BMS5011: WEARABLE TECHNOLOGIES AND HEALTH SCIENCE RESEARCH

Effective Term

Semester B 2024/25

Part I Course Overview

Course Title

Wearable Technologies and Health Science Research

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 health science research. 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. Students will deliver a presentation and submit a written essay with specific topics that are related to the wearable technology and health science research.

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 of wearable technology and health informatics 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 in wearable technology and health science research. 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 (e.g. Parameter for GenAI use)
1	Oral presentation	1, 2, 3	30	
2	Attendance		20	

Continuous Assessment (%)

50

Examination (%)

50

Examination Duration (Hours)

0

Additional Information for ATs

Exam: essay writing

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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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

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(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.

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Part III Other Information

Keyword Syllabus

Flexible electronics,
Stretchable electronics,
Wearable healthcare devices,
Advanced sensing technology,
TeleHealth,
Health research with exposure modelling,
Healthcare data management,
Data privacy and ethics

Reading List

Compulsory Readings

	Title
1	Nil

Additional Readings

	Title
1	Nil