

Title: TCCN:	Plane Surveying ENGR 1307
Draft Course Description	<p>Development of skills necessary to recognize and solve problems in surveying; introduction and use of various precision instruments used for surveying, including level, theodolites, electronic distance measuring equipment, and total stations for collecting field data; introduction of Global Positioning Systems (GPS) and Geographic Information Systems (GIS) and their use in surveying; and use of graphic design software, such as AutoCAD or Microstation, in surveying problems.</p> <p>Prerequisites: MATH 1316—Plane Trigonometry or equivalent, ENGR 1304—Engineering Graphics I</p>
Draft Course Outcomes	<p>Upon successful completion of this course, students will:</p> <ol style="list-style-type: none"> 1. State the different classifications and types of surveys. 2. Apply principles of trigonometry to surveying problems. 3. Perform necessary unit conversions in surveying. 4. Demonstrate skills necessary for field work such as safety, note keeping, and instrument care. 5. Operate surveying equipment such as level, theodolite, total station, electronic distance measuring equipment, and surveying tape. 6. Determine the expected value and error bounds associated with measurements. 7. Perform horizontal and vertical measurements using standard surveying equipment for distance, angles, and contours. 8. Perform traverse and area calculations, including traverse closure. 9. Perform field layout for typical civil engineering applications such as highway geometrics and land development. 10. Present surveying data in graphical form using engineering design software such as AutoCAD or Microstation. <p>Discuss the basic principles of GIS and GPS systems and their application to field surveying problems.</p>