

## COURSE CONTENT

<b>Course Code</b>	DM3008
<b>Course Title</b>	Generative Art
<b>Pre-requisites</b>	NIL
<b>No of AUs</b>	3
<b>Contact Hours</b>	39 hours studio contact

### **Course Aims**

This course will introduce you to the creative realm of generative art, which is based on designing and exploring the interaction between predefined systems and different factors of unpredictability. The course focuses on artistic concepts, techniques and tools that you will be able to apply in the creation of digital or analogue generative art projects. This learning will set up the foundation for further studies of generativity, and for extending the expressive potential of more complex generative projects in art, design and media.

### **Intended Learning Outcomes (ILO)**

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

1. Describe techniques and tools for creating generative artworks in various scenarios and media.
2. Develop a range of methodologies and techniques for making generative art.
3. Create generative art sketches and generative art projects using gained knowledge and skills.
4. Present, discuss, evaluate and reflect on the effectiveness and impact of generative art projects.
5. Identify, constructively discuss and critique various approaches to generativity in a broader context of contemporary art, culture and technology.

### **Course Content**

Generative art unfolds in a range of creative methodologies for consciously interacting predefined systems with different factors of unpredictability throughout conceptualizing, producing and presenting the artwork. It appreciates and cultivates the artwork as a dynamic catalysing event or process, inspired by curiosity, susceptible to chance and open for change. This course is a platform for the creative exploration of generativity in making art, using analogue and/or digital tools. It will provide you with the grounding for an understanding of generativity as a powerful cognitive toolset and medium-independent framework which makes crucial contributions to media art and design. You will examine different aspects and factors of generativity, and apply them to develop strategies and techniques for creating your own generative artworks. You will learn about popular software tools and hardware devices for generative experimentation, sketching, testing and complex project development. You will be exposed to a full spectrum of contemporary exponents, practices and aesthetics relevant to the field, ranging from minimalist generativity to creative artificial intelligence and machine learning.

#### **Generativity in the arts and analogue techniques**

The course begins with an introduction to generative art. In a historical overview of generativity

in the arts, you will learn about various analogue techniques for turning chance and uncertainty into defining factors of an artwork. This will enable you to understand both the inherent generativity of any creative process, which is dictated by nature, and an explicit generative approach which appreciates and develops the artwork as a dynamic catalysing event or process, inspired by curiosity, susceptible to chance and open for change.

### **Algorithmic thinking and procedural literacy**

We will examine the cognitive requirements for effective generative creativity. They comprise two modes of thinking: matching the algorithmic and the unpredictable elements into a coherent system, and the construction of algorithms as multi-purpose tools, which requires procedural literacy and programming skills for making digital generative projects. We will approach these modes systematically, focusing on the critical details of procedural literacy, and this will enable you to read and write processes, to engage procedural representation and aesthetics, independent of the technological environment you are working in.

### **Digital tools for generative art**

An overview of artistically accessible coding environments and programming languages for generative experimentation, sketching, testing and complex project design. These include Processing, openFrameworks, P5.js, Pure Data, TouchDesigner, FFmpeg, Python and Godot. In addition, we will introduce online tools, platforms and cloud computing services for exploring and utilizing machine learning techniques in the development of generative artworks, such as ml5.js and Runway. We will address their advantages and trade-offs, learning resources and strategies. Using some of these tools, you will explore generative systems for processing various media and data types.

### **Hardware devices and physical computing**

You will learn about popular hardware for generative art and design such as compact, open-source 2D and 3D printers, interactive input/tracking devices such as Leap Motion, Kinect and Intel RealSense, physical computing platforms such as Arduino and Intel Galileo, and systems on a chip such as Raspberry Pi. We will discuss their usage scopes, address their advantages and trade-offs, learning resources and strategies. You will be experimenting with some of these devices to facilitate generative processes and interaction.

### **Systems for surprise, discovery and learning**

Over several lectures we will look at exemplar projects of contemporary generative art, distinguished by the artists' abilities to transcend the conceptual, productive and aesthetic limits of algorithmic thinking and code-based creativity. By leveraging generativity into the original structures, they command inspiring, emotionally and intellectually rich experiences with unique aesthetic and ethical values. You will be able to recognize and evaluate them as cognitive tools for comparison, abstraction, categorization, analogising and meaning making. This will empower you to synergize your inspiration, knowledge, skills, playfulness and curiosity into your own generative projects.

### **Thinking and designing generativity, the role of prototyping**

Defining ideas and evolving conceptual and methodological frameworks for a generative art project. The importance of testing the ideas and developing a project prototype. You will sketch and prototype ideas in order to experience your generative designs before going to the production stage of the final project.

### **Developing and producing generative art projects**

Identifying, profiling and developing generative art projects through the following stages: elaboration of the project demo (prototype), refinement and adjustment of the project goals and outcomes, production, postproduction and presentation.

### **Class assignments**

Assignment 1: You will individually produce one generative sketch, using analogue, digital or combined tools.

Assignment 2: You will individually write a short critical essay (2 pages) on a modern generative artwork of your selection, using sources presented in classes, online, and/or the selected material from the course reading list.

Assignment 3: Working in a small team of 2 to 4 members, you will create an original generative artwork using analogue, digital or combined tools.

Classes will comprise lectures, demonstrations and activities that will be included in the assessment such as quick tutorials, presentations, class exercises, workshops, and peer/instructor feedback sessions.