

**MASTER OF SCIENCE IN ELECTRICAL ENGINEERING (MSEE)**

**GENERAL STUDIES TRACK\* OPTIONS**

*Curriculum Program of Study Advisor Dr. Hoff*

<b>Name</b>		<b>USF ID #</b>			
<b>Term/Year Admitted</b>					
<b>Address</b>					
<b>Phone</b>					
<b>Email</b>					
<b>Advisor</b>					
	<b>Course Title</b>	<b>Number</b>	<b>Credits</b>	<b>Semester</b>	<b>Grade</b>
	<b>1. Core: 4 hours (both required)</b>				
	Linear and Matrix Algebra	EEL 6029	2		
	Random Processes in Electrical Engineering	EEE 6542	2		
	<b>2. Concentration Requirements: 14 hours</b>				
	<b>a- Track Math (1 required)</b>				
	Applied Optimization	EEL 6020	2		
	Statistical Inference	EEL 6021	2		
	Engineering Apps of Partial Diff Eq	EEL 6023	2		
	<b>b- Track Core (4 required)</b>				
	<b>Biomedical</b>				
	Bioelectricity	EEL 6935	3		
	Bioelectronics (Prerequisite: Bioelectricity)	EEE 6277	3		
	Biomedical Systems and Pattern Recognition	EEE 6282	3		
	Biomedical Image Processing	EEE 6514	3		
	Biomedical Optical Spectroscopy and Imaging	EEE 6217	3		
	Biomedical Engineering	BME 6000	3		
	MEMS I/Chem BioSensors	EEE 6276	3		
	System on a Chip	EEE 6412	3		
	<b>Communication, Networking, &amp; Signal Processing</b>				
	<b>A. Communications and Networking</b>				
	Digital Communication Systems	EEL 6534	3		
	Mobile and Personal Communication	EEL 6593	3		
	Broadband Communication Networks	EEL 6506	3		
	Wireless Sensor Networks	EEL 6935	3		
	Wireless Network Architectures and Protocols	EEL 6597	3		
	Wireless Communications Lab	EEL 6592	3		
	<b>B. Signal Processing and Machine Learning</b>				
	Digital Signal Processing I	EEE 6502	3		
	Digital Signal Processing II	EEL 6752	3		
	Speech Signal Processing	EEE 6586	3		
	Deep Learning	EEL 6935	3		
	Data Analytics	EEL 6777	3		
	Real-Time DSP Systems Lab (DSP/FPGA Lab)	EEL 6722C	3		
	<b>Control Theory</b>				
	Digital Control Theory	EEL 5631	3		
	Optimal Control	EEL 6935	3		
	Nonlinear Control Systems	EEL 6936	3		
	Systems & Control Theory	EEL 6614	3		
	Agile Systems of Systems Engineering & Modeling	EEL 6935	3		

Embedded Systems	EEL 6936	3		
Applied Robotics	EEL 6935	3		
Introduction to VHDL	EEL 6727	3		
Rapid Systems Prototyping	EEL 6729	3		
Multivariable Control Systems	EEL 6935	3		
Stochastic Estimation and Control	EEL 6936	3		
AI Robotics	EEL 6936	3		
<b>Renewable Energy &amp; Power Systems</b>				
Power System Analysis	EEL 5250	3		
Power Electronics	EEL 6245	3		
Electric Machines and Drives	EEL 6227	3		
Energy Delivery Systems	EEL 6285	3		
Power System Protection	EEL 6935	3		
Design Energy Efficiency & Solar Power	EEL 6935	3		
Design of Solar Power Plants	EEL 6936	3		
<b>Microelectronics</b>				
Physical Basis of Microelectronics	EEL 5382	3		
Integrated Circuit Technology	EEE 5356	3		
Integrated Systems Technologies	EEE 6357	3		
Semiconductor Device Theory I	EEL 6353	3		
Semiconductor Device Theory II	EEL 6354	3		
MEMS I/Chem Bio Sensors	EEE 6276	3		
MEMS II	EEE 6278	3		
<b>Systems &amp; Security</b>				
Broadband Networks	EEL 6506	3		
Data Networks, Systems and Security	EEL 6787	3		
Wireless Network Architectures and Protocols	EEL 6597	3		
Network Science	EEL 6935	3		
Deep Learning	EEL 6935	3		
Robotics and AI	EEL 6935	3		
Cryptography and Data Security	EEL 6935	3		
Advanced Cybersecurity	EEL 6935	3		
Wireless Mobile Computing and Security	EEL 6935	3		
Data Analytics	EEL 6777	3		
Advanced Data Analytics	EEL 6935	3		
Mobile and Personal Communications	EEL 6593	3		
<b>Wireless and Microwave</b>				
Wireless Circuits and Systems Laboratory	EEL 5936	3		
RF/Microwave Circuits I	EEL 6426	3		
RF/Microwave Circuits II	EEL 6427	3		
MMIC Design	EEL 6430	3		
RF/MW Power Amp Design	EEL 6428	3		
RF & Microwave Measurements	EEL 6425	3		
Electromagnetic Field Theory	EEL 6486C	3		
Antenna Theory	EEL 5462	3		
Advanced Antenna Theory	EEL 6463	3		
Numerical Tech. in Electromagnetism				
<b>3. Electives**:</b> 3-6 hours (Thesis/Non-Thesis)				

<b>Biomedical</b>				
Analog CMOS/VLSI Design	EEL 6357	3		
Intro to Bioengineering	EEL 6935	3		
Biomolecular Systems	EEL 6936	3		
Electromagnetic Field Theory	EEL 6486C	3		
Integrated Circuit Technology	EEE 5356	3		
Mobile and Personal Communication	EEL 6593	3		
Advanced Fluid Mechanics	EML 6713	3		
Modern Biomedical Technologies	BME 6055	3		
Basic Medical Anatomy	GMS 6605	3		
Medical Histology	GMS 6630	3		
<b>Communication, Networking, &amp; Signal Processing</b>				
<b>A. Communications, Networking, Signal Processing,</b>				
Network Science	EEL 6935	3		
Advanced Data Analytics	EEL 6935	3		
Selected Topics in Communications #	EEL 7931	3		
Digital Signal Processing III #	EEL 6753	3		
Biomedical Image Processing	EEE 6514	3		
Biomedical Systems and Pattern Recognition #	EEE 6282	3		
<b>B. Digital Design</b>				
Embedded Systems	EEL 6935	3		
Introduction to VHDL	EEL 6728	3		
Rapid System Prototyping	EEL 6729	3		
System on a Chip	EEE 6412	3		
Analog CMOS/VLSI Design	EEL 6357	3		
<b>C. Interdisciplinary (Courses include, but not</b>				
Data Networks, Systems, and Security	EEL 6787	3		
Cryptography and Data Security #	EEL 6935	3		
Wireless Mobile Computing and Security #	EEL 6935	3		
Antenna Theory #	EEL 5462	3		
Advanced Antenna Theory	EEL 6463	3		
RF & MW Circuits I #	EEL 6426	3		
Biomedical Optical Spectroscopy and Imaging	EEE 6217	3		
Systems and Control Theory #	EEL 6614	3		
Digital Control Theory	EEL 6936	3		
Digital Control Systems #	EEL 6630	3		
Time Series Analysis #	STA 6876	3		
Algebraic Graph Theory #	MAD 5305	3		
Introduction to Theory of Algorithms #	COT 6405	3		
Data Mining #	CAP 5771	3		
<b>Control Theory</b>				
DSP I	EEL 6502	3		
DSP II	EEL 6752	3		
Deep Learning	EEL 6586	3		
Bioelectricity	EEL 6935	3		
Power Electronics	EEL 6935	3		

MEMS I/Chem BioSensors	EEL 6935	3		
<b>Renewable Energy &amp; Power Systems *if not already selected as track core</b>				
Power System and Analysis *	EEL 5250			
Power Electronics *	EEL 6245			
Electric Machines and Drives *	EEL 6227			
Energy Delivery Systems *	EEL 6285			
Power System Protection *	EEL 6935			
Design Energy Efficiency & Solar Power *	EEL 6935			
Design of Solar Power Plants *	EEL 6936			
Digital Control Theory	EEL 5631			
Stochastic Estimation and Control	EEL 6936			
Multivariable Control Systems	EEL 6935			
Embedded Systems	EEL 6935			
<b>Microelectronics</b>				
System on a Chip	EEE 6412	3		
Analog CMOS/VLSI Design	EEL 6357	3		
Introduction to Nanotechnology	EEL 6936	3		
Compound Semiconductor Technology	EEL 6355	3		
Characterization of Semiconductors	EEE 6318	3		
Flexible Electronics & Thin-Film Solar Cells	EEL 6935	3		
<b>Wireless and Microwave</b>				
Digital Communication Systems	EEL 6534	3		
Mobile and Personal Communication	EEL 6593	3		
Wireless Network Architecture	EEL 6597	3		
Wireless Communications System Laboratory	EEL 6936	3		
MEMS I	EEL 6228	3		
MEMS II				
<b>4. Thesis/Coursework Options:</b>				
Thesis Option: 6-9 hours				
Non-Thesis Option: combined total of 6 hours of <i>additional electives</i> , independent study, internship, project, or out of department.				
*Tracks are for student benefit only. They will not show on transcripts or diplomas.			<b>Total Credits Outside of Dept.</b>	
			<b>Total Credits Independent Study</b>	
			<b>Total Credits (30 required)</b>	