

**NOVA COLLEGE-WIDE COURSE CONTENT SUMMARY
CIV 256 – GLOBAL POSITIONING SYSTEMS FOR LAND SURVEYING (3 CR.)**

Course Description

Introduces principles of satellite-based surveying and presents the Global Positioning System (GPS) as it is utilized in land surveying. Various components of GPS technology are described and techniques, through which GPS technology can be used in land surveys, are presented. Field exercises will be assigned utilizing GPS equipment as part of the laboratory activities. [This course covers the same content as GIS 256. Credit will not be granted for both courses]. Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

General Course Purpose

This course introduces students to the Global Positioning System (GPS) and how it can be used in surveying. Students learn about GPS surveying equipment, related field procedures, and analysis of GPS data. Emphasis is on GPS applications related to mapping, engineering and construction projects. This course is primarily aimed at the intermediate to advanced surveying/engineering technicians.

Course Prerequisites/Corequisites

Prerequisite: CIV 171 or Division Approval

Course Objectives

Upon completion of this course, students will be able to:

- Integrate knowledge of mathematics, science, and engineering in Global Positioning.
- Identify GPS equipment and their proper application to surveying, mapping and engineering
- Collect and analyze GPS data and compare the results of GPS derived positions with classical survey methods over small areas
- Recognize how to evaluate GPS derived coordinates and data
- Identify the pros and cons of surveying with GPS vs. other (traditional surveying) methods

Major Topics to be Included

- Introduction and overview of GPS
- Coordinates and reference systems used by GPS
- GPS equipment
- GPS for land navigation and survey reconnaissance
- Static / Differential Positioning
- Dynamic / Kinematic Positioning
- National GPS applications (CORS & OPUS)
- Introduction to Real Time Local Networks may also include field trip(s), equipment demonstrations, and guest lecturers from professionals working in the surveying, mapping and construction fields.