

Course Syllabus: Physics 476 Section 2, Spring Semester 2021

Instructor: Dr. Gary Varner

Lecture Hours: T Th 10:30- 11:30am, Lab Th 13:00 - 15:00 Online & WAT 214

week	date	Lecture topics	Laboratory topics
1	12-Jan	Introduction to Digital Design	
	14-Jan	Project Selection	initial design specification
2	19-Jan	Xcelium for simulation	
	21-Jan	Xcelium debug	Ex.1: Xcelium
3	26-Jan	Genus for synthesis	
	28-Jan	Genus debug	Ex. 2: Genus
4	2-Feb	Conformal for verification	
	4-Feb	Conformal debug	Ex. 3: Conformal
5	9-Feb	Innovus for Place & Route	
	11-Feb	Innovus debug	Ex. 4: Innovus
6	16-Feb	Virtuoso for integration	
	18-Feb	Virtuoso debug	Ex. 5: Virtuoso
7	23-Feb	Pass2: Xcelium	
	25-Feb	System Verilog	production design specification
8	2-Mar	Pass2: synthesis and verify	
	4-Mar	verification coverage	Ex. 6: Project overview
9	9-Mar	Pass2: design integration	
	11-Mar	Joule Introduction	Ex. 7: Integration preparation
10	16-Mar	SPRING	SPRING
	18-Mar	BREAK	BREAK
11	23-Mar	Tempus overview	
	25-Mar	Joule & Tempus debug	Ex. 8: Integrated benchmarking
12	30-Mar	Conceptual Design Preparation	
	1-Apr	Analog VLSI design	Analog versus Digital on top
13	6-Apr	Bipolar vs. CMOS	
	8-Apr	Technical Design Preparation	Conceptual Design Review
14	13-Apr	Large system design	
	15-Apr	MOSIS and Fab. Processes	Technical Design Review
15	20-Apr	Project Theory (I)	
	22-Apr	Critical Design Preparation	Project work
16	27-Apr	Project Theory (II)	
	29-Apr	Deadline Management	Project work
17	4-May	Final Design Review Prep.	
	6-May	Practice	Project documentation
18	TBD	Tentative: Final Presentations -- 9:45 - 11:45 am	

Prerequisite: Physics 475, equivalent or premission from instructor

Texts: Horowitz & Hill: *The Art of Electronics*

Johnson & Graham: High-Speed Digital Design: *A Handbook of Black Magic*

Office hours: WAT214 by appointment

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Exercises: **Mandatory** -- must be completed prior to next lab session

Grading: 20% Exercises

40% Final project

20% Final presentation

20% Final report