ELECTROCHEMICAL SCIENCE AND ENGINEERING GRADUATE MINOR

Minor Requirements

Requirements listed here are in addition to requirements for minors in Graduate Council policies listed under GCAC-600 Research Degree Policies (https://gradschool.psu.edu/graduate-education-policies/) and GCAC-700 Professional Degree Policies (https://gradschool.psu.edu/graduate-education-policies/).

The doctoral minor will consist of no fewer than five 3-credit courses (15 credits) of integrated or articulated work in electrochemical science and engineering, related to but different from, that of the major, drawn from the two lists (500-level courses and 400-level courses) below, with a preponderance of courses at the 500 level. A minimum of 6 credits must be at the 500 level for the doctoral minor.

Code	Title	Credits
500-level Courses		
EME 541	Electrochemical Science and Engineering Fundamentals	3
CHEM 524	Electroanalytical Chemistry	3
ESC 501	Solar Cell Devices	3
CHE/MATSE 510	Surface Characterization of Materials	3
CHE 528	Colloidal Forces and Thermodynamics	3
MATSE 560/ MNPR 507	Hydrometallurgical Processing	3
MATSE 501	Thermodynamics of Materials	3
MATSE 503	Kinetics of Materials Processes	3
400-level Courses		
EGEE 420	Hydrogen and Fuel Cells	3
EGEE 437	Design of Solar Energy Conversion Systems	3
EGEE 441	Electrochemical Engineering Fundamentals	3
EME 407	Electrochemical Energy Storage	3
ESC 455	Electrochemical Methods Engineering and Corrosion Science	3
MATSE 421	Corrosion Engineering	3
ME 403	Polymer Electrolyte Fuel Cell Engines	3

The master's minor will consist of no fewer than two 3-credit courses (6 credits) of integrated or articulated work in electrochemical science and engineering, related to but different from, that of the major, drawn from the two lists above. A minimum of 3 credits must be at the 500 level for the master's minor.

A student enrolled in this graduate minor must receive a grade of B- or better in all minor courses.

A representative from the Graduate Faculty in the graduate minor (i.e., a "Minor Field Member") must be appointed to the dissertation committee of each student enrolled in the doctoral minor in Electrochemical Science and Engineering.