THE ICT UNIVERSITY

FACULTY OF INFORMATION AND COMMUNICATION TECHNOLOGIES

SUMMER 2023

COURSE TITLE	DESIGN AND MODELLING
COURSE CODE	SE 3140
PURPOSE	
INSTRUCTOR	Mr. Mangong Clement Fosah
TIME	2 Hours

INSTRUCTIONS:

This paper is built on a single issue. It encompasses modelling requirements, use cases, static models, and dynamic interaction models. Read the problem description below, then consider each question and provide an answer. Marks are assigned to each question.

Consider a situation where a class in a state secondary school can only hold a certain number of students due to a ministry constraint. You are hired by a school to design and create software that will be able to control the admission of new students to a class prior to the payment of tuition to the appropriate official or bursar. The system's expectations are briefly described in the paragraphs that follow.

The submission of documents and the filling of an online form by the candidate start the procedure. The submitter could be a parent, student, or guidance. The system will generate an appointment information document after it has been successfully filled out and submitted, which the submitter can then print. The form must include details about the class, the prior school, the average, the reasons for the move in schools, and references contacts. The document has a special code that is used to obtain login information. The paperwork is now presented to the school and given to the secretariat, which confirms its validity. If the document is okay, the secretary validates it in the software for the document's final visa. After reviewing the

documents and comments, the principal or another designated administrator decides within a maximum of two working days.

If the student is accepted, the system then generates a final code that will be used to make the payment; otherwise, no new code will be generated. The submitter can check if the candidate has been approved or not using the initial submission code before using the acceptance code to continue with the fee payment.

The list of candidates that are awaiting validation or rejection can be printed by the principal. The list of applications for candidacy that have been submitted can be printed by the secretary. And the list of candidates who have been approved for payment can be printed by the bursar.

1. List the four stakeholders you'll speak with to get further information. ½ x 4mks
2. Explain why you will utilize the particular technique for requirement collecting for each stakeholder. 1/2x4mks
3. Create a use case diagram for your solution. 4mks
4. Write the use case(s) descriptions for your solution. 5mks
5. Convert the use case descriptions into an activity diagram. 5mks
6. Describe the different design pattern(s) information that you want to employ in your solution. 3mks
7. Model and create the UML Class diagram for your solution. 5mks
8. Select two use cases and create the system's sequence diagram. 5mks