The Hong Kong University of Science and Technology

Division of Arts and Machine Creativity (AMC)

AMCC5110, in Fall 2025/26

Course code: AMCC5110 (3 credits)
Course title: Programming for Arts and Creativity
Abbreviated title: PAC
Course instructor: Hongbo Fu
Target students: MA/MPhil/PhD students (with no programming experience)
Class quota: 30
Grading requirement: Letter grades

Course description:
This introductory programming course is designed specifically for students with an arts background, focusing on fundamental programming concepts through creative problem-solving. Students will learn to decompose art-related challenges into manageable sub-problems and solve them using programming with the assistance of AI tools like ChatGPT. By blending technical skills with artistic expression, students will develop computational thinking while creating interactive and visually engaging works of art.

Enrolment requirement: N.A.

Course Intended Learning Outcomes
On successful completion of the course, students will be able to:

1. Demonstrate an understanding of fundamental programming concepts, including variables, data types, and control structures.
2. Apply problem decomposition techniques to break down complex art-related challenges into manageable sub-problems.
3. Create interactive visual projects using a programming environment like Processing or p5.js.
4. Implement functions and loops to enhance reusability and dynamic behavior in their projects.
5. Utilize AI tools like ChatGPT to brainstorm ideas, generate code snippets, and refine project concepts.
6. Collaborate effectively with peers to share feedback and improve project outcomes.
7. Present a final project that integrates programming skills with artistic expression, demonstrating creativity and technical proficiency.

Teaching and learning activities:

1. Lectures
2. Hands-on Workshops

Planned Assessment & Weightings:

Assessment	Percentage
Class Participation	10%
Programming Assignments	50%
Final Project	40%

Weakly Course Outline

Week	Topics	**Briefly outline what this topic will cover** *(Include reading assignments if available)*	**Indicate which course ILOs this topic is related to** *(Write CILO-1, CILO-2, etc.)*
1	**Introduction to Computational Thinking**	- Overview of computational thinking and its relevance to art and programming. - Introduction to problem-solving strategies.	CILO-1, CILO-2, CILO-5
2	**Basics of Programming Concepts**	- Introduction to programming fundamentals: variables, data types, and syntax. - Hands-on exercises to familiarize with a programming environment.	CILO-1, CILO-5
3	**Control Structures**	- Explanation of conditionals (if statements) and their use in decision-making. - Practical examples related to art projects.	CILO-1, CILO-3, CILO-5
4	**Working with Inputs and Outputs**	- Learning how to handle user inputs and display outputs. - Creating interactive art pieces that respond to user actions.	CILO-3, CILO-4, CILO-5
5	**Patterns and Loops**	- Introduction to loops (for, while) and their applications in creating patterns. - Hands-on activities to create repeating designs.	CILO-3, CILO-4, CILO-5
6	**Arrays of Elements**	- Understanding arrays and how to manage collections of data. - Creating art projects that utilize arrays for visual effects.	CILO-1, CILO-3, CILO-5
7	**Functions and Reusability**	- Learning to define and use functions for code reusability. - Creating modular art projects that leverage functions.	CILO-4, CILO-5
8	**Collaborative Project Development**	- Techniques for effective collaboration and peer feedback. - Group activities to brainstorm and develop art projects.	CILO-5, CILO-6

9	**Imported Media**	- How to incorporate images, sounds, and other media into projects. - Hands-on practice with integrating multimedia elements.	CILO-3, CILO-5
10	**Living with Randomness**	- Exploring randomness in programming and its creative applications. - Creating art pieces that utilize random elements.	CILO-3, CILO-5
11	**Transformation**	- Understanding transformations (scaling, rotating, translating) in visual art. - Applying transformations in programming to create dynamic visuals.	CILO-3, CILO-5
12	**Games**	- Introduction to game design principles and interactive storytelling. - Developing simple games that incorporate learned programming concepts.	CILO-2, CILO-3, CILO-5
13	**Final Project Presentations**	- Students present their final projects, showcasing their programming and artistic skills. - Reflection on the learning journey and feedback from peers and instructors.	CILO-6, CILO-7

Student learning resources:

- Shiffman, Daniel. Learning Processing: a beginner's guide to programming images, animation, and interaction. Morgan Kaufmann, 2009.
- The Coding Train on YouTube: https://www.youtube.com/@TheCodingTrain