Miami Dade College

Course Competencies Template - Form 112

GENERAL INFORMATION	
Name:	Phone #:
Course Prefix/Number: SUR 1202C	Course Title: Surveying 2
Number of Credits: 4	
Degree Type	☐ B.A. ☐ B.S. ☐ B.A.S. ☐ A.A. ☐ A.S. ☐ A.A.S. ☐ C.C.C. ☐ A.T.C. ☐ V.C.C.
Date Submitted/Revised:	Effective Year/Term:
☐ New Course Competency ☐ Revised Course Competency	
Course to be designated as a General Education course (part of the 36 hours of A.A. Gen. Ed. coursework): ☐ Yes ☒ No	
College Wide General Education Student Learning Outcomes (CWGESLO) legend: 1. Communication 2. Numbers / Data 3. Critical Thinking 4. Information Literacy 5. Cultural / Global Perspective 6. Social Responsibility 7. Ethical Issues 8. Computer / Technology Usage 9. Aesthetic / Creative Activities 10. Environmental Responsibility	
Course Description (limit to 50 words or less, **must correspond with course description on Form 102**): This course builds upon the knowledge acquired in Surveying 1. It equips students with the knowledge needed to operate advanced surveying and measuring instruments, deliver topographic mapping, integrate data into geographic information systems (including remote sensors and LIDAR data), and process data with survey data processing software. . Prerequisite: SUR 1101C.	
Prerequisite(s): SUR 1101C	Corequisite(s):

Course Competencies:

Competency 1:	CWGESLO
The student will demonstrate hand-on skills in the use of advanced surveying instruments by:	2, 8

a) Gaining proficiency in using advanced surveying instruments, such as high-precision total stations, GNSS receivers, 3D laser scanners, and drone-based surveying technology.
b) Learning to troubleshoot and maintain surveying equipment.

Competency 2:	CWGESLO
The student will demonstrate knowledge and understanding of measuring techniques by:	2, 4, 8

a) Mastering measurement techniques, including control network establishment, leveling, and trigonometric heighting.
b) Understanding and explaining geodetic concepts and their applications in topographic surveys.

Competency 3:	CWGESLO
The student will demonstrate understanding of Digital Terrain Modeling (DTM) by:	1, 2, 8

a) Showing how to create and work with digital terrain models, including triangulated irregular networks (TIN) and grid-based models.
b) Analyzing terrain features and slopes using DTM data.

Revision Date: _____

Approved By Academic Dean Date: _____ Reviewed By Director of Academic Programs Date: _____

Competency 4:	CWGESLO
The student will demonstrate proficiency in remote sensing and lidar by:	2, 3, 8

a) Exploring remote sensing technologies, such as LiDAR (Light Detection and Ranging), and their applications in topographic mapping.
b) Interpreting LiDAR data to generate detailed topographic information.

Competency 5:	CWGESLO
The student will demonstrate proficiency in advanced field surveying techniques by:	1, 2, 3, 8

a) Developing expertise in conducting complex field surveys, such as hydrographic surveys for water bodies, control network densification, and monitoring surveys for deformation analysis.
b) Exploring state plane coordinates and global positioning systems (GPS).

Competency 6:	CWGESLO
The student will demonstrate proficiency in advanced topographic mapping by:	2, 8

a) Creating advanced topographic maps that include contour lines, spot elevations, breaklines, and features like roads, buildings, and utilities.
b) Understanding and explaining map scales and projections for different applications.

Competency 7:	CWGESLO
The student will demonstrate proficiency in data integration and GIS by:	2, 3, 8

a) Integrating topographic survey data with geographic information systems (GIS) to create comprehensive geospatial databases.

Competency 8:	CWGESLO
The students will demonstrate understanding in topographic surveying for specialized applications by:	1, 6, 7, 8

a) Showing how to conduct topographic surveys for specific applications, such as forestry, mining, environmental monitoring, and archeology.
b) Defining the unique challenges and requirements of each application.

Competency 9:	CWGESLO
The student will demonstrate proficiency in survey data processing software by:	8

a) Using specialized survey data processing software, such as AutoCAD Civil 3D, Trimble Business Center, or similar tools.

Competency 10:	CWGESLO
The student will demonstrate proficiency in quality control and error analysis by:	2, 8

a) Implementing rigorous quality control and error analysis procedures to ensure the accuracy and reliability of topographic survey data.
b) Identifying and rectifying errors in surveying work.

Competency 11:	CWGESLO
The student will demonstrate understanding of legal and ethical considerations by:	6, 7

a) Showing understanding of land surveying laws and regulations applicable to topographic surveying.
b) Exploring ethical responsibilities in surveying practice.

Competency 12:	CWGESLO
The student will demonstrate proficiency in report writing and presentation by:	1

a) Preparing detailed survey reports and professional presentations.
b) Showing understanding of land surveying laws and regulations applicable to topographic surveying.

Revision Date: _____

Approved By Academic Dean Date: _____ Reviewed By Director of Academic Programs Date: _____

c) Presenting written and verbal communication skills to convey survey results effectively to clients and stakeholders.

Revision Date: _____

Approved By Academic Dean Date: _____ Reviewed By Director of Academic Programs Date: _____