

COURSE CONTENT

Course Code	DM2007
Course Title	Interactive II
Pre-requisites	DM2000
No of AUs	3
Contact Hours	39 hours studio contact

Course Aims

This course further introduces you to the fundamental principles of interactivity presented in DM2000 Interactive I. You will further explore modes of interaction, their computational methods and their systemic relationships: making sense of the environment (input), processing this information and acting in the environment (output via diverse media). The class will promote interdisciplinary problem-solving via experimental art and speculative design for this rapidly expanding and transforming field. You will deepen your ideation, development and prototyping skills in preparation for further in-depth studies.

Intended Learning Outcomes (ILO)

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

1. Apply core experimental interactive media strategies to creative solutions, design or artworks.
2. Demonstrate intermediate proficiency in techniques to author interactive media projects.
3. Develop an interactive media project in a specific context.
4. Fuse solutions from the various genres found in interactive media and design fields.
5. Critique and reflect on concepts and methods used by peers in making of an interactive project.

Course Content

Modes of interaction.

You will get further exposure to the importance of user participation and engagement in interactive media. You will also gain a deeper understanding of computation, its role and impact in the arts. You will further develop concepts surrounding speculative and practice-centred approach to the development of interactive media. You will continue the learning of fundamentals of three core systemic elements of the interactive media project: input, processing and output. Notions of responsiveness and real-time, digital transformations and readability will be addressed in the interactive scenarios found in: experimental interface design, physical computing, information visualization, game design, realtime audiovisuals, locative and mobile media, computational form-generation, image processing and visionbased interactions, augmented reality, simulation, networked crowd-sourcing, mechatronic and robotic art, physical computing, and other situations.

Designing interactions and role of prototyping

You will identify and develop conceptual frameworks for an interactive media project with a strong emphasis on designing experiences, design patterns, the role of affordances and the importance of iterative prototypes. You will prototype ideas in order to incrementally refine your interaction designs before they go to the production stage. You will demonstrate maturity in ideation and

conceptual thinking and explore computation as a medium for curiosity-driven experimentation.

Developing and producing interactive projects

You will further master the producing skills acquired in InteractiveI: development of a project demo, adjustment of the project goals and outcomes, production, postproduction. Through a small number of exploratory assignments and a capstone project, you will bolster interdisciplinary problem-solving abilities

Creative coding and Class assignments

You will develop skills and understanding of integrated development environments found in a variety of popular arts-engineering toolkits. Thru rigorous programming exercises, you will develop the basic vocabulary of constructs that govern static, dynamic, and interactive form. Topics include the computational manipulation of graphics, sounds and tangible elements. The interaction mode will cover essential notions of time, change, motion, reactivity, connectivity and feedback, interactive graphics, sound, incorporation of various modes of input (sensors, cameras) and multimedia output.

Assignments and projects are developed through self-directed learning with guidance, assisted with lectures, tutorials, class exercises, and peer/instructor feedback sessions.

Assessment (includes both continuous and summative assessment)

Component	ILO Tested	Programme LO	Weighting	Team/ Individual
Continuous Assessment Ideation and concept development Exploratory Assignments	1,2,5	--	30%	Individual
Final Project: Interactive media project Ideation and concept development Prototyping Project Demo and final production	1,2,3,4	--	50%	Team or Individual
Continuous Assessment: Participation	4, 5	--	20%	Individual
Total			100%	

Reading and References

1. Grau, Oliver, ed. *MediaArtHistories*. Mit Press, 2007.
2. Paul, Christiane. *Digital art*. Vol. 224. London: Thames & Hudson, 2003.
3. Dunne, Anthony, and Fiona Raby. *Speculative Everything: Design, Fiction, and Social Dreaming*. MIT, 2014.
4. Manovich, Lev. *The language of new media*. MIT press, 2001.
5. Wilson, Stephen. *Information arts: intersections of art, science, and technology*. MIT press, 2002.
6. Klanten, Robert, Sven Ehmann, and Lukas Feireiss, eds. *A touch of code: interactive*

installations and experiences. Die Gestalten Verlag, 2011.

7. Stern, Nathaniel. *Interactive art and embodiment: The implicit body as performance*. Gylphi Limited, 2013.
8. Stocker, Gerfried, Christa Sommerer, and Laurent Mignonneau, eds. *Christa Sommerer & Laurent Mignonneau: Interactive Art Research*. Springer, 2010.
9. Sommerer, Christa, Lakhmi C. Jain, and Laurent Mignonneau. "Introduction to the Art and Science of Interaction and Interface Design." *The Art and Science of Interface and Interaction Design*. Springer, Berlin, Heidelberg, 2008. 1-14.
10. Kwastek, Katja. *Aesthetics of interaction in digital art*. Mit Press, 2013.
11. Buxton, Bill. *Sketching user experiences: getting the design right and the right design*. Morgan Kaufmann, 2010.
12. Reas, Casey, and Ben Fry. *Processing: a Programming Handbook for Visual Designers and Artists*. MIT Press, 2007.

Course Policies and Student Responsibilities

(1) General

You are expected to complete all assigned readings, activities, assignments, attend all classes punctually and complete all scheduled assignments by due dates. You are expected to take responsibility to follow up with assignments and course related announcements. You are expected to participate in all project critiques, class discussions and activities.

(2) Punctuality

You are expected to be punctual for all classes. If you are more than 30 minutes late, you will be deemed as absent and will not be able to sign on the attendance register.

(3) Absenteeism

In-class activities make up a significant portion of your course grade. Absence from class without a valid reason will affect your participation grade. Valid reasons include falling sick supported by a medical certificate and participation in NTU's approved activities supported by an excuse letter from the relevant bodies. There will be no make-up opportunities for in-class activities.

Academic Integrity

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values.

As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion and cheating. If you are uncertain of the definitions of any

of these terms, you should go to the [academic integrity website](#) for more information. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

Planned Weekly Schedule*

*Subject to adjustment by instructor according to the teaching situation, students' progress, public holidays and unforeseeable circumstances. A revised schedule will be issued to you at the start of the semester.

Week	Topic	Course LO	Readings/ Activities
1-2	<p>Modes of interaction Census and repertoire of artists, designers, works and activities around interactive art, information visualization, and computational design.</p> <p>Processing & Computation Discussions on meaning of action and participation(input) in relationship with the audio-visual system responses (output) in interactive media projects. Discussions on the role of computation in this relationship.</p> <p>Focus on how artists empowers the notions of time, change, motion, reactivity, connectivity and feedback, interactive graphics, sound, incorporation of various modes of input (sensors, cameras) and multimedia output.</p>	1,2, 3, 4, 5	<p>Lectures on:</p> <ul style="list-style-type: none"> - Introduction to the class - Art and technology projects - Experimental approach to art making - New Media Art - Technologies for sensing & effecting - Analog vs. Digital Realms <p>In-class discussion on personal favourites in interactive media while understanding their computational components,</p> <p>In-class exercises Concept and Ideation development in a team. Swap your project ideas and modifying them based on your personal interest</p>
3-4	<p>Sensing & Effecting. How to develop artworks and design towards human centric activities. Survey of media and their human perception, implications on applications and solutions</p> <p>How to understand human gestures, motions and actions as input to our systems. Addressing the major</p>	1,2, 3, 4, 5	<p>Lectures on:</p> <ul style="list-style-type: none"> - Taxonomy of sensing - Taxonomy of effecting - Human gestures, making sense of context. <p>Exploratory Projects 1.</p> <p>Utilising simple sensing and effecting</p>

	<p>challenges surrounding these issues: who, what, when, where, why? How a medium effects and affects in the human environment in perceptible and comprehensible way. How to effectively engage the user.</p>		<p>solutions, reproduce some of the key modes of interaction found in an important Interactive Artwork.</p>
5-7	<p>Creative coding Skills and understanding of integrated development environments found in a variety of popular arts-engineering toolkits.</p> <p>Developing and producing interactive projects Identifying and project development through the following stages of interactive media production.</p>	1,2, 3, 4, 5	<p>Lectures on:</p> <ul style="list-style-type: none"> - Comparative study of toolkits - Survey of key techniques and toolboxes such as Computer Vision, Sound Processing, Image Manipulations and Networking. <p>Exploratory Project 2.</p> <p>Utilising more complex sensing and effecting solutions while adding computational components, reproduce some of the more elaborate modes of interaction found in an important Interactive Artwork.</p> <p>Project consultation Final assignment Ideation, Concept development, identification of sensing and effecting requirements and toolboxes.</p>
8-10	<p>Designing interactions and role of prototyping</p> <p>Prototype ideas in order to incrementally refine your interaction designs before they go to the production stage. Apply conceptual thinking and computation as a medium for curiosity-driven experimentation.</p>	1, 2, 3, 4, 5	<p>Lectures on:</p> <ul style="list-style-type: none"> - Design Sketches - Computational Aesthetics <p>Project critique Final assignment Presentation of prototypes, class discussions on solutions. Adjustment of the project goals and outcomes Iterations and explorations of solutions and interactions.</p> <p>Project Final assignment Creative coding</p> <ul style="list-style-type: none"> - Hands-on Development - Practice-led creative coding

			<ul style="list-style-type: none"> - Self-Directed learning -
11-13	<p>Continuous review of final assignment through various stages of completion</p> <p>Throughout the last 6 weeks of the semester the final assignment will be subject to review through its various stages of completion. This will be carried out in class presentations by students and will allow for a peer-review-based examination of the works in progress. In this highly interactive process you will learn through and from the work of your peers and the advice offered by the lecturer. These reviews will take all previously learned concepts into account and test the students in terms of their understanding of applying these to practice.</p>	1,2, 3, 4, 5	<p>Project Presentation Final assignment: Complete interactive media project which demonstrates user-to-user, user - object, or object-to-object interaction. Based on original concept.</p> <p>Continuous assessment and feedback throughout production.</p> <p>Student Presentations on final assignment with critique and feedback</p>