**Space and Planetary Science and Engineering**

**General CSM Minor/ASI requirements can be found here** (catalog.mines.edu/undergraduate/undergraduateinformation/minorasi).

**Programs Offered**

Area of Special Interest in Space and Planetary Science and Engineering

**Program Description**

The Space and Planetary Science and Engineering Program offers an Area of Special Interest for students interested in the science, engineering, and exploration of space. This program brings together courses from several CSM departments and programs covering a diverse array of topics, including planetary science, astronomy, space physics, and the design of engineering systems for space exploration. The curriculum can be chosen from a list of approved courses, in consultation with an SPSE program advisor. Interested students should contact SPSE Program Director, Dr. Angel Abbud-Madrid, at aabbudma@mines.edu.

Since the advent of the space age in the middle of the last century, the pace of human and robotic exploration of space has been ever increasing. This exploration is made possible by feats of engineering to allow long-term operation of robotic systems and human explorers in the harsh environment of space. The product of this exploration is a large and growing body of knowledge about our neighbors in the Solar System and our place in the universe. The mission of the Space and Planetary Science and Engineering (SPSE) program is to provide students with a pathway for studying extraterrestrial applications of science, engineering, and resource utilization through an Area of Special Interest.

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**Program Requirements**

Area of Special Interest in Space and Planetary Science and Engineering:

Enrollment in the Area of Special Interest is approved by the Director or Associate Director. Students will then be assigned to an SPSE ASI advisor from among the faculty listed above, who will monitor and advise their progress. The Area of Special Interest requires a total of 12 credits, up to 3 of which may be at the 200 level or below, up to 3 of which may overlap with the requirements of the degree-granting program. Students may choose their ASI courses from the list of approved courses below or from any additional courses approved by the students' ASI advisor. Application of EPICS or Senior Design credits towards the ASI requires choice of a space or planetary related project and approval by the students' SPSE ASI advisor.

**SPSE-approved Courses**

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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<td>EDNS251</td>
<td>THE PRACTICE OF DESIGN</td>
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**Professors**

Uwe Greife, Department of Physics

Thomas Furtack, Department of Physics, Department Head

Thomas Furtak, Minors and Areas of Special Interest Only, SPSE Program Advisor

Gary R. Olhoeft, Department of Geophysics and Geophysical Engineering

**Assistant professors**

Jeffrey C. Andrews-Hanna, Minors and Areas of Special Interest Only, SPSE Director

Jeffrey C. Andrews-Hanna, Department of Geophysics and Geophysical Engineering

John R. Spear, Department of Environmental Science and Engineering

**Professor emeritus**

F. Edward Cecil, Department of Physics

**Teaching professor**

Joel G. Duncan, Department of Geology and Geological Engineering

**Teaching associate professor**

Cynthia Norrgran, Department of Chemical Engineering

**Research professor**

Robert D. Knecht, Department of Chemical Engineering, Teaching Professor in EPICS

**Associate research professor**

Angel Abbud-Madrid, Minors and Areas of Special Interest Only, SPSE Associate Director

**Assistant research professor**

Christopher Dryer, Department of Engineering
Distinguished senior scientist
Warren Hamilton, Department of Geophysics and Geophysical Engineering