MA4533: APPLIED MATHEMATICS LABORATORY

Effective Term
Semester A 2025/26

Part I Course Overview

Course Title
Applied Mathematics Laboratory

Subject Code
MA - Mathematics
Course Number
4533

Academic Unit
Mathematics (MA)

College/School
College of Science (SI)

Course Duration
Non-standard Duration

Other Course Duration
6 Weeks in a semester for a group of around 3 students

Credit Units
1

Level
B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
MA2508 Multi-variable Calculus

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract

This course enables students to apply the knowledge and methods gained in the first half of the programme to practical topics by writing a project report and making a presentation. It develops students' problem-based learning and team work ability, presentation skill and report writing ability.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	conduct both independent and group study for problem solving and solution seeking.	30	x		
2	apply mathematical knowledge and computing techniques of selected topic(s) to create and analyze models of real-life problems.	30		x	x
3	evaluate critically appropriateness of methods of analysis.	10		x	
4	complete well-structured report with coherent presentation of methodology and results.	20			x
5	the combination of CILOs 1-4	10			x

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Learning and Teaching Activities (LTAs)

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lectures	Learning through lectures helps students acquire knowledge and techniques of specific topics for investigating concrete problems and writing a report.	2	7 hours in total
2	Tutorials	Learning through tutorials encourages class participation (in the form of questions and discussions) and exchange of academic ideas among students.	1	6 hours in total

3	Laboratory sessions	Learning through laboratory sessions is primarily based on interactive problem solving and hand-on computing exercises allowing instant feedback.	2	4 hours in total
4	Project	Learning through project helps students apply knowledge and computing techniques to investigate a more advanced topic of applied mathematics. It also helps students to communicate and collaborate effectively in the team.	1, 2, 3, 4, 5	9 hours in total

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("-" for nil entry)	Allow Use of GenAI?
1	Report	1, 2, 3, 4	50	It should include students' own account of investigations and findings, with critical exposition of knowledge in literature. Students are also required to organize materials systematically, with all the necessary references stated.	Yes
2	Oral Presentation	4	50	Students are also assessed on the ability to present project aims, methodology and investigations/ findings effectively.	Yes

Continuous Assessment (%)

100

Examination (%)

0

Additional Information for ATs

100% coursework assessment (50% on project report jointly written by students in the group, 50% on oral presentation)

Assessment Rubrics (AR)

Assessment Task
1. Report

Criterion
Evaluation is based on the following points: organization, modelling, method, results and practical significance.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
2. Oral Presentation

Criterion
The statement of the problem solving; the ability of delivering complex concepts; the ability to answer questions

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Part III Other Information

Keyword Syllabus
The topic must be of an appropriate advanced level in applied mathematics. It should include substantial academic content and require the students to have deep understanding of the topic and make clear written and oral presentation.

Reading List

Compulsory Readings

	Title
1	Nil

Additional Readings

	Title
1	Nil