CS1103B: MEDIA COMPUTING

Effective Term
Semester A 2022/23

Part I Course Overview

Course Title
Media Computing

Subject Code
CS - Computer Science
Course Number
1103B

Academic Unit
Computer Science (CS)

College/School
College of Engineering (EG)

Course Duration
One Semester

Credit Units
3

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

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
CS1103 Introduction to Media Computing

Exclusive Courses
SM1103A Introduction to Media Computing

Part II Course Details

Abstract
This course will teach fundamental concepts for programming media objects such as image, graphics and sound. Students will learn basic programming concepts including variables, loops, conditions, arrays, functions and recursion. With these

concepts, students will explore advanced topics like human-computer interaction, geometric transformation and fractal programming. Data structures and simple object-oriented techniques may also be introduced.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Understand procedural concepts and mathematics essential for media programming.		x	x	
2	Apply programming concepts to handle image, graphics and sound.		x	x	x
3	Create computer animation through human-computer interaction, geometric transformation and fractal programming.		x	x	x
4	Solve problems independently by finding resources, breaking down problems into sub-problems, and debugging.			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.

Teaching and Learning Activities (TLAs)

	TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lectures/Workshops	All CILOs will be introduced, explained, discussed and demonstrated through lectures. Online resources will also be given for out-of-classroom reading and learning.	1, 2, 3, 4	
2	Workshop exercises	The exercises will give students hands-on experience on computer programming and exploring media computing technology. Students will be expected to actively contribute to class discussions, and complete programming exercises.	2, 3, 4	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Quiz	1, 2, 3	20	
2	Assignments	2, 3, 4	40	

Continuous Assessment (%)
60

Examination (%)
40

Examination Duration (Hours)
2

Additional Information for ATs
For a student to pass the course, at least 30% of the maximum mark for the examination must be obtained.

Assessment Rubrics (AR)

Assessment Task
Quiz

Criterion
ABILITY to UNDERSTAND and APPLY fundamental programming concepts to the context of media computing

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal level

Assessment Task
Assignment

Criterion
ABILITY to APPLY learnt knowledge for creative media

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Note even reaching marginal level

Assessment Task
Assignment

Criterion
CAPACITY for knowledge and creativity in applying and implementing media computing technologies

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Note even reaching marginal level

Part III Other Information

Keyword Syllabus

- Programming fundamentals: variable, condition, loop, array, function
- Interactivity: image, sound, graphics, text, mouse and keyboard events
- Math: vector, matrix, trigonometry, probability
- Geometry transformations: rotation, translation, scaling, push and pop
- Fractal: randomness, noise, recursion, random walk

Reading List

Compulsory Readings

	Title
1	Nil

Additional Readings

	Title
1	Marijn Haverbeke (2014). Eloquent JavaScript: A Modern Introduction to Programming. No Starch Press, 2nd edition.
2	Lauren McCarthy, Casey Reas, and Ben Fry. Getting Started with p5.js. Published October 2015, Maker Media. 246 pages. Paperback.
3	Dan Saffer (2010). Designing for Interaction: Creating Innovative Applications and Devices. New Riders, 2nd edition.