

COURSE CONTENT

Course Code	DM2008
Course Title	Programming for Interaction
Pre-requisites	NIL
No of AUs	3
Contact Hours	39 hours studio contact

Course Aims

This is an introductory course that will introduce you to the fundamental concepts shared by all core programming languages. The core structure and foundations of common programming languages will be explored in a theoretical and practical manner as well as demonstrating that sometimes vastly different applications such as games, websites and installations are based on similar logical and structural principles. By the end of the course, you will be able to write basic games, and create interactive environments. This will allow you to create digital systems and artwork individually or collectively in future practice.

Intended Learning Outcomes (ILO)

By the end of the course, you should be able to:

1. Produce animated 2D and 3D graphics using a code authoring environment.
2. Write code which accepts input from devices to drive interactions in environments using software or micro controllers.
3. Apply coding tutorials and exercises to the creation of interactive media projects.
4. Present, discuss and evaluate coding projects in a clear and cohesive manner.
5. Contribute to the learning environment by participating positively to class discussion, critiques and activities related to coding and interactive media.

Course Content

Statements, Functions, Variables, and Arrays

Overview of Control statements (while, for); Conditional Statements (if, else if, else, switch); Functions (Input arguments and return values; Variable types and casting; and Arrays (1-d, 2-d)

Objects and Libraries

An introduction to objects, object constructors, overloaded constructors, overloaded functions; the importance of and using libraries; important statements; and object subclassing and inheritance.

Introduction to Arduino

An exploration of Arduino; what is an Arduino? Why would you want to use one? Example uses of an Arduino; LED's, PWD, and voltage dividers.

3D Graphics and Processing

An introduction to the 3D graphics environment; demonstrations of rotations on different axes; light types and directions; data structures (Queue, Stack); drawing techniques, drawing in 3D spaces; coordinate system fundamentals; texture mapping.

Python

An introduction to Python; typeless languages; syntax differences from Java (for, while, if, etc.); introduction to the IDE; useful Python libraries; Python pip.

Class assignments

Nine programming tutorials, exercises that explore the application of programming for interaction design; mid-term project to create an Arduino device; a final project that demonstrates sufficiency in programming. Developed through lectures, tutorials, class exercises and peer/instructor feedback sessions.

