Why Choose Surveying Engineering?
Instruction in this program emphasizes theoretical principles as well as practical applications of advanced surveying techniques and related computational procedures, geodesy, map compilation and photogrammetry, business aspects of operating a surveying firm, geographic information systems (GIS) and planning and conducting surveys.

Students in the Surveying Engineering program must complete trigonometry courses, have an aptitude for physical science and have the ability to work effectively as a team member.

The Surveying Engineering B.S. degree is accredited by the Engineering Accreditation Commission (EAC) of Accreditation Board for Engineering and Technology. Program Educational Objectives:
-Provide an educational experience that prepares our students for the challenges of the surveying profession that they will encounter during their professional lives.
-Provide opportunities for our students to exhibit creativity, leadership and team-building abilities, cultural appreciation and an understanding of global and social issues.
-Employ state-of-the-art technologies in the surveying engineering curriculum.
-Incorporate interdisciplinary concepts and problem-solving exercises in the program.
-Provide broad educational experience including communication skills, mathematics and basic science, preparing students for lifelong learning.

Prepare for a Great Career
Surveying engineering is the science of making precise measurements of the Earth’s surface with the aid of sophisticated optical and electronic instruments. A challenging and satisfying profession, surveying engineering is of vital importance for national defense, exploration, conservation, preservation of natural resources and land development.

There is a very high demand for surveying engineers, with five to six job opportunities for every graduate. Professional surveyors can choose to join an existing surveying and/or civil engineering firm or enter private practice following completion of licensing requirements. Graduates may also find employment with local, state and federal governmental agencies. In addition, surveying engineers are needed in resource recovery, oil and mineral exploration and other high-tech industries.

Admission Requirements
Admission to the College of Technology is open to high school graduates who demonstrate academic preparedness, maturity and seriousness of purpose with backgrounds appropriate to their chosen program of studies. Among first-time students in our technical programs, the average high school GPA is 2.8, and the average ACT composite score is 20.

Students entering the Surveying Engineering program must have a high school diploma (or equivalent) with a minimum 2.0 GPA and a minimum ACT math subscore of 24. Transfer students must have a 2.0 GPA or better for previous college coursework.

Graduation Requirements
The Surveying Engineering program at Ferris leads to a bachelor of science degree. Graduation requires a minimum 2.0 GPA in core classes, in the major and overall. Students must complete all general education requirements as outlined on the General Education website.

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL 131</td>
<td>Geology &amp; Land-Use Mgmt *Z</td>
<td>3</td>
</tr>
<tr>
<td>MATH 220</td>
<td>Analytical Geometry &amp; Calculus 1</td>
<td>5</td>
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<tr>
<td>MATH 230</td>
<td>Analytical Geometry &amp; Calculus 2</td>
<td>5</td>
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<tr>
<td>MATH 322</td>
<td>Linear Algebra</td>
<td>3</td>
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<tr>
<td>PHYS 241</td>
<td>General Physics 1 *Z</td>
<td>5</td>
</tr>
<tr>
<td>PHYS 242</td>
<td>General Physics 2 *Z</td>
<td>5</td>
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<td>Electives:</td>
<td>Social Awareness</td>
<td>6</td>
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<tr>
<td></td>
<td>Cultural Enrichment (includes SURE 331)</td>
<td>9</td>
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</tbody>
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Major
- BLAW 221 Elementary Business Law 3
- CONM 121 Materials Properties & Testing 3
- CONM 221 Statics & Structures 4
- SURE 110 Fundamentals of Surveying 4
- SURE 115 Intro to Computer Mapping 2
- SURE 215 Surveying Computation 3
- SURE 220 Engineering Surveying 4
- SURE 230 Advanced Surveying 4
- SURE 272 Geomatics Computation 3
- SURE 321 Hydraulics Engineering 4
- SURE 331 Ethics & Prof in ERGR/Tech*C 3
- SURE 325 Prin of Geographic Info Systems 3
- SURE 340 Photogrammetry 3
- SURE 365 Legal Aspects of Surv 1 * W 3
- SURE 366 3
- SURE 372 Adv Surveying Computations 3
- SURE 373 Adjustment Computations 3
- SURE 420 Prof Practice of Surveying* W 3
- SURE 421 Soils Engineering 4
- SURE 425 Technical Issues in GIS & Cartography 3
- SURE 440 Advanced Photogrammetry 3
- SURE 452 Geodesy 1 4
- SURE 453 Geodesy 2 4
- SURE 465 Legal Aspects of SURV 2 * W 4
- SURE 339 Remote Sensing 3
- SURE 485 3

Minimum credit hours required for B.S. degree: 138

More Information
Surveying Engineering Dept.
Ferris State University
915 Campus Drive/Swan 314
Big Rapids, MI 49307-2280
or call (231) 591-2845