PROGRAMMING FOR DESIGNERS

IE University
Professor: **RUXANDRA IANCU**
E-mail: riancubratosin@faculty.ie.edu

Academic year: 22-23
Degree course: FOURTH
Semester: 1º
Category: COMPULSORY
Number of credits: 6.0
Language: English

PREREQUISITES

Students are requiered to have:

- their own personal laptop (less than 4y old) with a classical 3 button mouse
- a thourough understanding of their own operating system
- medium knowledge of Adobe editing pack (Indesign, Ilustrator, Photoshop)

SUBJECT DESCRIPTION

In order to offer ground-breaking, innovative design solutions, the designer needs to understand the potential of contemporary technology and be able to decode it. This course aims to familiarise students with the **world of programming and its influence on design**, the history of programming and applications.

Programming for designers objective is to be able to provide the students with a capacity to **decipher logical systems, deconstruct them and use them** to their advantage in order to create **relevant, impactful, inclusive and innovative approaches to design**. It takes the students trough theoretical and practical knowledge that will allow them a broad insight and understanding of the **relationship between code and design**.

The course is structured in 4 Briefs, one dedicated to analogue algorithms, one dedicated to 2d generation, the second dedicated to interaction and the third dedicated to systems of logics.

Each brief comes with its assignments (detailed in Additional documents and presented in class) meant to allow the student to experiment with programming in its various forms (textual, embedded and analogue).

OBJECTIVES AND SKILLS

Course objectives and skills gained at the end of the course:

- familiarise the students with different programming languages and their application.
- learn how to create and apply personal structured systems in the process of design thinking.understand the connection between programming and design, the influence and the collaborative relationship between these two disciplines and their linked future.
- develop projects with programming based logics and programming abilities.

- understand and employ the use of existing resources available to them in order to improve their designs.
- practice and familiarize with analog, textual and visual coding

This course is in coherence with the CB2, CB5, CG1, CG5, CG6. CE7, CE15, CE21, CE22, CE26, CT2, CT5, CT6 objectives.

METHODOLOGY

The course develops around 4 Design Assignments, 2 individual and 2 group work. The detailed design Briefs with requirements, deadlines and evaluation methods are presented to the class in the introductory sessions and posted on the online campus. The assignments are meant to introduce the student to different aspects of programming in the design environment and invite them to practice and create with the respective logics.

Tutorial and introductory sessions are dedicated to lectures that build the foundations of knowledge about programming and logic processes . These sessions provide the students with a general understanding of various programming languages, its applications, field branches and emergent futures. They set the base for the development of their projects.

Project development sessions are dedicated to developing the students individual and group projects. The results of these sessions will be presented in the final presentation. During these clases each student will be guided towards adding depth to their project. Students will be presented with references as a source of inspiration and techniques of representation.

Presentation sessions are dedicated to showcasing the final results of the students work in front of a jury that contributes to the evaluation.

Teaching methodology	Weighting	Estimated time a student should dedicate to prepare for and participate in
Lectures	13.33 %	20 hours
Discussions	13.33 %	20 hours
Exercises	33.33 %	50 hours
Group work	20.0 %	30 hours
Other individual studying	20.0 %	30 hours
TOTAL	100.0 %	150 hours

PROGRAM

SESSION 1 (LIVE IN-PERSON)

Introduction

This first session is dedicated to an introduction to the course, a thorough explanation of the future assignments and visiting student work from previous editions of the course as well as visual ques to artists and designers that create using programming logics.

SESSIONS 2 - 3 (LIVE IN-PERSON)

Introductory Lecture

This double session is dedicated to going through the basics of logic, history of programming, thought systems that are in the base of programming, as well as deepening the understanding of where and how programming extended. We will discuss the differences, similarities and advantages brought to design by parametric, algorithmic and generative process as well as understanding the application of conditional constructs to design.

SESSION 4 (LIVE IN-PERSON)

Introduction to Assignment 1

This introductory session is dedicated to the presentation of the brief (assignment), examples and applications, as well as clarifications about resources, requierments and evaluation criteria.

SESSIONS 5 - 6 (LIVE IN-PERSON)

Assignment 1 Tutorial lecture

Tutorial lectures focus on in class explanations and excercises focused on giving the students the technical and theoretical abilities to approach the brief.

These are fast paced lectures and students are responsible to follow the tutorials on their own devices, take notes and ask for clarifications in class.

SESSIONS 7 - 8 (LIVE IN-PERSON)

Assignment 1 Project development

Project development sessions are dedicated to in-class work on the development of the assignment, taking advantage of agile feedback and taking opportunity to address any issues/questions. Students are expected to advance their work in their own time outside the class and constantly bring updated and improved versions in class.

Feedback is also provided to students in between sessions, via the online campus message board or email and students are encouraged to seek out comments in order to improve their work.

SESSION 9 (LIVE IN-PERSON)

Introduction to Assignment 2

This introductory session is dedicated to the presentation of the brief (assignment), examples and applications, as well as clarifications about resources, requierments and evaluation criteria.

SESSIONS 10 - 11 (LIVE IN-PERSON)

Assignment 2 Tutorial lecture

Tutorial lectures focus on in class explanations and excercises focused on giving the students the technical and theoretical abilities to approach the brief.

These are fast paced lectures and students are responsible to follow the tutorials on their own devices, take notes and ask for clarifications in class.

SESSIONS 12 - 13 (LIVE IN-PERSON)

Assignment 2 Project development

Project development sessions are dedicated to in-class work on the development of the assignment, taking advantage of agile feedback and taking opportunity to address any issues/questions. Students are expected to advance their work in their own time outside the class and constantly bring updated and improved versions in class.

Feedback is also provided to students in between sessions, via the online campus message board or email and students are encouraged to seek out comments in order to improve their work.

SESSIONS 14 - 15 (LIVE IN-PERSON)

Assignment 2 Project development

Project development sessions are dedicated to in-class work on the development of the assignment, taking advantage of agile feedback and taking opportunity to address any issues/questions. Students are expected to advance their work in their own time outside the class and constantly bring updated and improved versions in class.

Feedback is also provided to students in between sessions, via the online campus message board or email and students are encouraged to seek out comments in order to improve their work.

SESSION 16 (LIVE IN-PERSON)

Introduction to Assignment 3

This introductory session is dedicated to the presentation of the brief (assignment), examples and applications, as well as clarifications about resources, requierments and evaluation criteria.

SESSIONS 17 - 18 (LIVE IN-PERSON)

Assignment 3 Tutorial lecture

Tutorial lectures focus on in class explanations and excercises focused on giving the students the technical and theoretical abilities to approach the brief.

These are fast paced lectures and students are responsible to follow the tutorials on their own devices, take notes and ask for clarifications in class.

SESSIONS 19 - 20 (LIVE IN-PERSON)

Assignment 3 Project Development

Project development sessions are dedicated to in-class work on the development of the assignment, taking advantage of agile feedback and taking opportunity to address any issues/questions. Students are expected to advance their work in their own time outside the class and constantly bring updated and improved versions in class.

Feedback is also provided to students in between sessions, via the online campus message board or email and students are encouraged to seek out comments in order to improve their work.

SESSIONS 21 - 22 (LIVE IN-PERSON)

Assignment 3 Project Development

Project development sessions are dedicated to in-class work on the development of the assignment, taking advantage of agile feedback and taking opportunity to address any issues/questions. Students are expected to advance their work in their own time outside the class and constantly bring updated and improved versions in class.

Feedback is also provided to students in between sessions, via the online campus message board or email and students are encouraged to seek out comments in order to improve their work.

SESSION 23 (LIVE IN-PERSON)

Introduction to Assignment 4

This introductory session is dedicated to the presentation of the brief (assignment), examples and applications, as well as clarifications about resources, requierments and evaluation criteria.

SESSION 24 (LIVE IN-PERSON)

Assignment 4 Project Development

Project development sessions are dedicated to in-class work on the development of the assignment, taking advantage of agile feedback and taking opportunity to address any issues/questions. Students are expected to advance their work in their own time outside the class and constantly bring updated and improved versions in class.

Feedback is also provided to students in between sessions, via the online campus message board or email and students are encouraged to seek out comments in order to improve their work.

SESSIONS 25 - 26 (LIVE IN-PERSON)

Assignment 4 Project Development

Project development sessions are dedicated to in-class work on the development of the assignment, taking advantage of agile feedback and taking opportunity to address any issues/questions. Students are expected to advance their work in their own time outside the class and constantly bring updated and improved versions in class.

Feedback is also provided to students in between sessions, via the online campus message board or email and students are encouraged to seek out comments in order to improve their work.

SESSION 27 (LIVE IN-PERSON)

Final review of all assignments and preparations for the final presentation.

SESSIONS 28 - 30 (LIVE IN-PERSON)

Final presentation

These sessions are dedicated to the final presentation in front of a jury, aimed to showcase the students projects done so far in this course.

The format and number of the deliverables, as well as the platform for the presentation, will be discussed with each student individually in class, based on their work.

All documents and presentations for the final presentation must also be submitted via email to the professor (students will not be able to receive a final grade without having sent their work throughout the course).

BIBLIOGRAPHY

Compulsory

- John Maeda. *The laws of simplicity.* Cambridge, Mass. : MIT Press, ©2006. ISBN 9780262278874 (Digital)

- John Maeda. *Design by numbers.* Cambridge, Mass. : MIT Press, 2001. ISBN 0585354219 (Digital)

- John Maeda. *Creative code.* New York, N.Y. : Thames & Hudson, 2004.. ISBN 1301972792 (Digital)

- Thames and Hudson. *Digital Art: World of Art Series.* Thames and Hudson Ltd; N.º 3 edición (1 junio 201. ISBN 9780500204238 (Digital)

- Ben Vickers, Kenric McDowell. *The Atlas of Anomalous AI.* Ignota Books (26 noviembre 2020). ISBN 1999675959 (Digital)

EVALUATION CRITERIA

The evaluation for this course is a mixture betwee : individual assignments , group assignments, final presentation and individual class participation.

The assignments and final presentation grade breakdown will be discussed in class.

Important: At the end of the course each student can annonimously evaluate the collaboration skills of the team members that have been assigned to them through the evaluation sheet they will be provided. The results of these evaluation can affect how the final grade is calculated for some individuals.

Important: In class attendance is mandatory and students who have a bellow 70% attendance record will automatically fail the course. Attendance is considered binary present/absent. If students are late for more than 5 minutes in the classroom, they will be considered absent.

Criteria	Percentage	Comments
Assignment 1	15 %	individual eval.
Assignment 2	15 %	group eval.
Assignment 3	15 %	group eval.
Assignment 4	15 %	individual eval.
Class Participation	15 %	individual eval.
Final Presentation	25 %	jury grading

PROFESSOR BIO

Professor: **RUXANDRA IANCU**

E-mail: riancubratosin@faculty.ie.edu

Ruxandra Iancu Bratosin is a spatial designer and computational researcher, as well as a professor in the Bachelor in Design at IE University. She is a co-founder of 50(Super(Real)), a studio focused on multi-scalar spatial strategies, driven by the harmonious marriage of human values with technological innovation. At the core, her work explores ecology, social impact and the process of design and it has been exhibited at the Venice Architecture Biennale of 2016, Rotterdam Design Biennale of 2017, London Design Biennale of 2021 and published in several books with a digital ecology focus.

Her tangent focus explores the aesthetics of computation, algorithmic driven design, and the quest of expanding the notion of collaborating with technology in the process of design in order to address contemporary social or sustainability issues.

ACADEMIC EXPERIENCE

• Institute of Advanced Architecture of Catalonia in Barcelona (“Self Sufficient Buildings Studio” assistant – ecological design, “Individual master thesis” junior professor – end of master thesis projects mentoring, “Slow Crisis” junior professor – city scale ecological response seminar, “Self Sufficient Neighbourhood” junior professor – studio for the “Master in City and Technology” program), 2014 – 2017

• Elisava in Barcelona (“Design, make, share” professor – computational design seminar), 2016

• ETSAM in Madrid (“Uncanny Dynamics” professor – computational explorations of the self seminar, “Individual master thesis” professor – end of master thesis projects mentoring), 2018

• University of Pisa, Italy (“Computational Design Summer School” professor), 2018

• University of Pisa, Italy (“Computational Design and Fabrication Summer School” professor), 2019

• Associate Professor in the Bachelor in Design at IE School of Architecture de Design (“Design Skills” professor, “Programming for designers” professor), 2019 – Present

ACADEMIC BACKGROUND

•M. A. in Architecture. "Spiru Haret University" Bucharest, Romania, 2013

• “Thesis of Excellence” Award, Master in Advanced Architecture. Institute of Advanced Architecture of Catalonia, IAAC, 2015

CORPORATE EXPERIENCE

• Founder. 50 (Super(Real)). Focus on digital tools and fabrication, sustainable, social and environmental practices, 2016

• Coordinator for the Project for the Self Sufficient City Department within the Institute of Advanced Architecture of Catalonia in Barcelona, 2015 – 2016

• Partner Architect at Margen-Lab Barcelona. Multi-scale projects in Spain and abroad. Topics related with environmental analysis and adaptation, sustainability and self-sufficiency, 2014 – 2016

• Founder. Advocacy Planning. Initiative dedicated to aiding disenfranchised communities, as a continuation of her projects in Guinea-Bissau.

www.50superreal.com

www.computationalaesthetics.com

OTHER INFORMATION

Office Hours:Students Should contact the professor to make an appointment.
Contact: riancubratosin@faculty.ie.edu