

**Lasers and Optical Engineering Concentration
Technical Electives**

Course Number	Course Title	Credits	Noted Prerequisites	Terms
ECE312	Linear System Analysis II	3	ECE311 with a minimum grade of C	S
ECE/MATH430	Fourier and Wavelet Analysis with Applications	3	MATH340 or MATH345	S
ECE471A	Semiconductor Physics	1	MATH340 or MATH345; PH142	S
ECE471B	Semiconductor Junctions	1	ECE331 with a minimum grade of C; ECE 471A, may be taken concurrently	S
ECE48X	Experimental Courses in Topics of Lasers/Optics	1-4	Varies - check course for details. Verify experimental course approval with ECE Academic Advisor	F, S
ECE495 ^{1,2}	Independent Study	1-3		F, S, SS
ECE503	Ultrafast Optics	3	ECE341; ECE342	S
ECE504	Physical Optics	3	ECE341; ECE342	F
ECE505	Nanostructures Fundamentals and Applications	3	ECE342; PH353	F
ECE506	Optical Interferometry and Laser Metrology	3	ECE341; ECE342; ECE441	F
ECE507	Plasma Physics and Applications	3	ECE342	S
ECE/BIOM517	Advanced Optical Imaging	3	ECE342 or MATH340 or MATH345	F, Even
ECE/BIOM518	Biophotonics	3	ECE 342 or ECE 457 or MATH 340 or MATH 345	F, Odd
ECE/BIOM526	Biological Physics	3	MATH340 or MATH345; PH122 or PH142	S
ECE546	Laser Fundamentals and Devices	3	ECE441	S
ECE572	Semiconductor Transistors	1	ECE331 with a minimum grade of C; ECE471B, may be taken concurrently	S
ECE573	Semiconductor Optoelectronics Laboratory	3	ECE471B	S
ECE574	Optical Properties in Solids	3	ECE441 with a minimum grade of C	S
ECE58X	Experimental Courses in Topics of Lasers/Optics	1-4	Varies - check course for details. Verify experimental course approval with ECE Academic Advisor	F, S
ECE/BIOM581B2	Signals and Noise in Biosensors	1	PH142, MATH340, may be taken concurrently or MATH345, may be taken concurrently	F, Even
ECE/BIOM581B6	Biophotonic Sensors Using Refractive Index	1	ECE581B4; PH142; MATH340, may be taken concurrently or MATH345, may be taken concurrently	S, Odd
MATH419	Introduction to Complex Variables	3	MATH261	F
PH315	Modern Physics Lab	2	PH314, may be taken concurrently	S
PH425	Advanced Physics Laboratory	2	PH315; PH451	S
PH452	Intro to Quantum Mechanics II	3	PH451	S
PH462	Statistical Physics	3	MATH340; PH314; PH361	F

¹ A total of 3 credits of Independent Study may apply towards degree requirements. This includes credits awarded for ECE395 and ECE495 combined.

² Biomedical Engineering - Lasers & Optics (L&O) double degree students may apply a total of up to 3 credits of independent study (ECE395 and ECE495) towards their L&O degree