

The Ohio State University  
College of Engineering  
Department of Civil, Environmental and Geodetic Engineering  
Surveying and Mapping Minor (SURVMAP-MN)

Department of Civil, Environmental and Geodetic Engineering  
470 Hitchcock Hall, 2070 Neil Avenue Columbus, OH 43210  
<http://ceg.ohio-state.edu>

Surveying is a crucial part of land development. Professional Surveyors must have a Bachelor of Science in Civil Engineering or Surveying and Mapping, and often work closely with architects and builders to produce precise surveys and maps of surface features of the earth. Surveyors can choose from many specialties and get involved at many stages of a project. Students who pursue a Surveying and Mapping minor will gain an understanding of global positioning; analyzing spatial data; digital map production and electronic data collection; survey software applications, boundary surveying and construction layout techniques. Students interested in pursuing a career in professional land surveying should consider completing the Surveying and Mapping minor. Completion of the minor, in combination with a BS-Civil Engineering degree, will enable students to sit for their Fundamentals of Surveying Exam in the State of Ohio and pursue licensure as a Professional Surveyor.

**Prerequisites for Surveying and Mapping Minor**

*Must be completed prior to beginning the minor program:*

- CIVILEN 2410 (3 hrs) – Introduction to Surveying

**Requirements for Surveying and Mapping Minor**

Credit hour requirement: 19 credit hours

Required Courses: All courses below must be completed

- CIVILEN 2090 (1 hr) – Professional Aspects
- CIVILEN 5410 (3 hrs) – Engineering Surveying
- CIVILEN 5411 (4 hrs) – Legal Aspects of Surveying
- CIVILEN 5412 (4 hrs) – Land Boundary & Development Principles
- CIVILEN 5441 (3 hrs) – Introduction to GPS: Theory and Application
- CIVILEN 5461 (4 hrs) – Geospatial Numerical Analysis

Details for the required minor courses are listed below. Many of the courses are only offered once per year.

**Surveying and Mapping Minor Program Guidelines**

Required for graduation: No

Credit hours required: A minimum of 19 credit hours is required to complete the Surveying and Mapping minor.

Transfer and EM credit hours allowed: No more than 6 (six) of the credit hours required for the minor can come from transfer or EM credit.

Overlap with the major:

- The minor must be in a different subject than the major
- The minor must contain a minimum of 12 hours distinct from the major and/or additional minor(s).

Civil Engineering Majors: The following courses will count as Area 2 Technical Electives for Civil Engineering:

- CIVILEN 5410 (3 hrs) – Engineering Surveying
- CIVILEN 5441 (3 hrs) – Introduction to GPS: Theory and Application
- CIVILEN 5461 (4 hrs) – Geospatial Numerical Analysis

Grades required:

- Minimum C- for a course to be listed in the minor program
- Minimum 2.0 cumulative point-hour ratio (CPHR) required for the minor
- Course work graded Pass/Non-Pass cannot count towards the minor

Minor approval/changing the minor: Any changes must be approved by the Department of Civil, Environmental and Geodetic Engineering

Filing the minor program form: If required by the students' respective department, the minor program form must be filed at least by the time the graduation application.

Course	Title	Term	Hrs	Prerequisites
CIVILEN 2090	Professional Aspects of Civil and Environmental Engineering	AU/SP	1	Enrollment in CIVILEN or ENVENG major
CIVILEN 2410	Introduction to Surveying	AU/SP	3	CIVILEN 2050 (concur); and enrollment in CIVILEN or ENVENG major
CIVILEN 5410	Engineering Surveying	AU	3	CIVILEN 2410 and enrollment in CIVILEN major
CIVILEN 5411	Legal Aspects of Surveying	AU	4	CIVILEN 2410 and enrollment in CIVILEN major
CIVILEN 5412	Land Boundary and Development Principles	SP	4	CIVILEN 5411 and enrollment in CIVILEN major
CIVILEN 5441	Introduction to GPS: Theory and Application	SP	3	MATH 1172 or 2153 and Jr. standing or above
CIVILEN 5461	Geospatial Numerical Analysis	AU	4	CIVILEN 2410