

Electrical Engineering - Lasers and Optical Engineering Concentration Technical Electives

Course Number	Course Title	Credits	Noted Prerequisites	Terms
ECE 312	Linear System Analysis II	3	ECE311 with a minimum grade of C	S
ECE 430/MATH 430	Fourier and Wavelet Analysis with Applications	3	MATH340 or MATH345	S
ECE 471A	Semiconductor Physics	1	MATH340 or MATH345; PH142	S
ECE 471B	Semiconductor Junctions	1	ECE331 with a minimum grade of C; ECE471A, may be taken concurrently	S
ECE 48X	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 495 ^{1,2}	Independent Study	1-3		F, S, SS
ECE 503	Ultrafast Optics	3	ECE342	S, Odd
ECE 504	Physical Optics	3	ECE342 with a minimum grade of C	F, Odd
ECE 505	Nanostructures Fundamentals and Applications	3	ECE342; PH353	F, Odd
ECE 506	Optical Interferometry and Laser Metrology	3	ECE342; ECE441	F, Odd
ECE 507	Plasma Physics and Applications	3	ECE342	S
ECE 517/BIOM 517	Advanced Optical Imaging	3	ECE342 with a minimum grade of C or MATH340 with a minimum grade of C or MATH345 with a minimum grade of C	F, Even
ECE 518/BIOM 518	Biophotonics	3	ECE342 with a minimum grade of C or ECE457 with a minimum grade of C or MATH340 with a minimum grade of C or MATH345 with a minimum grade of C	F, Odd
ECE 526/BIOM 526	Biological Physics	3	MATH340 or MATH345; PH122 or PH142	F, Odd
ECE 546	Laser Fundamentals and Devices	3	ECE441	S
ECE 572	Semiconductor Transistors	1	ECE331 with a minimum grade of C; ECE471B, may be taken concurrently	S
ECE 573	Semiconductor Optoelectronics Laboratory	3	ECE471B	S, Even
ECE 574	Optical Properties in Solids	3	ECE441 with a minimum grade of C	S, Odd
ECE 58X	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 527B/BIOM 527B	Signals and Noise in Biosensors	1	PH142, MATH340 or MATH345, may be taken concurrently	S, Even
ECE 527F/BIOM 527F	Biophotonic Sensors Using Refractive Index	1	ECE527E; PH142; MATH340 or MATH345, may be taken concurrently	S, Even
MATH 419	Introduction to Complex Variables	3	MATH261	F
PH 315	Modern Physics Lab	2	PH314, may be taken concurrently	S
PH 425	Advanced Physics Laboratory	2	PH315; PH451	S
PH 452	Intro to Quantum Mechanics II	3	PH451	S
PH 462	Statistical Physics	3	MATH340; PH314; PH361	F

¹ A maximum 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 maximum of 3 credits of independent study (ECE395 and ECE495) towards their L&O degree requirements.