

Introduction to Digital Systems, ELab3: Project CLOCK

All the files should be sent separately (not zipped) via Teams Assignments

Please notice the names of Teams Assignments below

Do not forget to click button "Turn in" to send files

Start: 26.03.2021

Deadline: 16.04.2021, 23:59

Attachments that do not meet the requirements will not be accepted

We hope this information are consistent with those in movies, however, if any differences, this sheet is more valid

Project: CLOCK https://www.youtube.com/playlist?list=PL_WyEcCQBujS_iv9kCu2gzd80LdgUMnJg

Write your questions concerning the topic of the Project: CLOCK on YouTube as a comment. Add time stamp (e.g. 12:04 blah blah?)

Q&A

9.04.2021, 16:15

on Teams

In this homework you should prepare a **project of clock in Falstad Simulator**, as presented in the movie. You should prepare that in one single circuit (however, if, from some reason, you need subcircuits - you can use them). You should also prepare a short **documentation** with explanation how you've got the result (including truth tables, boolean minimization, Karnaugh maps, etc. - what you need to proof your solution).

	total points: 8	
	documentation	implementation
full, working circuit	-	0.5
full documentation (quality, etc.)	0.5 (name, topic, short description of the project)	-
detect "10"	1 (truth table, function and explanation {e.g. with Karnaugh map})	1
detect "6"	1 (as above, can be without Karnaugh but <i>some</i> explanation should be done)	1
detect "24"	1 (explanation why so)	1
set hour, min (using "Push Switch")	0.5 (how did you do that? why do that work?)	0.5
file name:	[lastname]_[index]_documentation	[lastname]_[index]_clock.circuitjs.txt
Teams Assignment name:	ELAB3: Project CLOCK - documentation	ELAB3: Project CLOCK - implementation

EXTRA task (not obligatory)		
Clocks/watches use quartz resonators with resonant frequency of 32 768 Hz. Design a circuit that will give you a 1 Hz signal that can be used to count seconds. Please include the description in the same documentation. Save the simulation as a separate Falstad circuit. Input: CLK 32768 Hz (square wave). Output: 1 Hz (square wave)		
	total extra points:	2
	documentation	implementation
extra points:	1	1
file name:	the same documentation	[lastname]_[index]_quartz.circuitjs.txt
Teams Assignment name:	ELAB3: Project CLOCK - documentation	ELAB3: Project CLOCK (Extra Task)

FAQ

Q: How many files should I send?

A: Generally you should send: one Falstad .txt file with project of clock and one file with documentation.

If you need subcircuits - add additional Falstad .txt file.

If you are doing Extra Task - add additional Falstad .txt file.

Q: Should I make **another documentation for** Extra Task?

A: No, merge it with the first **documentation**.

Q: Should I assemble seconds?

A: No, like in the movie, only minutes and hours. Seconds have the same implementation as minutes