1st SIT COURSEWORK 2 QUESTION PAPER   **Year Long 2023/2024**

Module Code:	**CS5002NI**
Module Title:	**Software Engineering**
Module Leader:	**Mr. Rubin Thapa (Islington College)**

Coursework Type:	**Individual**
Coursework Weight:	This coursework accounts for **35%** of your total module grades.
Submission Date:	**Monday, 6ᵗʰ May 2024**
When Coursework is given out:	**Week 18**
Submission Instructions:	Submit the following to Islington College's MST PORTAL before the due date (before 1PM on the due date): ● **Softcopy (in .pdf format)**
Warning:	London Metropolitan University and Islington College take Plagiarism seriously. Offenders will be dealt with sternly.

PLAGIARISM

You are reminded that there exist regulations concerning plagiarism. Extracts from these regulations are printed overleaf. Please sign below to say that you have read and understand these extracts:

Extracts from University *Regulations on Cheating, Plagiarism and Collusion*

Section 2.3: *"The following broad types of offense can be identified and are provided as indicative examples ….*

(i) *Cheating: including taking unauthorized material into an examination; consulting unauthorized material outside the examination hall during the examination; obtaining an unseen examination paper in advance of the examination; copying from another examinee; using an unauthorized calculator during the examination or storing unauthorized material in the memory of a programmable calculator which is taken into the examination; copying coursework.*

(ii) *Falsifying data in experimental results.*

(iii) *Personation, where a substitute takes an examination or test on behalf of the candidate. Both candidate and substitute may be guilty of an offense under these Regulations.*

(iv) *Bribery or attempted bribery of a person thought to have some influence on the candidate's assessment.*

(v) *Collusion to present joint work as the work solely of one individual.*

(vi) *Plagiarism, where the work or ideas of another are presented as the candidate's own.*

(vii) *Other conduct calculated to secure an advantage on assessment.*

(viii) *Assisting in any of the above.*

Some notes on what this means for students:

1. Copying another student's work is an offense, whether from a copy on paper or from a computer file, and in whatever form the intellectual property being copied takes, including text, mathematical notation, and computer programs.

2. Taking extracts from published sources *without attribution* is an offense. To quote ideas, sometimes using extracts, is generally to be encouraged. Quoting ideas is achieved by stating an author's argument and attributing it, perhaps by quoting, immediately in the text, his or her name and year of publication, e.g. "$e = mc^2$ (Einstein 1905)". A *reference* section at the end of your work should then list all such references in alphabetical order of authors' surnames. (There are variations on this referencing system which your tutors may prefer you to use.) If you wish to quote a paragraph or so from published work then indent the quotation on both left and right margins, using an italic font where practicable, and introduce the quotation with an attribution.

CS5002 Software Engineering

Assignment - (Individual)

Suppose that your team has been approached by an institute to build their online system. So, you are required to carry out Object Oriented Analysis and Design of the proposed system.

1. Introduction

This assignment contributes 35% to the overall mark for this module.

2. Specification

McGregor Institute of Botanical Training is Ireland based training institute located at Godawari, Lalitpur. It has been almost 7 years since they have been operating in Nepal. It provides different undergraduate and postgraduate courses specializing in agriculture along with horticulture specializations and is affiliated to Dublin City University. Recently, with the sudden surge in the number of people with interest in the domain of agriculture, they are planning to introduce a range of short term certification courses related to horticulture for anyone interested.

Apart from the certification courses, they are looking forward to selling different varieties of plants charging a minimal fee and for free in some of the cases. They want to build a community of individuals with interests in plants and want to create a platform(forum) where the plant enthusiasts can discuss their ideas, organize programs to protect rare plants and forests. The forum can also prove to be a platform where people can post their queries to be answered by the experts.

1. **Detailed Specification**

The proposed system is to have following functions

1. **Register in the system.**

   Any new user should be registered in the system to use the features in the system.

2. **Join the program.**

   Anyone interested can join the program. i.e graduate or postgraduate or certificate oriented short courses. Courses are both paid and unpaid.

3. **Purchase plants**

   The provision for users to view varieties of plants and purchase if interested.

4. **Payment**

   There should be a provision for the customer to pay and for the plant purchased and the course they are enrolled in. Data of the payment should be stored.

5. **Ask for recommendations.**

   The provision to ask for recommendations with experts. Users pinpoint their site location in the map, if possible, soil condition images and experts reply with the suitable plants/crops that can be planted in that particular location.

6. **Report preparation**.

   The facility for the admin to prepare a detailed financial report, employees report and report related to every user.

7. **Take certification exams.**

   Users can take mock tests as per their convenience, check results and also give certification exams after fulfilling certain prerequisites.

8. **Forum**

   Users can engage in conversations about plants, sharing their opinions through posts. They can also comment on and upvote others' opinions.

***Planning, requirements modeling and analysis* (65%)**

1. Prepare a Work Breakdown Structure demonstrating the possible scope of the proposed system. And prepare a Gantt Chart indicating how you might schedule the work of developing the system. But please ensure that the Gantt chart is based upon a methodology of your choice and the activities/tasks should be relevant to the methodology chosen.

2. Produce a Use Case Model for the required system – including a Use Case diagram, and High-Level Use Case Descriptions for each Use Case. For two of the Use Cases of your choice, produce Expanded Use Case Descriptions.

   Choose one of these expanded Use Case Descriptions to model both the Collaboration and Sequence diagram, in 3, below.

3. Explain in words how you would go about producing the Communication diagrams, that is a Collaboration diagram and a Sequence diagram, from the Use Case model.

   Produce a Collaboration diagram and then produce a Sequence diagram for the same Use Case.

4. Prepare a table comprising all possible domain classes from all the respective use cases. Produce an Analysis Class diagram showing the domain classes.

Design (35%)

1. You have done several tasks till date (analysis and design diagrams have been done). Now how do you plan to move further in the process of completing the project? You are required to select a methodology that you think is feasible for this project and your explanation of further planning should be relatable to the methodology that you have chosen.

   (**Note: the further planning should compulsorily include following things:**
   1) Architectural choice.
   2) Design Pattern.
   3) Development Plan (that includes tools/resources/programming platforms that are going to be used and priority order of artifacts/features that you have planned tentatively.
   4) Testing Plan.
   5) Maintenance Plan.

2. Develop some design prototypes for the proposed system for features which are listed in detailed specification.
   (**Note: the prototypes should cover the major features and at least 15 separate prototypes need to be shown.)**

Marking Scheme

Individual Marks	Marks
WBS and Gantt Chart	20
Use Case	10
High Level Use Case	5
Expanded Use Case	5
Collaboration Diagram	10
Sequence Diagram	10
Class Diagram	15
Further Development	10
Prototype	15