
SOUTH DAKOTA BOARD OF REGENTS
ACADEMIC AFFAIRS FORMS

New Specialization

The University does not request new state resources.

3. Provide a justification for the specialization, including the potential benefits to students and potential workforce demand for those who graduate with the credential.

The specialization designates a sequence of courses that provide the required depth of knowledge in concepts important to solving design problems in aerospace applications. Surveys taken in the Introduction to Engineering and Technical Professions course consistently reveal at least 30 students each semester with strong interest in aerospace engineering applications.

New versions of aircraft, especially autonomous fixed-wing and rotary wing types of various sizes are being continuously developed. The autonomous versions are becoming ubiquitous in a variety of applications, including production agriculture. Engineering expertise in aerospace systems design is required for development and refinement of these new designs.

Based on Bureau of Labor Statistics the expected growth in aerospace engineering jobs is about 3% from 2019 to 2029.¹ Another resource reported expected growth of about 6% from 2016 to 2026². The median income for an aerospace engineer was listed as \$116,500.¹

There are at least six companies involved in aerospace/defense manufacturing in SD, accounting for a total of \$61 million in sales.³⁴ In addition, South Dakota is home to Ellsworth Air Force Base with approximately 3600 military and civilian employees and the South Dakota Air National Guard 114th Fighter Wing with nearly 1100 assigned service members.

South Dakota State University hosts Detachment 780 of the Air Force Reserve Officers Training Corps. Engineering students in the AFROTC program would be able to enhance their career preparation with the Aerospace Engineering specialization.

4. List the proposed curriculum for the specialization (including the requirements for completing the major *highlight courses in the specialization*):

| Mechanical Engineering Specialization | Aerospace Engineering | Credit Hours | Credit Hours | Percent |
|---------------------------------------|-----------------------|--------------|--------------|---------|
| System General Education Requirements | | 33 | | |
| Subtotal, Degree Requirements | | | 33 | 25% |
| Major Requirements | | 54 | | |
| Supporting Coursework | | 43 | | |
| Subtotal, Program Requirements | | | 97 | 75% |

Supporting Coursework

| Prefix | Number | Course Title | Credit Hours | New (yes, no) |
|---------------|---------------|---------------------|-------------------------|--------------------------|
|---------------|---------------|---------------------|-------------------------|--------------------------|

