ELECTRONIC AND PHOTONIC MATERIALS, MINOR

Requirements for a minor may be completed at any campus location offering the specified courses for the minor. Students may not change from a campus that offers their major to a campus that does not offer their major for the purpose of completing a minor.

Program Requirements

Requirement	Credits
Requirements for the Minor	35

For the minor in Electronic and Photonic Materials, a minimum of 35 credits are required.

Requirements for the Minor

A grade of C or better is required for all courses in the minor, as specified by Senate Policy 59-10 (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/59-00-minors-and-certificates/#59-10). In addition, at least six credits of the minor must be unique from the prescribed courses required by a student's major(s).

Code	Title	Credits
Prescribed Courses		
Prescribed Courses: Require a grade of C or better		
CHEM 112	Chemical Principles II	3
EE 310	Electronic Circuit Design I	4
EE 441	Semiconductor Integrated Circuit Technology	3
MATH 140	Calculus With Analytic Geometry I	4
MATH 141	Calculus with Analytic Geometry II	4
MATH 231	Calculus of Several Variables	2
MATSE 201	Introduction to Materials Science	3
Additional Courses		
Additional Courses: Require a grade of C or better		
MATSE 450	Synthesis and Processing of Electronic and Photonic Materials	3
or MATSE 455	Properties and Characterization of Electronic and Photonic Materials	
Select 3 credits from the following:		3
ESC 314	Engineering Applications of Materials	
An approved EE course		
Select 6 credits from the following:		6
EE 442	Solid State Devices	
ESC 445	Semiconductor Optoelectronic Devices	
MATSE 400	Crystal Chemistry	
MATSE 401	Thermodynamics of Materials	
MATSE 402	Materials Process Kinetics	
MATSE 413	Solid-State Materials	
MATSE 417	Electrical and Magnetic Properties	
MATSE 430	Materials Characterization	
MATSE 435	Optical Properties of Materials	
MATSE 450	Synthesis and Processing of Electronic and Photonic Materials	
MATSE 455	Properties and Characterization of Electronic and Photonic Materials	