CSCI4006: SUMMER RESEARCH PROJECT FOR SCIENCE STUDENTS

Effective Term
Semester A 2024/25

Part I Course Overview

Course Title
Summer Research Project for Science Students

Subject Code
CSCI - College of Science
Course Number
4006

Academic Unit
College of Science (SI)

College/School
College of Science (SI)

Course Duration
Non-standard Duration

Other Course Duration
8-13 weeks (require no less than 240 hours of student direct participation)

Credit Units
6

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

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
FS4006 Summer Research Internship

Part II Course Details

Abstract

This course aims to provide students with the opportunity to acquire research skills and experience the life of a full-time researcher in a research environment and/or real work in an industrial setting. Industrial/cultural visits will also enhance and enrich students' knowledge in science related industrial establishments. Each student taking this course will be required to undertake a research project as guided by the supervisor. The student will develop skills in problem-solving and in scientific communication in the form of written and verbal presentation of information. Individual research project supervisors will determine the details of the TLAs and Assessment Tasks and provide guidance to the students, while the course leader will oversee and coordinate the activities and provide final assessment (individual supervisors will also be involved).

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Recognize and practise the soft skills as well as the roles of professionals that are required at the workplace / research environment		x	x	
2	Integrate the knowledge acquired in the classroom and apply it to workplace / research		x	x	x
3	Describe and analyse the scope, the significance and the state-of-the-art knowledge of the intended research project				x
4	Evaluate the implications of the proposed technical/ scientific knowledge and skills learned through oral presentation and written report				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		The teaching and learningactivities include: independent study, field trip/ industrial visit, literature review, and participation in a guided research project	1, 2, 3, 4	No less than 240 hours

2		Interaction and communication and communication with CSCI staff as well as general counselling	1	On need basis throughout internship period
3		Keeping a training log	2, 3, 4	Throughout training period
4		Giving an oral presentation that summarizes the learning during conducting the research internship	1, 2, 3, 4	20 minutes in total

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Assessment of log book and feedback from project supervisor in the form of visit report	1, 2, 3, 4	10	
2	Individual performance in research project/ industrial visits	1, 2, 3, 4	50	
3	Oral presentation and written report	1, 2, 3, 4	40	

Continuous Assessment (%)

100

Examination (%)

0

Assessment Rubrics (AR)

Assessment Task

Log book and day-to-day duty

Criterion

Ability to record precisely (a) the accomplished tasks and output if any, (b) the student's observation and analysis and (c) the knowledge/skills acquired by the students during the period. Ability to deliver one's assigned duties in an efficient and effective manner, at the same time demonstrating excellent (a) attitude (b) problem solving abilities (c) critical and analytical skills and (d) communication and interpersonal skills.

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. Research project

Criterion
Ability to conduct the research on his/her own and to record raw data including units in a way that is clear and appropriate, to be actively and diligently engaged in the research, to discuss the findings with the supervisor at regular frequencies.

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
3. Oral Presentation

Criterion
Ability to clearly organize a presentation with cohesive content, to deliver a compelling presentation with confidence using different techniques (posture, gesture, eye contact, and vocal expressiveness), to understand the questions completely, and to answer the questions as precisely as they can be.

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

4. Written report

Criterion

Ability to demonstrate thorough understanding of the project topic and excellent execution of a wide range of conventions relevant to science, to use reference to support the ideas, to present and analyse data in excellent ways, and to use scientific languages that skilfully communicate meaning to readers with clarity and fluency.

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

Scientific research; science and technology; critical thinking and problem solving skill

Reading List

Compulsory Readings

	Title
1	Nil

Additional Readings

	Title
1	Nil