

CSCI4006: SUMMER RESEARCH PROJECT FOR SCIENCE STUDENTS

Effective Term

Semester A 2022/23

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 DEC-A1 DEC-A2 DEC-A3 app.)			
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.

Teaching and Learning Activities (TLAs)

TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1	The teaching and learning activities 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