



SDES9311 Interaction Design Foundations

Term T1, 2019

Course Information

Units of Credit: 6

Course Overview

Course Description

This course provides an introduction to the field of interaction design, and on developing technical, theoretical and creative skills in the development of interactive systems - with a focus on tangible and embodied interactions (i.e. objects and wearables). Human-centred design methods are used to research real-world problems, situations and opportunities for the implementation of innovative interactive designs.

You will develop your knowledge of the theory of electronics, circuit design, and computer programming and apply this to the design, production and evaluation of a functioning, interactive object.

Course Learning Outcomes

On completion of this course, the student should be able to:

1. Undertake research into relevant user activities, requirements and contexts, guided by human-centred design principals and methods, to the development of an interactive electronic product.
2. Apply theories of human-centred design and human-computer interaction to the analysis and evaluation of interactive systems and technologies.
3. Develop and present engaging design proposals that describe the technical, conceptual and experiential aspects of an interactive product through a combination of visual and written communication methods, including sketches, story-boards, and prototypes.
4. Apply theories of electronics, circuit design, and basic computer programming to design and produce a functioning interactive prototype using pre-existing electronic components and software development tools.

Teaching and Learning in this Course

This courses uses a variety of teaching approaches:

Blended/online

- Review - assessment tool
- Turnitin - originality checking
- Moodle - learning management system

Lectures

Lectures and workshops will introduce important ideas, approaches and techniques that you are required to understand and apply in your work for the studio. You will be assessed on ability to understand and reflect critically on these ideas and methods in each of the assessment tasks in the studio. During the lectures and workshops, we will elaborate on ideas and approaches introduced in the readings associated with each weeks topic (refer to 'Topics and Dates' section of this document). It is important that you read and make notes on these readings BEFORE each class and that you are ready to discuss and apply these

ideas and methods in the studio.

Studio

Studio work supports students to develop their skills and understanding through detailed and ongoing process of research and development, specific to each project brief. Lecturers provide students with detailed feedback on their research and concept development process from one week to the next, based on research materials, sketches, and prototypes that students present for discussion.

Assessment

	TITLE	WEIGHTING	ASSESSMENT TYPE
Assessment Task 1	Analysis of interactive product or system use	30%	Written Report
Assessment Task 2	Interactive media player prototype	30%	Project
Assessment Task 3	Interactive design evaluation and development	40%	Formal Presentation and Paper

References for this Course

RECOMMENDED FURTHER READING

ACM Interactions (Magazine)

Published bi-monthly by the Association for Computing Machinery (ACM), the largest educational and scientific computing society in the world. *Interactions* is the flagship magazine for the ACM's Special Interest Group on Computer-Human Interaction (SIGCHI), with a global circulation that includes all SIGCHI members. Each edition features case studies, essays, and showcases of new work in the field, from real-world applications, to experimental works by leading designers and design students from around the world. This is a great place to look for examples of how to write about interaction design research and practice.

Interaction design in context – what is interaction design?

Verplank, B., 2009, "[Interaction Design Sketchbook](http://www.billverplank.com/IxDsketchBook.pdf)", Accessed December 1st, 2014, URL: <http://www.billverplank.com/IxDsketchBook.pdf>

Bongers, Bert, 2006, "Interactivation: Towards an E-cology of People, Our Technological Environment, and the Arts", PhD Thesis, self published, pp101-113. Accessed December 1st, 2014. URL: <http://bertbon.home.xs4all.nl/downloads/PhDThesisBertXS.pdf>

Design paradigms, mental models and 'conceptual' design

Rogers, Y, Sharp, H., Preece, J., 2011, Chapter 2, Understanding and Conceptualising Interaction, in "Interaction Design:

Beyond Human - Computer Interaction", 3rd Edition, Wiley, Chichester, pp. 35-64

Examining affordances in interactive products and systems

Gaver, W., 1991, Technology Affordances, in Proceedings of CHI'91, (New Orleans, Louisiana, April 28 - May 2, 1991), ACM, New York, pp. 79-84

The Internet of Things, designing connected products

Rowland, C. et al., 2014, "Designing Connected Products: UX for the Consumer Internet of Things", O'Reilly, Sebastopol

Designing for health and behaviour change

Wendel, Stephen, 2014, "Designing for Behavior Change", O'Reilly Media, Sebastopol

Electronics and microprocessors (e.g. Arduino)

Platt, Charles, 2009, "Make: Electronics: Learning Through Discovery", Maker Media, Inc., Sebastopol

Platt, Charles, 2012, "Encyclopedia of Electronic Components Volume 1: Resistors, Capacitors, Inductors, Switches, Encoders, Relays, Transistors", Maker Media, Inc., Sebastopol

Platt, Charles, 2014, "Encyclopedia of Electronic Components Volume 2: LEDs, LCDs, Audio, Thyristors, Digital Logic, and Amplification", Maker Media, Inc., Sebastopol

Visual programming for interactive media (e.g. Max)

Chung, Bryan. W.C., 2013, "Multimedia Programming with Pure Data", Packt Publishing, Birmingham

Cycling74, 2014, Max 6 (also Max 7), refer to extensive in-application documentation for tutorials on how to work with Max software. Accessed Dec 3rd, 2014. URL: <https://cycling74.com/>

Manzo, V.J., 2011, Max/MSP/Jitter for Music, Oxford University Press, Oxford

Lechner, Patrik, 2014, "Multimedia Programming using Max/MSP and TouchDesigner", Packt Publishing, Birmingham