The Hong Kong University of Science and Technology (Guangzhou)

UG Course Syllabus Template

[Course Title] Creative Coding and Interactive Art

[Course Code] UCUG 1505 (L04)

[No. of Credits] 3

[Any pre-/co-requisites] No

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Office Hours: Wed 14:30-15:30 on zoom (email me to book a slot)

Course Description

Making art with code is so much fun! At the same time, knowing how to creatively program machines is one of the most empowering feelings and no matter what research you do, these creative coding skills will prove very useful. In this course you are going to learn many fun techniques for making art and computational media systems with creative code. You will be exploring topics such as:

- Programming generative art visuals
- Using genetic algorithms for creating images
- Manipulating a camera stream in creative ways
- Machine learning and computer vision for art
- Game and interaction design
- Simulating nature with code
- Image generation with ComfyUI pipelines
- Creative use of Large Language Models
- And lots more fun topics all with code that you write yourself!

Intended Learning Outcomes (ILOs)

By the end of this course, students should be able to:

1. Identify and analyze creative coding frameworks
2. Design and develop creative coding techniques and algorithms
3. Plan and execute machine learning solutions for arts practice
4. Apply critical thinking and communication skills
5. Apply art creation skills
6. Recall and analyze artworks in the computational art scene

Weekly schedule & Weekly ILOs

[Include a weekly schedule and corresponding ILOs for clear, week-by-week guidance.]

Week	Topics	Weekly ILOs

1	Introduction to creative coding	1, 4, 5, 6
2	Generative Art Intro	1, 2, 5, 6
3	Noise	2, 5
4	Pixels, Images, Video	1, 2, 5
5	Intro to Machine Learning for Artists	3, 4, 5
6	Image Classifiers in Art Hacks	3, 4, 5
7	Neural Networks for Fun Interactions	3, 4, 5
8	Project Proposals and Guest Artist	4, 5, 6
9	Image Generation Pipelines with ComfyUI	1, 2, 3, 5
10	Creative Use of Large Language Models	1, 2, 3, 5
11	Fractals	1, 2, 5
12	Art with genetic algorithms	1, 2, 5
13	Exhibition and Guest Artist Visit	4, 5, 6

Assessment and Grading

This course will be assessed using criterion-referencing and grades will not be assigned using a curve. Detailed rubrics for each assignment are provided below, outlining the criteria used for evaluation.

Assessments:

Assessment Task	Contribution to Overall Course grade (%)	Due date
Weekly assignments	30%	weekly assignment 1 Week 2 weekly assignment 2 Week 3 weekly assignment 3 Week 4 weekly assignment 4 Week 5 weekly assignment 5 Week 6 weekly assignment 6 Week 7 weekly assignment 7 Week 8 weekly assignment 8 Week 9 weekly assignment 9 Week 10
Final projects	60%	21/05/2025
Attendance and participation	10%	Week by week assessment of attendance

* Assessment marks for individual assessed tasks will be released within two weeks of the due date.

Mapping of Course ILOs to Assessment Tasks

[add to/delete table as appropriate]

Assessed Task	Mapped ILOs	Explanation
Weekly assignments	1,2,3,4,5,6	Students will be given weekly assignments that require them to research artworks and develop a specific deliverable using their own code.
Final project	1,2,3,4,5,6	The capstone project requires students to develop an original artwork following certain criteria as well as being able to write and talk intelligently about it.

Grading Rubrics

Weekly assignments:

The student has not submitted an assignment – 0%

The student has submitted an incomplete or low quality assignment <= 80%

The student has submitted everything requested in the assignment = 90%

The student has submitted something that goes above and beyond what was asked = 100%

Final project:

Documentation (5%)

Video demo (15%)

- Between 2-3 minutes long
- Is your video HD and of professional quality (not grainy, out of focus etc).
- Have you made an effort in the production?

The actual project (code etc.) submitted via canvas (80%)

- You'll be graded on originality, creativity, technical implementation and aesthetics

Attendance:

Attendance is mandatory and it counts for 10% of the final grade. If you can not make a class you lose 0.77% from the final grade. If you are ill / have another important meeting or any other important reason, you can not make up for the absence. The attendance sheet records if you were there during the lecture and lab. I can not mark you as present even if you had a good reason for being away. In any case not attending a class makes you lose 0.77% from the final grade (10% / 13 sessions).

Final Grade Descriptors:

[As appropriate to the course and aligned with university standards]

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Grades	Short Description	Elaboration on subject grading description
A	Excellent Performance	Demonstrates a comprehensive grasp of subject matter, expertise in problem-solving, and significant creativity in thinking. Exhibits a high capacity for scholarship and collaboration, going beyond core requirements to achieve learning goals.
B	Good Performance	Shows good knowledge and understanding of the main subject matter, competence in problem-solving, and the ability to analyze and evaluate issues. Displays high motivation to learn and the ability to work effectively with others.
C	Satisfactory Performance	Possesses adequate knowledge of core subject matter, competence in dealing with familiar problems, and some capacity for analysis and critical thinking. Shows persistence and effort to achieve broadly defined learning goals. Still there are significant gaps in the research / execution.
D	Marginal Pass	Has threshold knowledge of core subject matter, potential to achieve key professional skills, and the ability to make basic judgments.
F	Fail	Demonstrates insufficient understanding of the subject matter and lacks the necessary problem-solving skills. Shows limited ability to think critically or analytically and exhibits minimal effort towards achieving learning goals. Does not meet the threshold requirements for professional practice or development in the discipline.

Course AI Policy

The instructors use ChatGPT in order to code and the advantages of LLMs for coding projects are well known. However, it's also important to be able to think at a high level to organize the project and to instruct ChatGPT to write the code. It's also important to detect where there are errors in order to direct it to fix them (or fix them yourself). The only way to achieve this is to write your own code.

We invite students to write their own code, without ChatGPT during the lab. They can receive help from the TAs and the instructor.

We encourage you to use your own code during the homework assignments too as most of you have only taken one programming class before. For the final project you are welcome to use LLMs to help you write code faster and to experiment more.

Communication and Feedback

Assessment marks for individual assessed tasks will be communicated via Canvas within two weeks of submission. You will be given a simple mark but during class I will show the best projects, discuss them and explain why they got top grades. This way we learn in a group and not in 1-to-1 interaction.

Students who have further questions about the feedback including marks should consult the instructor within five working days after the feedback is received.

Resubmission Policy

No resubmissions are allowed for the weekly assignment after the deadline has passed. You can submit as often as you want before the deadline has passed.

Required Texts and Materials

All materials are provided weekly on canvas.

Academic Integrity

Students are expected to adhere to the university's academic integrity policy. Students are expected to uphold HKUST(GZ)'s Academic Honor Code and to maintain the highest standards of academic integrity. The University has zero tolerance of academic misconduct. Please refer to Regulations for Academic Integrity and Student Conduct for the University's definition of plagiarism and ways to avoid cheating and plagiarism.

[Optional] Additional Resources

[List any additional resources, such as online platforms, library resources, etc.]