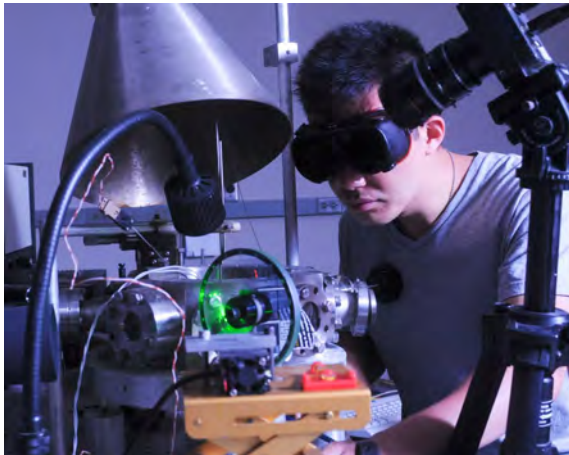




THE UNIVERSITY OF ALABAMA IN HUNTSVILLE



Optical Engineering

Optical Engineers design and build devices that make like do something useful. Optical engineers advance technology by designing flat panel display systems, designing optical fiber communications, and designing laser systems for image processing and space propulsion. They also develop applications for nanotechnology and microelectric and mechanical systems (MEMS—tiny machines built on semiconductor chips). Optical

engineers will find employment in laboratories, hospitals, and universities to do research—producing breakthroughs with laser and other technology. Military and defense related firms will demand optical engineers to develop laser controlled weapon systems and improve MEMS technology.



Highlights

- Specialize in photonics, optical systems, and lasers.
- First accredited Optical Engineering program in the United States, est. 1991.
- Students work at NASA, AMRDEC, Dynetics, and other research facilities.
- Average median salary in 2012: \$84,676.



"Not only am I given challenging tasks, but I have also interacted with prominent employees, which has given me more determination to succeed. Co-Op has been a great experience and I would recommend it to anyone!"

Martez Taylor // Gadsden, Alabama
Junior, Electrical **ENGINEERING**

**GO.
LEARN.
BE.**

Academic Checksheet



Optical Engineering 2015/2016 (129 Hours)

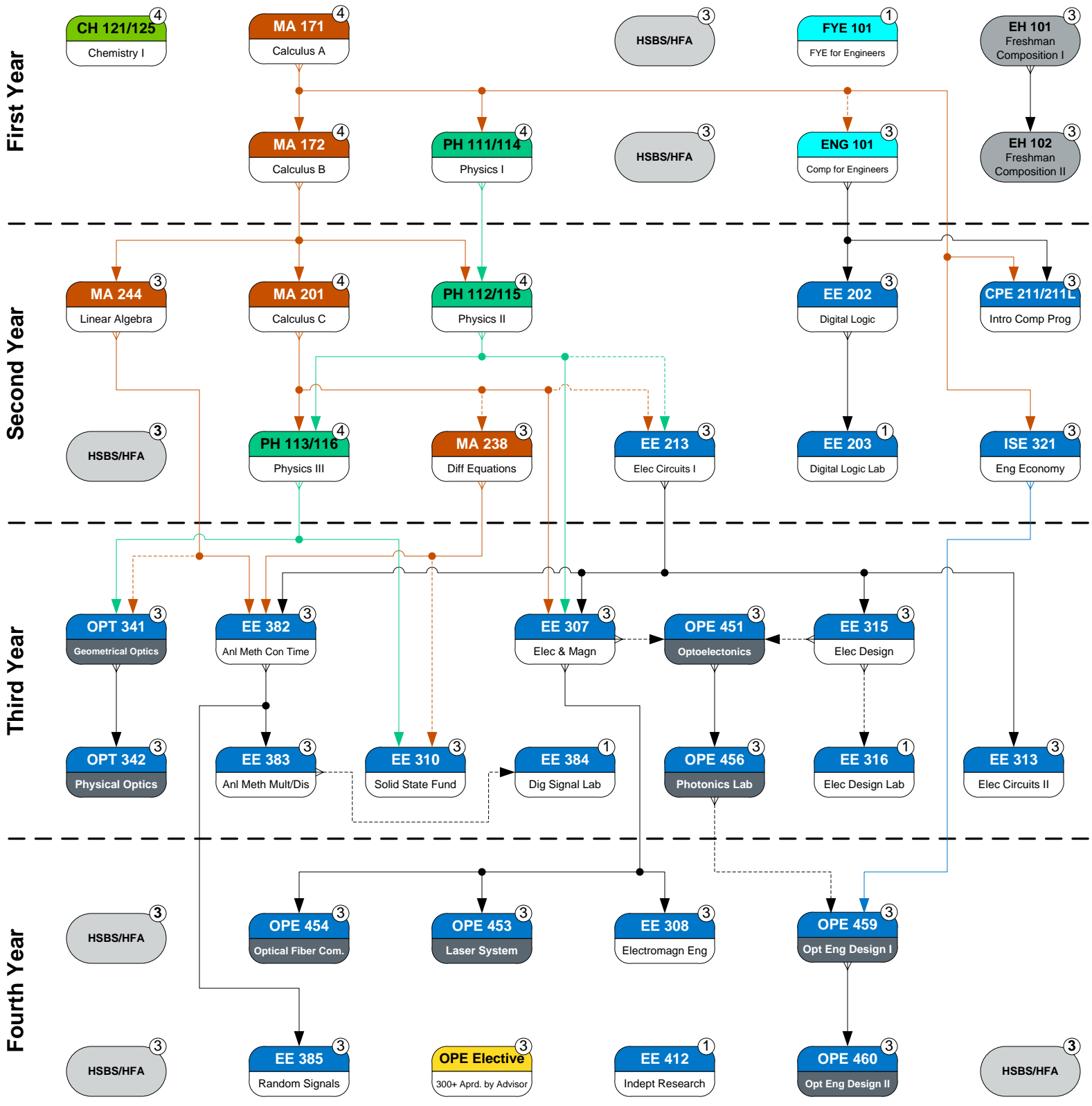
Student A#				Student Name (Last, First MI)		Offered:
Semester, Transfer or AP	Grade	Course Number	Cr Hrs	Course Title	Prerequisites, Corequisites and/or Prerequisites with Concurrency	F=Fall S=Spr M=Sum
English - 6 hours						
		EH 101	3	Freshman Composition I	Placement	FSM
		EH 102	3	Freshman Composition II	EH 101	FSM
Mathematics - 18 hours						
		MA 171	4	Calculus A	MA 113 or MA 115 or Level III Placement	FSM
		MA 172	4	Calculus B	MA 171	FSM
		MA 201	4	Calculus C	MA 172	FSM
		MA 238	3	Applied Differential Equations	Prereq w/Con: MA 201	FSM
		MA 244	3	Introduction to Linear Algebra	MA 172	FSM
Chemistry - 4 hours						
		CH 121	3	General Chemistry I	Plcmt or CH 101, MA 113 or 115, Prereq w/Con: MA 171, Coreq: CH 125	FSM
		CH 125	1	General Chemistry Lab I	Coreq: CH 121	FSM
Physics - 12 hours						
		PH 111	3	General Physics w/Calculus I	MA 171, Coreq: 114	FSM
		PH 114	1	General Physics Lab I	Coreq: PH 111	FSM
		PH 112	3	General Physics w/Calculus II	MA 172, PH 111, Coreq: 115	FSM
		PH 115	1	General Physics Lab II	Coreq: PH 112	FSM
		PH 113	3	General Physics w/Calculus III	MA 201, PH 112, Coreq: 116	FSM
		PH 116	1	General Physics Lab III	Coreq: PH 113	FSM
History, Social & Behavioral Sciences, Humanities & Fine Arts - 18 hours						
			3	History	HY 103, HY 104, HY 221, or HY 222	FSM
			3	Literature	EH 207 or EH 208	FSM
			3	Fine Art	ARH 100, ARH 101, ARH 103, CM 122, MU 100, or ARS 160	FSM
			3	Social & Behavioral Science	For more information on HSBS/HFA Requirements: http://www.uah.edu/images/colleges/engineering/CUE2%20Files/Forms/HSBS_HFA_Requirements_05202014.pdf	FSM
			3	Sequence Course (HY or EH)		FSM
			3	HSBS/HFA		FSM
			3			FSM
First-Year Engineering - 4 hours						
		FYE 101	1	First-Year Experience for Engineers	None	FS
		ENG 101	3	Computing for Engineers	Prereq w/Con: MA 171	SM
Optical Engineering Option - 61 hours						
**		CPE 211	3	Intro to Computer Programming in Engineering	ENG 101, MA 171	FSM
**		EE 202	3	Intro to Digital Logic Design	ENG 101	FSM
		EE 203	1	Digital Logic Design Lab	EE 202	FSM
		EE 213	3	Electrical Circuit Analysis I	Prereq w/Con: PH 112, MA 201	FSM
		EE 307	3	Electricity and Magnetism	PH 112, MA 201, EE 213	FSM
		EE 308	3	Electromagnetic Engineering	EE 307	FS
		EE 310	3	Solid State Fundamentals	PH 113, Prereq w/Con: MA 238	FS
		EE 313	3	Electrical Circuit Analysis II	EE 213	FSM
		EE 315	3	Introduction to Electronic Analysis and Design	EE 213	FSM
		EE 316	1	Electronic Measurements & Devices Design Lab	Prereq w/Con: EE 315	FS
		ISE 321	3	Engineering Economy	MA 171	FSM
		OPT 341	3	Geometrical Optics	PH 113, Prereq w/Con: (PH 305 or MA 244)	F
		OPT 342	3	Physical Optics	OPT 341	S
		EE 382	3	Analytical Meth for Continuous Time Sys	EE 213, MA 238, MA 244	FSM
		EE 383	3	Analytical Meth for Mult and Discr Time Sys	EE 382	FSM
		EE 384	1	Digital Signal Processing Laboratory	CPE 381 or Prereq w/Con:EE 383	FS
		EE 385	3	Random Signals and Noise	CPE 381 or EE 382	FSM
		EE 412	1	Independent Research	Senior Standing	FSM
		OPE 451	3	Optoelectronics	Prereq w/Con: EE 307, EE 315	F
		OPE 453	3	Laser Systems	EE 307	F
		OPE 454	3	Optical Fiber Communications	EE 307 or PH 432	F
		OPE 456	3	Photonics Lab	OPE 451	S
		OPE 459	3	Optical Engineering Design I	ISE 321, Prereq w/Con: OPE 456	F
		OPE 460	3	Optical Engineering Design II	OPE 459	S
Optical Engineering Elective - 3 hours						
			3		300+ Level course approved by advisor	

All prerequisite classes must be completed with a "C" or higher grade.
The Catalog is the final authority for all degree requirements.

Academic Flowchart



Optical Engineering 2015/2016 (129 Hours)



Legend
Updated: 5/6/15

Mathematics	First Year Engineering	Freshman Composition	Credit Hours
Physics	Optical Engineering Option	History, Social & Behavioral Science	Prerequisite
Chemistry / Biology	Engineering Elective	Humanity & Fine Art	Prereq w/concurrency
		Offered only in semester listed	

Electrical and Computer Engineering Department: 4-Year Rolling Class Schedule, Fall 2015 - Spring 2019*

	Fall 2015	Anticipated Sections	Spring 2016	Anticipated Sections	Fall 2016	Spring 2017	Fall 2017	Spring 2018	Fall 2018	Spring 2019
CPE 112** Intro to Comp Prog in Eng	Y	1	Y	1	N	N	N	N	N	N
CPE 211** Intro to Comp Prog in Eng	N	0	N	0	Y	Y	Y	Y	Y	Y
CPE 212 Fund of Software Eng	Y	1	Y	1	Y	Y	Y	Y	Y	Y
CPE 221 Computer Organization	Y	1	Y	1	Y	Y	Y	Y	Y	Y
CPE 322 Digital Hardware Design	N	0	Y	1	N	Y	N	Y	N	Y
CPE 323 Intro Embedded Comp Sys	Y	1	E	1	Y	E	Y	E	Y	E
CPE 324 Digital Hardware Des Lab	N	0	Y	4	N	Y	N	Y	N	Y
CPE 325 Embedded Comp Sys Lab	Y	5	E	6	Y	E	Y	E	Y	E
CPE 353 Software Design/Eng	Y	2	N	0	Y	N	Y	N	Y	N
CPE 381 Fund of Signals/Systems	Y	1	Y	1	E	Y	E	Y	E	Y
CPE 412 Intro to Parallel Prog	Y	1	N	0	Y	N	Y	N	Y	N



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CPE 423 Hardwr/Softwr Co-Design	Y	1	N	0	N	N	Y	N	N	N
CPE 426 Modeling/Synthesis	N	0	D	1	D	D	D	D	D	D
CPE 427** VLSI Design I	N	0	N	0	Y	N	N	N	Y	N
CPE 428** VLSI Design II	N	0	D	0	D	D	D	D	D	D
CPE 431 Intro to Comp Architecture	Y	2	N	0	Y	N	Y	N	Y	N
CPE 434 Operating Systems	Y	1	Y	0	N	Y	N	Y	N	Y
CPE 435 Operating Systems Lab	Y	2	Y	0	N	Y	N	Y	N	Y
CPE 436 Internals of Mod Oper Sys	N	0	N	0	N	Y	N	N	N	Y
CPE 438 Real Time/Embedded Sys	N	0	D	0	D	D	D	D	D	D
CPE 448 Intro to Comp Networks	Y	1	Y	1	E	Y	E	Y	E	Y
CPE 449** Intro to Info Assurance Eng	Y	1	N	0	Y	N	Y	N	Y	N
CPE 453 Senior Software Studio	N	0	Y	1	N	Y	N	Y	N	Y
CPE 495 Comp Eng Design I	Y	1	N	0	Y	N	Y	N	Y	N



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CPE 496 Comp Eng Design II	N	0	Y	2	N	Y	N	Y	N	Y
EE 100** Fund Elec/Comp/Opt Eng	Y	1	Y	1	N	N	N	N	N	N
EE 202 Intro to Digital Logic Des	Y	2	Y	2	Y	Y	Y	Y	Y	Y
EE 203 Digital Logic Design Lab	Y	3	Y	4	Y	Y	Y	Y	Y	Y
EE 213 Electrical Circuit Analysis I	Y	4	Y	4	Y	Y	Y	Y	Y	Y
EE 223 Design/Analysis using Comp	N	0	N	0	N	Y	Y	Y	Y	Y
EE 307 Electricity/Magnetism	Y	1	E	1	Y	E	Y	E	Y	E
EE 308 Electromagnetic Eng	Y	1	Y	1	E	Y	E	Y	E	Y
EE 310 Solid State Fundamentals	Y	1	E	1	Y	E	Y	E	Y	E
EE 313 Electrical Circuit Analysis II	Y	1	E	1	Y	E	D	D	D	D
EE 315 Intro Elec Analysis/Design	Y	1	E	1	Y	E	Y	E	Y	E
EE 316 Electronic Meas/Devices Design Lab	Y	5	Y	5	E	Y	E	Y	E	Y
EE 382 Analytical Meth Contin Time Sys	Y	1	E	1	Y	E	Y	E	Y	E



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EE 383 Analytical Meth Multi/Discr Time Sys	Y	1	Y	1	E	Y	E	Y	E	Y
EE 384 Digital Signal Processing Lab	Y	3	Y	2	E	Y	E	Y	E	Y
EE 385 Random Signals/Noise	Y	1	Y	1	E	Y	E	Y	E	Y
EE 386 Intro to Control/Robotic Systems	Y	1	Y	1	E	Y	E	Y	E	Y
EE 401 Digital Signal Proc Architectures	N	0	D	0	D	D	D	D	D	D
EE 411 Electric Power Systems	Y	1	Y	1	N	Y	N	Y	N	Y
EE 414 Analog and Digital Filter Design	N	0	Y	1	N	Y	N	Y	N	Y
EE 416 Electronics II	N	0	Y	1	N	Y	N	Y	N	Y
EE 423 Communication Sys/Simulation	Y	1	N	0	N	N	Y	N	N	N
EE 424 Intro to Data Comm Networks	Y	1	N	0	Y	N	Y	N	Y	N
EE 426 Communication Theory	N	0	Y	1	N	Y	N	Y	N	Y
EE 427** VLSI Design I	N	0	D	0	D	D	D	D	D	D
EE 428** VLSI Design II	N	0	D	0	D	D	D	D	D	D



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EE 436 Digital Electronics	Y	1	N	0	Y	N	Y	N	Y	N
EE 437 Electr Manufacturing Processes	N	0	N	0	N	N	N	N	N	N
EE 451 Optoelectronics	Y	1	N	0	Y	N	Y	N	Y	N
EE 453 Laser Systems	Y	1	N	0	Y	N	Y	N	Y	N
EE 454 Optical Fiber Communications	N	0	Y	1	N	Y	N	Y	N	Y
EE 486 Intro to Modern Control Systems	N	0	D	0	D	D	D	D	D	D
EE 494 EE Design Projects	Y	2	Y	2	E	Y	E	Y	E	Y
OPE 441 Optical Systems Design	N	0	D	0	D	D	D	D	D	D
OPE 442 Interference and Diffraction	N	0	D	0	D	D	D	D	D	D
OPE 451 Optoelectronics	Y	1	N	0	Y	N	Y	N	Y	N
OPE 453 Laser Systems	Y	1	N	0	Y	N	Y	N	Y	N
OPE 454 Optical Fiber Communications	N	0	Y	1	N	Y	N	Y	N	Y
OPE 456 Photonics Lab	N	0	Y	1	N	Y	N	Y	N	Y



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OPE 459 Optical Engineering Design I	Y	1	N	0	Y	N	Y	N	Y	N
OPE 460 Optical Engineering Design II	Y	1	Y	1	N	Y	N	Y	N	Y

Legend

Y	Course will be offered in designated term.
E	Course will likely be offered in designated term, but availability will be determined by faculty availability and budget.
N	Course will not be offered in designated term.
D	Course may be made available given appropriate demand or interest.

* UAH College of Engineering will make every effort to adhere to the class plan schedule, but it reserves the right to make necessary adjustments based on budget and faculty availability.

** Course has a required lab section.



COLLEGE OF ENGINEERING

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Center for Undergraduate Engineering Education

Engineering Building 157

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