EE-172/CS-130/CE-222 DIGITAL LOGIC AND DESIGN

FALL-2022

CHECK LIST FOR DESIGN CHALLENGE

Project Milestones	Week	Expected Prototype Deliverables	Lab Grade	Expected Report Deliverables	Theory Grade
Milestone 0: Project Kick-off: Team Formation	9*	Team registration and approval from concerned Instructor/RA.(05% Lab grade)	L = 1%		
Milestone 1: Project Proposal Submission	10*	Team submits proposal document which proposes atleast one feasible project idea which meets project requirements Project Description, Block Diagram, Prototypes, Team Work Distribution	L = 4%	Divide the project into three Blocks: 1) Input Processing Block: Converts data from input peripheral and prepares it for control block in binaries 2) Control Block: Takes all binary inputs and produces sequence of outputs as per functionality 3) Output Processing Block: Takes output sequences and display the necessary graphics Provide input, output details of each block (consider number, type, size etc.)	**2%**
Milestone 2: Early Prototype and Progress Report	9	Familiarizing with Basys 3 board, Watching video tutorial 01-03 and implementing test digital logic circuits in labs		Add user flow diagram depicting user experience from the perspective of the user. Then, think about dividing tasks among input block, control block, and output block.	2%
	10	Writing Verilog HDL modules for all input peripheral interfaces that are being used in your project. Note: Don't forget about control inputs, such as reset for your game.	7%	Description of the input block, which includes all relevant details such as pin configurations and IO details of selected peripherals on BASYS3, circuit diagrams of any interfacing circuits (if used), and listing of code for input block. **Resources and Tools:** https://creately.com/blog/diagrams/user-flow-diagram/ https://www.lucidchart.com/blog/how-to-make-a-user-flow-diagram https://creately.com/diagram/example/hrc3fogl1/pong%20game	2%
	11	Working on display of any one frame of project (i.e. background image and user controllable objects eg. paddle in ping pong game placed at particular coordinates). It is a good idea to write your code such that it accepts coordinates of movable objects in the frame as arguments, so that it easily connects to rest of the code later. Displaying stationary letters, scores etc.	8%	Description of output block (refer to lab 11 manual) and add more details to describe the functionality of your own output block. What goes into pixel generator block etc.	2%
	12	Selection of FSM to be used (either Mealy or Moore) for the main game logic, Implementation of the same FSM (Moveable objects)		Description of the control block, which includes: Defining states and name them according to your problem, Drawing all necessary State transition diagrams, FSM Factoring	2%
	Nov-27	Milestone 2: Early Prototype	Total Lab Grade = 20%	Milestone 2: Progress Report	Total Theory Grade = 10 %
Milestone 3: Final Prototype, Demo and Final Report	14	Troubleshooting, Refining			
		Moveable objects, Collision Detection, Implementation of all modules as per flow diagram and state transition diagram	5%	Provide FSM design procedure involving state assignment, state reduction (if necessary) and circuit diagrams Design of atleast one FSM should be implemented on gate level. Show complete FSM design procedure	5%
		05 minute video recording for DPEC: Demonstrating project working followed by brief overview of design	5%	Project Poster Submission	2%
				Integration of all written work sections and references	3%
	Dec-15	Milestone 3: Final Prototype Demo	Total Lab Grade = 10%	Milestone 3: Final Report	Total Theory Grade = 10 %
(DPEC)	TBA	**DLD Project Exhibition and Competition**			
	*	Deadlines and graded activities			