ECEn 320. Digital System Design

Catalog Description:	**ECEn 320. Digital System Design**. (3:3:3) F, W Advanced digital design, including hardware description languages, electrical properties of digital circuits, synchronous and asynchronous circuits, computer arithmetic, and interfacing to external circuitry.	
Course Type:	Engineering Topics	
Prerequisites:	EC En 212, ECEn–CS 224	
Textbooks and/or other required materials	RTL Hardware Design using VHDL, Pong P. Chu, Wiley-Interscience, 2006.	
Topics Covered:	VHDL syntax and semantics, VHDL synthesis, Combinational and sequential design using VHDL, timing analysis, clock skew, SDRAM interfacing, metastability, and clock domain crossing.	
Course Competencies:	Ability to describe a digital system in VHDL.	Outcome 11
	Ability to simulate and debug a digital system described in VHDL.	Outcome 3
	Ability to read and interpret a data sheet.	Outcome 1
	Ability to implement logic using an FPGA.	Outcome 1
	Ability to synchronize asynchronous inputs into a synchronous system and analyze the MTBF.	Outcome 1
	Ability to write assembly code for a hardware-software co-designed system.	Outcome 11
Schedule:	Lectures: One hour MWF Laboratory: 1 weekly laboratory lecture TA Recitations: None	
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