks)**
- d) How do you assess the effectiveness of communication with stakeholders? **(5 marks)**

Question 2

- a) If a critical task in your project is delayed by two weeks, what steps would you take to minimize its impact on the overall schedule? **(5 marks)**
- b) Provide an example of a successful engineering project where time management played a key role. **(7 marks)**
- c) Identify and classify risks (technical, operational, financial, environmental) in a project to upgrade an organizational power distribution system. **(8 marks)**

Question 3

- a) Describe the process of developing a project charter for an optic fibre extension project. **(10 marks)**
- b) Discuss how changes to the project scope outlined in the charter can impact the project schedule. **(6 marks)**
- c) What strategies would you use to adjust the project schedule without altering the goals defined in the charter? **(4 marks)**

Question 4

- a) What is the difference between a project schedule and a project timeline? State the tools that can be used for each. **(6 marks)**
- b) How do the execution and control phases interact with the planning phase in engineering projects? **(10 marks)**
- c) What strategies would you use to resolve conflicts among team members during execution? **(4 marks)**

Question 5

- a) Describe **four** ways how KPIs help in balancing the project management triangle of scope, time, and cost? **(8 marks)**
- b) What KPIs would you recommend for a project focused on renewable energy installation? **(6 marks)**
- c) What are the characteristics of an effective KPI? **(6 marks)**