BMS5011: WEARABLE TECHNOLOGIES AND DIGITAL MEDICINE

Effective Term
Semester A 2025/26

Part I Course Overview

Course Title
Wearable Technologies and Digital Medicine

Subject Code
BMS - Biomedical Sciences
Course Number
5011

Academic Unit
Biomedical Sciences (BMS)

College/School
College of Biomedicine (BD)

Course Duration
One Semester

Credit Units
3

Level
P5, P6 - Postgraduate Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract

The course aims to facilitate students with different educational backgrounds to gain basic healthcare knowledge and innovative methods and techniques for wearable technology and digital medicine. The lecture content covers knowledge about material and engineering technologies for wearable healthcare devices, sensing and feedback technologies, health research with exposure modelling and healthcare data management. Additionally, the course will introduce the dynamic interaction between digital medicine, population health, and evidence-based medicine. It will discuss how this interaction leverages technology and data to enhance healthcare delivery, making it more effective and efficient for diverse populations. Students will deliver a presentation and submit a written essay with specific topics that are related to the wearable technology and digital medicine.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Recognize the significance of healthcare data for personal health monitoring and disease management.	20		x	x
2	Recognize the functions and principles of various materials and technologies that are used in wearable devices.	30	x	x	x
3	Explain and demonstrate the ability to evaluate the outcomes and concerns of the health data management.	30	x	x	x
4	Describe the concepts related to wearable technology and digital medicine and justify and apply them in research projects.	20	x	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.

Learning and Teaching Activities (LTAs)

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture	Students will engage in formal lectures to gain various principles, application and methodologies of wearable technology and health data informatics as well as the implementation of wearable technology for personal health monitoring and disease management.	1, 2, 3, 4	

2	Tutorial and group discussions	Students will give an oral presentation on a certain topic related to wearable technology and/or digital medicine. They will actively engage as audience members during peers' presentations to stimulate thoughts and views.	3, 4	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("-" for nil entry)	Allow Use of GenAI?
1	Oral presentation	1, 2, 3	50	there will be an attendance check (10%) via Q&A.	Yes
2	Examination	1, 2, 3, 4	50	essay writing	Yes

Continuous Assessment (%)

100

Minimum Continuous Assessment Passing Requirement (%)

40

Additional Information for ATs

A similarity report will be requested to detect plagiarism and ensure academic integrity in the written essay. The detailed requirements will be announced in class and be posted on Canvas in due course.

Assessment Rubrics (AR)

Assessment Task

Oral Presentation (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Ability to analyse and criticise the implementation of wearable technologies

Excellent

(A+, A, A-) Outstanding performance on all CILOs. Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.

Good

(B+, B, B-) Substantial performance on all CILOS. Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.

Fair

(C+, C, C-) Satisfactory performance on the majority of CILOS possibly with a few weaknesses. Being able to profit from the course experience; understanding of the subject; ability to develop solutions to simple problems in the material.

Marginal

(D) Barely satisfactory performance on a number of CILOS. Sufficient familiarity with the subject matter to enable the student to progress without repeating the course

Failure

(F) Unsatisfactory performance on a number of CILOS. Failure to meet specified assessment requirements, little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of literature.

Assessment Task

Examination (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Ability to analyse, state and apply the principles and subject matter learnt in the course

Excellent

(A+, A, A-) Outstanding performance on all CILOs. Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.

Good

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Failure

(F) Unsatisfactory performance on a number of CILOS. Failure to meet specified assessment requirements, little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of literature.

Assessment Task

Oral Presentation (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Ability to analyse and criticise the implementation of wearable technologies

Excellent

(A+, A, A-) Outstanding performance on all CILOs. Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.

Good

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Part III Other Information

Keyword Syllabus

- Flexible electronics,
- Stretchable electronics,
- Wearable healthcare devices,
- Advanced sensing technology,
- Digital biomarkers
- Personalized care
- TeleHealth,
- Digital Medicine
- Evidence-based medicine
- Population health
- Health research with exposure modelling,
- Healthcare data management,
- Data privacy and ethics

Reading List

Compulsory Readings

	Title
1	Nil

Additional Readings

	Title
1	Nil