

The graduate certificate program in Optics for Engineering is targeted to train recent graduates or mid-career professionals with a Bachelor of Science degree in physics, chemistry, materials science, electrical or mechanical engineering, or other related fields. The program will provide them with a basic knowledge of optics and lasers so they can apply it to the challenges and demands of advanced technologies that use optical systems. The program offers students a number of electives to choose from and to tailor their education to their interest.

Graduate Certificate Curriculum Requirements:

The certificate option consists of one core class, plus two additional electives, for a total of 9 credit hours. Only one course is allowed at the undergraduate level and all other courses must be at the 500 level or higher. PHGN461 is considered a prerequisite for this certificate but is offered online in the summer, allowing students to easily fulfill this requirement. Students who have taken the equivalent of PHGN461 at a different institution can request to have this prerequisite waived.

Graduate Certificate

Credits

PHGN480 or 581	LASER PHYSICS	3.0
ELECTIVES	See Approved Electives Listing	6.0

Coursework Details:

Students will need PHGN461 (or its equivalent) as a prerequisite for the Certificate. This course is offered in the summer (online). PHGN 480/581 is offered in the fall (in-person). Students will select two electives from the approved list below.

Approved Elective (select two):

PHGN570	FOURIER AND PHYSICAL OPTICS	3.0
PHGN566	MODERN OPTICAL ENGINEERING	3.0
PHGN585	NONLINEAR OPTICS	3.0
EENG528	COMPUTATIONAL ELECTROMAGNETICS	3.0
MEGN671	RADIATION HEAT TRANSFER	3.0
GPGN470	APPLICATIONS OF SATELLITE REMOTE SENSING	3.0
EENG507	INTRODUCTION TO COMPUTER VISION	3.0
EENG508	ADVANCED TOPICS IN PERCEPTION AND COMPUTER VISION	3.0
EENG509	SPARSE SIGNAL PROCESSING	3.0
EENG515	MATHEMATICAL METHODS FOR SIGNALS AND SYSTEMS	3.0