İZMİR UNIVERSITY
OF ECONOMICS

VCD 436 - Introduction to Programming for Designers

Wednesdays 13:05 - 16:35
@D207 (MacLab)

INSTRUCTOR Ceren Kayalar - cerenk@gmail.com
Please don't hesitate to send me an email, if you have coding questions. I'm also checking OASIS messages regularly and it will serve as my instant messaging tool to send you group messages. You are obliged to check your university emails and Blackboard page regularly (ideally daily) throughout the semester.

COURSE DESCRIPTION

This course provides an introduction to programming (coding) for design students using Processing language, with a focus on interactivity. No prior programming experience is necessary. The course will follow two learning tracks:

1. "The *how*" Principles of writing code: syntax and semantics. How to divide a problem into subproblems and tell the computer to solve them? Principles of working with interactive media and fundamentals of computer graphics.
2. "The *what* to make and *why*" Using programming concepts as a tool, the students will compose interactive scenes, create animations and make media respond interactively to user input.

COURSE OBJECTIVES

The aim of this course is to improve students' computational literacy skills and teach them computer programming by introducing the art of creating responsive and engaging visual representations. Students will learn fundamental interactive design principles, and gain practical experience by creating interactive sketches with Processing, a programming language developed specifically for artists and designers. This course also covers a brief introduction to the web domain using p5js and physical interaction using Arduino.

EVALUATION

Participation	20%
Homework(s)	60%
Project	20%

Participation is graded in class according to your participation in coding exercises. If you miss the class, you won't be receiving any points from that lab. Each lab is graded as 2pts.

Homeworks will be announced on Blackboard with detailed briefs and you have to upload your work as a zip file before the deadline (1-2 weeks).

Homework #1, Homework #5	8 pts
Homework #2, Homework #3	10 pts
Homework #4, Homework #6	12 pts

Project will be proposed by you individually and built upon your unique skills acquired during the semester. Your project grade will consist of the grade of your project proposal, project progress 1 and 2, and project submission/presentation. Your work will be evaluated on (I) the idea and execution, (II) coding abilities presented and (III) 'look and feel' of the experience.

COURSE POLICIES

Late submission If you miss the deadline for homeworks, 10% will be deducted from your grade for the first day late, and an additional 5% will be deducted on each subsequent day. Latest submission deadline will be the following Friday evening of the homework due date to avoid overlaps (thus, unnecessary panic) in successive submissions. Learning programming is similar to learning a new language: you need to practice regularly. Homeworks and labs are the backbones of this practice. Please submit attempts even if you were unable to complete the task and submit on time. Remember: finished is better than perfect. If you encounter any emergencies, contact me as soon as possible. If you won't be able to attend final project presentations, contact me in advance.

Attendance The university's attendance policy will be followed.

Academic Integrity You are expected to practice the highest possible standards of academic integrity. Any deviation from this expectation will result in a minimum academic penalty of your failing the assignment, and will result in additional disciplinary measures. This includes improper citation of sources, using another student's work, and any other form of academic misrepresentation.

Plagiarism Using the words or ideas of another as if they were one's own is a serious form of academic dishonesty. If another person's (including sources from internet) complete sentence, syntax, key words, code, media (photographs, sounds, images, etc.), or the specific or unique ideas and information are used, one must give that person credit through proper citation. Although the Processing community is generously sharing code snippets online, you can only use someone else's work for inspiration. Cheating will immediately earn you a failing grade for the entire course.

TIPS (by C. Reas)

- Take your time and be careful
- Take a break if coding gets frustrating
- Work in a study group and help each other
- Start working early, well before the deadline
- Ask questions!
+ Bring a sketchbook to class

TEXTBOOK

Reas, C. and Fry, B. (2015). Getting Started with Processing, 2nd Edition. Maker Media.

WEB MATERIALS

Processing - https://processing.org
Shiffman's Coding Train - https://thecodingtrain.com, https://www.youtube.com/@TheCodingTrain

SUGGESTED READING MATERIAL

Bohnacker, H., Gross, B., Laub, J. and Lazzeroni, C. (2012). Generative Design: Visualize, Program, and Create with Processing. Princeton Architectural Press.
Shiffman, D. (2015). Learning Processing, 2nd Edition: A Beginner's Guide to Programming Images, Animation, and Interaction. Morgan Kaufmann.
Greenberg, I., Xu, D. and Kumar, D. (2013). Processing: Creative coding and Generative art in Processing 2. Apress.
Maeda, J. (2004). Creative Code: Aesthetics + Computation. Thames&Hudson.
McCarthy, L., Reas, C. and Fry, B. (2016). Getting Started with p5.js. Maker Media.
Pearson, M. (2011). Generative Art: A Practical Guide Using Processing. Manning Publications Co.
Reas, C. and Fry, B. (2015). Processing: A Programming Handbook for Visual Designers and Artists, 2nd Edition. The MIT Press.
Reas, C. and McWilliams, C. (2010). Form+Code in Design, Art and Architecture. Princeton Architectural Press.
Richardson, A. (2016). Data-driven Graphic Design: Creative Coding for Visual Communication. Bloomsbury.

COURSE SCHEDULE ***tentative**

Week	Topic	Assignment	Due Date
Week #1 Feb 21, Wed	Introduction, Objectives and Expectations Computing without a Computer Hello Processing: Instructions and Statements	Experiments with https://hello.processing.org (ungraded)	next class
Week #2 Feb 28, Wed	Variables and Response Graphic Elements: 2D Primitives, Color *Coding exercise(s) #1*	Homework #1 (short)	Mar 05, Tue 22:00
Week #3 Mar 06, Wed	Conditionals - I Graphic Elements: Custom Shapes, Curves *Coding exercise(s) #2*	Homework #2 (long)	Mar 19, Tue 22:00
Week #4 Mar 13, Wed	Conditionals - II Media: Images and Text *Coding exercise(s) #3*	-	-
Week #5 Mar 20, Wed	Repetition and Patterns Media: Sound *Coding exercise(s) #4*	Homework #3 (long)	Apr 02, Tue 22:00
Week #6 Mar 27, Wed	Modularity: Functions - I Scene Management *Coding exercise(s) #5*	-	-
Week #7 Apr 03, Wed	Modularity: Functions - II Media: Review *Coding exercise(s) #6*	Homework #4 (long)	Apr 16, Tue 22:00

** No class on **Apr 10, Wed -** Bayram holiday			
Week	**Topic**	**Assignment**	**Due Date**
Week #8 Apr 17, Wed	Arrays, Modularity: Review Animations *Coding exercise(s) #7*	Homework #5 (short)	Apr 23, Tue 22:00
Week #9 Apr 24, Wed	Modularity: Object Oriented Programming - I Working with multiple instances of interactive elements *Coding exercise(s) #8*	-	-
Week #10 Apr 27, Sat (online)	Modularity: Object Oriented Programming - II Introducing basic game components: timer, points, levels	Homework #6 (long)	May 07, Tue 22:00
** No class on **May 1, Wed -** Labor day			
Week #11 May 08, Wed	Introduction to hardware: Arduino *Coding exercise(s) #9*	**Project Proposal**	May 14, Tue 22:00
Week #12 May 11, Sat (online)	Introduction to web: p5js *Coding exercise(s) #10*	-	-
Week #13 May 15, Wed	Advanced Topics #1 Project Work Session	**Project Progress - I**	May 21, Tue 22:00
Week #14 May 22, Wed	Advanced Topics #2 Project Work Session	**Project Progress - II**	May 28, Tue 22:00
Week #15 May 29, Wed	Project Work Session	**Project Submission**	(TBA)
Week #16 (TBA)	**Project Submission & Presentations**		