

**Electrical Engineering Department
Graduate Curriculum
February 2009**

updated 11/03/09

ELEN	CIRCUITS AND SYSTEMS Course Title	Units	2009/2010				2010/2011				2011/2012				2012/2013				Notes
			F09	W10	S10	SS10	F10	W11	S11	SS11	F11	W12	S12	SS12	F12	W13	W13	SS13	
200	EE Graduate Seminars	1 or 2		X				X			X				X				not for grad. credit
210	Signals, Circuits, and Systems	2	X				X			X				X					
211	Mod. Netw. Analy. I	2	X	X	X		X	X	X		X	X	X		X	X	X		
216	Mod. Netw. Syn. & Des.	4		X							X								alternate years
217	Chaos and Religion	2					X							X					alternate years
219	Fund.Comp.Aid Ckt. Sim.	4						X								X			alternate years
223	Digi Sig. Proc. Sys. Dev.	4		X				X				X				X			
226	DSP Design in FPGA	2	X				X				X				X				
230	Intro to Control Systems	2																	offered as needed
230E	Control Systems	4	X				X				X				X				
232	Intro to Nonlinear Systems	2			X								X						alternate years
233E	Digital Signal Proc. I, II	4		X				X				X				X			
233	Digital Signal Proc. I	2		X				X				X				X			
234	Digital Signal Proc. II	2			X				X				X				X		
235	Estimation Theory	4		X								X							alternate years
236	Linear Control Systems	2	X	X	X		X	X	X		X	X	X		X	X	X		
237	Optimal Control	2			X				X				X				X		
280	Energy Alternatives	2	X				X				X				X				
281	Electric Power systems I	2	X				X				X				X				
329	Intro to Intelligent Control	2																	offered as needed
330	Advanced Control System	4																	offered as needed
333	Digital Control	2			X								X						alternate years
334	Intro to Stat Sig Proc	2			X				X				X					X	
337	Robotics I	2					X								X				alternate years
338	Robotics II	2						X								X			alternate years
339	Robotics III	2							X								X		alternate years
359	Advanced Topics in Circuit Design	2																	offered as needed
421	Speech Coding I	2							X									X	alternate years
422	Speech Coding II	2		X				X				X				X			
423	Intro to Voice-over-IP	2			X				X				X					X	
431	Adaptive Sig Proc. I	2	X				X				X				X				
432	Adaptive Sig Proc. II	2	X				X				X				X				
433	Array Signal Processing	2																	offered as needed
460	Mechatronics I	3	X								X								alternate years
461	Mechatronics II	3		X								X							alternate years
462	Mechatronics III	2			X								X						alternate years
640	Digital Image Processing I	2	X				X				X				X				
639	Mutimedia Data Compression I	2		X				X				X				X			

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641	Image and Video Compression	2			X								X						alternate years
642	Medical Imaging	2																	offered as needed
643	Digital Image Processing II	2			X								X						alternate years
644	Computer Vision I	2																	offered as needed
645	Computer Vision II	2																	offered as needed

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ELEN	Course Title	Units	F09	W10	S10	SS10	F10	W11	S11	SS11	F11	W12	S12	SS12	F12	W13	W13	SS13	
127C	Logic Design	2	X				X				X				X				not for grad. credit
200	EE Graduate Seminars	1 or 2		X				X				X				X			
250	Electronic Circuits	2				X			X				X					X	not for grad. credit
251	Transis. Models for IC Des.	2			X			X					X					X	
252	Analog IC I	2		X				X				X				X			
253	Analog IC II	2			X			X					X					X	
254	Adv. Analog IC Design	4	X				X				X				X				
261	Fund. of Semicond. Physics	2	X	X		X	X	X	X	X	X	X		X	X	X		X	
264	Semicond. Device Theory I	2	X				X				X				X				
265	Semicond. Device Theory II	2		X				X				X				X			
266	Semicond. Device Theory (combination)	4			X			X					X					X	
271	Microsensors: Components and Sys	2			X			X					X					X	
274	IC Fab Processes I	2	X				X				X				X				
275	IC Fab Processes II	2	X				X				X				X				
277	IC Assembly and Packaging Tech	2		X				X				X				X			
278	Electrical Modeling and Design of High	2			X			X					X					X	
280	Alternative Energy	2	X				X				X				X				
282	Photovoltaic Systems	2		X				X				X				X			
283	Characterization of Photovoltaic Device	2			X			X					X					X	New Course
351	RF Integrated Circuit Design	2		X				X				X				X			
352	Mix Sig IC Des. Data Comm.	2					X								X				alternate years
353	Power Electronics	2						X										X	alternate years
354	Advanced RFIC Design	2			X			X					X					X	
360	Nanomaterials	2		X				X				X						X	
361	Nanoelectronics	2			X			X					X					X	
375	Semiconductor Surfaces and Interface	2	X								X								alternate years
387	VLSI Design I	2	X	X			X	X			X	X			X	X			
388	VLSI Design II	2		X	X			X	X			X	X			X	X		
389	VLSI Physical Design	2						X										X	alternate years
390	Semicond Dev Tech Reliab.	2			X			X					X					X	

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391	Process and Device Simulation & TCA	4	X				X				X				X				
500	Logic Analysis and Synthesis	2	X	X		X	X	X		X	X	X		X	X	X			X
510	Computer Architecture I	2	X				X				X				X				
511	Computer Architecture II	2		X								X							
601	Low Power Designs	2							X									X	
602	Mod Time Analy in Logic Des	2			X				X				X					X	
603	Logic Des. Using HDL Verilog	2	X	X		X	X	X		X	X	X		X	X	X			X
604	Semicust. Des with Prog. Dev.	2		X				X				X					X		
605	High-Level Synthesis	2	X				X				X				X				
608	Design for Testability	2	X		X		X		X		X		X		X		X		
609	Mixed Signal DA and Test	2			X								X						
613	SoC Verification	2				X				X				X					X
614	SoC Formal Verification Techniques	2	X				X				X				X				
620	Design of System on a Chip	2			X				X				X				X		
624	Sig Integr. in IC and PCB Sys.	2	X				X				X				X				

MW & Communication		2009/2010				2010/2011				2011/2012				2012/2013				Notes	
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200	EE Graduate Seminars	1 or 2		X				X				X				X			
201	EM Field Theory I	2	X	X	X		X	X	X		X	X	X		X	X	X		
202	EM Field Theory II	2			X								X						
241	Introduction to Communication	2	X				X				X				X				
242	Comm. Systems	2		X				X				X				X			
243	Digital Communication	2			X				X				X				X		
244	Information Theory	2		X				X				X				X			
345	Phase-Locked Loops I	2		X								X							
347	Adv Dig Comm Sys	2	X				X				X				X				
444	Error-Correcting Codes I	2			X				X				X				X		
446	Wireless Comm. Sys.	4	X				X				X				X				
447	Wireless Network Architecture	2		X				X				X				X			
701	RF & Microwave Systems	2	X				X				X				X				
705	Computer-Aided Design for Microwave	2						X								X			
706	Microwave Circuit Analysis and Design	4			X				X				X				X		
711	Active Microwave Devices I	2						X								X			
712	Active Microwave Devices II	2							X								X		
714	Nonlinear Microwave Device Modeling	2																	
715	Antennas I	2		X								X							
716	Antennas II	2			X								X						

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717	Antennas III	2																	offered as needed
725	Optics Fundamentals	2			X	X			X	X			X	X			X	X	
726	Microwave Meas/Theory&Tech	2			X								X						alternate years