



**FACULTY OF INFORMATION AND COMMUNICATION
TECHNOLOGIES**

**FALL 2023
CA EXAMINATION**

Assignment - CA - groups of 5 students

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PROJECT PLAN

Stakeholders

- The ICT UNIVERSITY
- Subscriber (Students and Parents)
- Driver and Conductor
- Finance Clerk

Scope

- Establish a Complete Service Subscription System for Students
- Enable Real-Time Localization and Tracking of the Bus

Objectives

- 1: Design User Interface for Subscription
- 2: Develop Online Payment System
- 3: Implement Subscription Record Management System
- 4: Incorporate Instalment (payment by parts) Payment Option
- 5: Validate Student Eligibility

Deliverable: Service Subscription System for Students

- 1: Develop Bus Information Management System
- 2: Create Driver and Conductor Information System
- 3: Implement Real-Time Bus Tracking System
- 4: Define Bus Stops and Routes
- 5: Analyse Bus Departure Algorithm
- 6: Set Time Constraints for Bus Stops
- 7: Implement Student User Application

Deliverable: Real-Time Localization and Tracking of the Bus

Work Breakdown Structure (WBS)

Objective 1: Establish a Complete Service Subscription System for Students

Task 1: Design User Interface for Subscription

- Subtask 1: Create wireframes for online subscription portal.
- Subtask 2: Design user-friendly interfaces for cash payment at the finance department.

Task 2: Develop Online Payment System

- Subtask 1: Integrate a secure online payment gateway.
- Subtask 2: Implement a database system to store payment records.

Task 3: Implement Subscription Record Management System

- Subtask 1: Create a database schema to store subscriber information.
- Subtask 2: Develop a system for the finance clerk to input payment details and generate receipts.

Task 4: Incorporate Instalment (payment by parts) Payment Option

- Subtask 1: Modify the payment system to handle two instalments.
- Subtask 2: Update the receipt generation to reflect instalment details.

Task 5: Validate Student Eligibility

- Subtask 1: Implement a verification process to ensure only eligible students can subscribe.
- Subtask 2: Integrate student identification using school registration number.

Objective 2: Enable Real-Time Localization and Tracking of the Bus

Task 1: Develop Bus Information Management System

- Subtask 1: Design a database schema for storing bus details.
- Subtask 2: Implement a system for the finance department to manage insurance and fuelling records.

Task 2: Create Driver and Conductor Information System

- Subtask 1: Design a database schema for driver and conductor details.
- Subtask 2: Develop a system to track driving license information.

Task 3: Implement Real-Time Bus Tracking System

- Subtask 1: Integrate GPS technology for real-time bus location tracking.
- Subtask 2: Develop a user application interface for students to track the bus.

Task 4: Define Bus Stops and Routes

- Subtask 1: Establish a database schema for bus stops.
- Subtask 2: Develop a system for the bus to adhere to specific routes and stops.

Task 5: Analyse Bus Departure Algorithm

- Subtask 1: Design an algorithm to analyse the percentage of students ready to go back home.
- Subtask 2: Implement the algorithm to provide real-time departure analysis.

Task 6: Set Time Constraints for Bus Stops

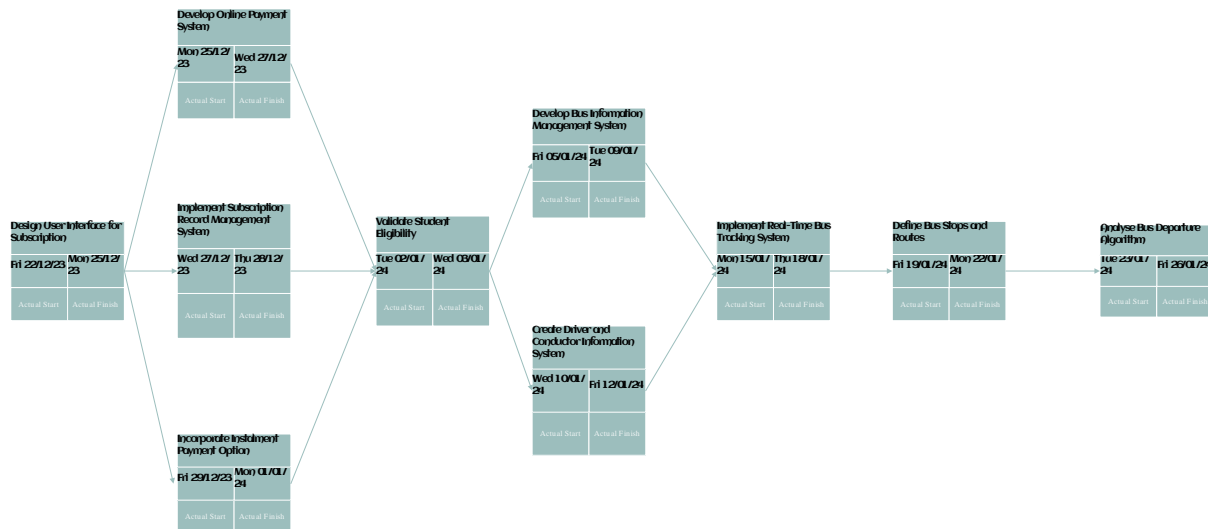
- Subtask 1: Define the maximum time a bus can stay at a non-school bus stop.
- Subtask 2: Implement time-tracking mechanisms for bus stops.

Task 7: Implement Student User Application

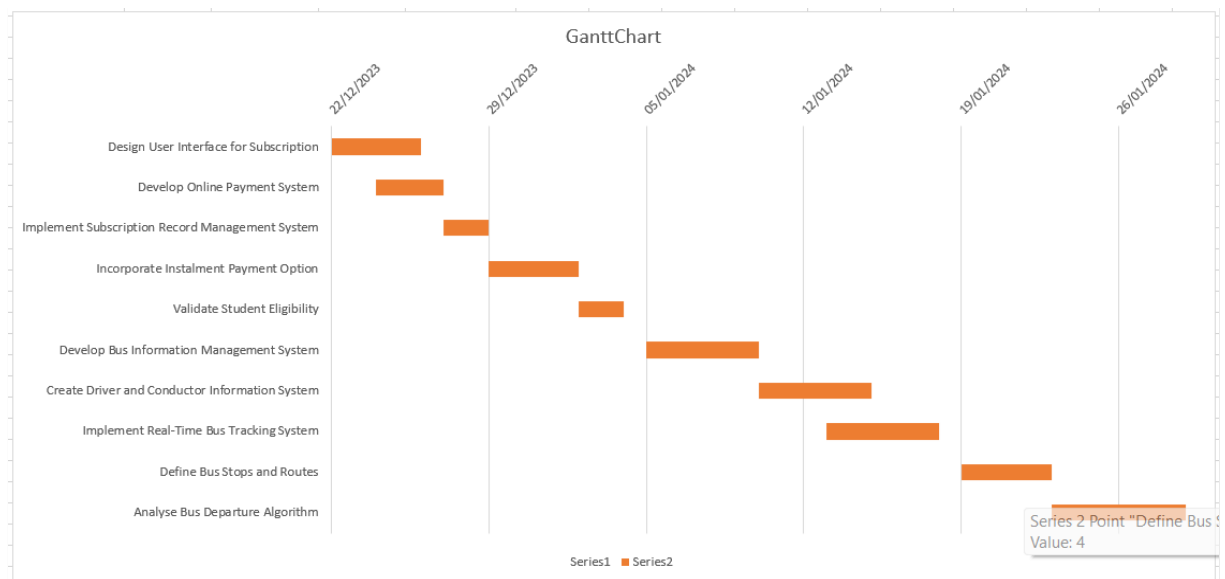
- Subtask 1: Design a user-friendly application for students to interact with the bus tracking system.
- Subtask 2: Ensure the application allows students to indicate their readiness to board the bus.

Project Schedule

- PERT Chart



- Gantt chart



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