UGANDA CHRISTIAN UNIVERSITY
A Centre of Excellence in the Heart of Africa

FACULTY OF ENGINEERING, DESIGN AND TECHNOLOGY
DEPARTMENT OF COMPUTING AND TECHNOLOGY
ADVENT 2025 SEMESTER **EXAMINATION**

PROGRAM: *MSc. Data Science and Analytics and MSc. Computer Science*

YEAR: 1 SEMESTER: 1

COURSE CODE: *CSC8101*

COURSE NAME: *OBJECT-ORIENTED PROGRAMMING*

EXAMINATION TYPE: *100% PROJECT-BASED EXAM*

PROJECT DURATION: OCTOBER 2025

TIME ALLOWED: *[Four weeks]*

Examination Instructions

1. The general Uganda Christian University examination guidelines and academic & financial policies apply to this examination. Violating any of the policies by the student automatically makes this examination attempt void, even if you have completed and submitted the answer booklet.
2. This exam consists of a project to be executed in [*four*] weeks.
    a. The project's assessment shall be based on the specified milestones and evaluated throughout the project. Each milestone shall be evaluated as indicated.
    b. At the end of the project, the following SHALL be submitted on UCU Moodle.
        - A well-written project report (Font: Trebuchet MS, 12Pts, 1.5 spacing, justified aligned), IEEE Referencing style. On page 1 of the report, there should be a GitHub link.
        - PowerPoint/PDF presentation of not more than 10 slides.

CSC8101: OOP with Python Project Guidelines

- You are required to submit a 2-page project proposal for approval before implementation. Deadline for the proposal is October 12, 2025. Your proposal will be approved or disapproved by October 14, 2025 in order for you to progress with the implementation.
- The project should focus on the **development of a functional software system or interactive dashboard if possible**, demonstrating strong application of **Object-Oriented Programming (OOP)** principles using **Python**. You are encouraged to design solutions that integrate **data-driven decision-making**, **automation**, or **intelligent analytics**, reflecting both theoretical and practical mastery of Python programming. The project should build upon and merge the concepts covered in **CSC8101** and the **Cisco NetAcad Python course**, showcasing your ability to apply structured programming, modular design, and OOP best practices to solve real-world problems.
- Projects should go beyond basic exercises and reflect the depth expected at the master's level — for instance, integrating data processing, visualization, or algorithmic logic within a well-architected software system. Examples include but are not limited to: a performance analytics dashboard, predictive modelling tool, data monitoring platform, or intelligent automation solution.
- The final submission must include well-structured code and a written report.

Rubrics

1. Project Proposal & Approval (10 Marks) - *to be submitted by April 8, 2025 for approval.*

Criterion	Marks
Clear and well-defined problem statement	4
Relevance to software development and OOP principles	3
Feasibility and scope of the project	3

2. Implementation of Object-Oriented Programming (30 Marks)

Criterion	Marks
Proper use of classes, objects, and methods	10
Implementation of key OOP principles (encapsulation, inheritance, polymorphism, abstraction)	10
Code modularity, reusability, and maintainability	10

3. System Functionality & Features (25 Marks)

Criterion	Marks
Well-defined system architecture and software design	10
Implementation of core functionality based on project scope	10
Proper integration of external libraries, APIs, or frameworks (if applicable)	5

4. Code Quality & Documentation (15 Marks)

Criterion	Marks
Code readability, structure, and efficiency	5
Proper use of comments and docstrings	5
Exception handling and error management	5

5. User Interface & Usability (10 Marks)

Criterion	Marks
Intuitive user interface (if applicable)	5
System usability and smooth user experience	5

6. Presentation & Report (10 Marks)

Criterion	Marks
Clarity of report (introduction, methodology, implementation, and conclusion) - at most 10 pages.	5
Well-structured presentation with a logical flow	5

Submission Requirements

1. Project Proposal (2 pages)
2. Final Deliverables:
    - Source code (GitHub repository) - put the link into your project report on page 1.
    - Project report (10 pages)
    - Presentation slides (at most 10 slides).

Project Milestones

MILESTONE	DESCRIPTION
1. PROBLEM IDENTIFICATION - PROPOSAL	Clearly define the problem you aim to solve and its relevance specifying the scope of the work to be done (*to be submitted by October 12, 2025 for approval purposes)*
2. SYSTEM DESIGN	A system architecture and designs that should be within the project report.
3. PROJECT IMPLEMENTATION	Well implemented project using OOP principles and Python as the programming language. The implementation code should be a repository on GitHub and the link shared within the project report.
4. FINAL REPORT & PRESENTATION	Submit a well-structured report and deliver a compelling presentation of your project results.

~END OF EXAM GUIDELINES~