# **BME4116: CAPSTONE PROJECT II**

Effective Term Semester B 2024/25

# Part I Course Overview

**Course Title** Capstone Project II

Subject Code BME - Biomedical Engineering Course Number 4116

Academic Unit Biomedical Engineering (BME)

**College/School** College of Biomedicine (BD)

**Course Duration** Two Semesters

**Credit Units** 0-9

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

Medium of Instruction English

**Medium of Assessment** English

**Prerequisites** BME3116 Capstone Project I with B+ grade or above

Precursors Nil

**Equivalent Courses** BME4068 Project (Individual)/BME4102 Design Project

Exclusive Courses Nil

# Part II Course Details

### Abstract

This course offers a challenging opportunity for a final year student to integrate, apply and extend the knowledge gained from the various courses of his/her major study and embark on a course of discovery and innovation through an

individually guided capstone project. Specifically, this is the implemetation stage of the capstone project proposed by the student in MBE3116 Capstone Project I and approved by the department.

#### Course Intended Learning Outcomes (CILOs)

|   | CILOs   | Weighting (if app.) | DEC-A1 | DEC-A2 | DEC-A3 |
|---|---|---------------------|--------|--------|--------|
| 1 | Design the methodology and implementation<br>plan to carry out the capstone project proposed<br>in MBE3116.   |                     |        | х      |        |
| 2 | Apply and extend the theories and knowledge<br>learned in the major study through the<br>methodical implementation of the proposed<br>capstone project. |                     |        | x      | X      |
| 3 | Demonstrate communication skills in writing<br>and oral presentation, the project process,<br>experience and results.                                   |                     |        | x      | 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.

|   | LTAs | Brief Description   | CILO No. | Hours/week (if<br>applicable) |
|---|------|---|----------|-------------------------------|
| 1 | T1   | Students will work closely<br>with the supervisor to<br>translate the methodology<br>of the proposed capstone<br>project into a realizable<br>project action plan.  | 1        |                               |
| 2 | Τ2   | Students will, with the<br>guidance and advice<br>of the supervisor,<br>methodically carry out<br>the project as planned,<br>always challenging the<br>norm and seeking for<br>the breakthrough that<br>would lead to discovery or<br>innovation. | 2        |                               |

#### Learning and Teaching Activities (LTAs)

| 3 | T3.1T3.2T3.3 | Students will document      | 3 |  |
|---|--------------|-----------------------------|---|--|
|   |              | the research process,       |   |  |
|   |              | experience and results      |   |  |
|   |              | in the capstone project     |   |  |
|   |              | report. Students will write |   |  |
|   |              | a scholarly paper that      |   |  |
|   |              | meets the standard for      |   |  |
|   |              | possible publication in a   |   |  |
|   |              | journal or presentation     |   |  |
|   |              | in a conference. Students   |   |  |
|   |              | will present the paper      |   |  |
|   |              | in the annual Capstone      |   |  |
|   |              | Projects Forum.             |   |  |

#### Assessment Tasks / Activities (ATs)

|   | ATs   | CILO No. | Weighting (%) | Remarks (e.g. Parameter<br>for GenAI use)     |
|---|---|----------|---------------|---|
| 1 | Continuous assessment<br>by supervisor and<br>capstone project report | 1, 2, 3  | 50            |   |
| 2 | Publishable scholarly<br>written paper                                | 3        | 30            | Assessed by course<br>examiner                |
| 3 | Oral presentation   | 3        | 20            | Assessed by course<br>examiner and supervisor |

#### Continuous Assessment (%)

100

#### Examination (%)

0

#### Assessment Rubrics (AR)

#### Assessment Task

Continuous assessment by supervisor and capstone project report

#### Criterion

Coverage of related literature, adoption or development of relevant methodologies to solve the problem, final outcomes, contribution to science and technology, and quality of written report.

#### 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

Publishable scholarly written paper

#### Criterion

A written paper of acceptable/publishable quality in proceedings of a conference or journal based on the results of the work independently carried out through this project.

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

Oral presentation

#### Criterion

Oral presentation covering the related literature, relevant methodologies adopted to solve the problem, final outcomes, and contribution to science and technology.

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 course is flexible, and has no specific syllabus.

**Reading List** 

### **Compulsory Readings**

|   | Title   |
|---|---|
| 1 | There are no specific compulsory readings. However, the student will have to explore and utilize some books and |
|   | methodologies that could be explored to carry out this capstone project II.                                     |

### Additional Readings

|   | Title   |
|---|---|
| 1 | Student initiative is compulsory to search the literature to gain knowledge on the techniques and methodologies |
|   | associated with the project being undertaken through this course.   |