



COURSE OUTLINE

SUR201

Prepared: Sal lenco Approved: Corey Meunier

Course Code: Title	SUR201: SURVEYING
Program Number: Name	4080: CIVIL ENG TECHNICIAN
Department:	CIVIL/CONSTRUCTION
Semester/Term:	17F
Course Description:	<p>Surveying plays a key role with our built environment. As a civil technician you may have responsibilities at the initial planning, layout or construction phases of a project.</p> <p>This course integrates the operations of a total station and GPS to computer software for the purpose of map creation, terrain modeling and project data management. The field work deals with topographic surveys and practical construction layout projects.</p> <p>This course is a continuation of SUR101 and SUR 122.</p>
Total Credits:	4
Hours/Week:	4
Total Hours:	60
Prerequisites:	SUR101
Vocational Learning Outcomes (VLO's): Please refer to program web page for a complete listing of program outcomes where applicable.	#2. comply with workplace health and safety practices and procedures in accordance with current legislation and regulations. #6. collect, process and interpret technical data to produce written and graphical project-related documents. #7. use industry-specific electronic and digital technologies to support civil engineering projects. #8. participate in the design and modeling phase of civil engineering projects by applying engineering concepts, basic technical mathematics and principles of science to the review and production of project plans. #11. apply teamwork, leadership and interpersonal skills when working individually or within multidisciplinary teams to complete civil engineering projects.
Essential Employability Skills (EES):	#1. Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience. #2. Respond to written, spoken, or visual messages in a manner that ensures effective communication. #3. Execute mathematical operations accurately.



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- #4. Apply a systematic approach to solve problems.
- #5. Use a variety of thinking skills to anticipate and solve problems.
- #8. Show respect for the diverse opinions, values, belief systems, and contributions of others.
- #9. Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.
- #10. Manage the use of time and other resources to complete projects.
- #11. Take responsibility for ones own actions, decisions, and consequences.

Course Evaluation: Passing Grade: 50%, D

Other Course Evaluation & Assessment Requirements: Grade
 Definition Grade Point Equivalent
 A+ 90 – 100% 4.00
 A 80 – 89%
 B 70 - 79% 3.00
 C 60 - 69% 2.00
 D 50 – 59% 1.00
 F (Fail) 49% and below 0.00

CR (Credit) Credit for diploma requirements has been awarded.
 S Satisfactory achievement in field /clinical placement or non-graded subject area.
 U Unsatisfactory achievement in field/clinical placement or non-graded subject area.
 X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
 NR Grade not reported to Registrar’s office.
 W Student has withdrawn from the course without academic penalty.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Field Assignments and or Quizzes	40%
Final Test	30%
Mid-term Test	30%

Books and Required Resources: Surveying with Construction Applications by Barry F. Kavanagh/Dianne K. Slattery
 Publisher: Surveying with Construction Applications
 ISBN: 10: 0-13-276698-1

Course Outcomes and Learning Objectives: **Course Outcome 1.**



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Upon successful completion, the student will be able to:

1. Comply with health and safety practices and procedures while performing field activities.

Learning Objectives 1.

- 1.1 Conduct self in safe manner and in accordance with the requirements of work situation
- 1.2 Identify unsafe situations in the field
- 1.3 Apply best safety practices when working outdoors

Course Outcome 2.

Upon successful completion, the student will be able to:

2. Collect, process and interpret survey data to produce a neat well organized paper-based and electronic field book

Learning Objectives 2.

- 2.1 collect, interpret and check survey data by using systematic approaches in accordance with recognized standards and practices
- 2.2 present field book to your professor at the end of each field session
- 2.3 use appropriate data recorder to produce the electronic field book
- 2.4 contribute to the development of strategies to collect the survey field data
- 2.5 select and operate a digital level, total station and GPS to measure and record survey data that is within expected parameters of precision and accuracy
- 2.6 collect and organize survey field information in an electronic retrievable manner according to approved techniques
- 2.7 use collected and stored field data accurately and effectively in producing a topographic plan
- 2.8 ensure that at the end of each field survey session the data is shared with group members

Course Outcome 3.

Upon successful completion, the student will be able to:



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3. Use industry-specific digital level, total stations, GPS and digital technologies to support the topographic survey project.

Learning Objectives 3.

3.1 Select and use standard survey equipment such as digital level, total station and global positioning systems

3.2 Apply survey techniques and use survey equipment such as digital level, total station and GPS

3.3 Use Civil3D to set up the survey, import field books, export data, create a surface and produce plans for the topographic survey

3.4 Visualize and edit surfaces for the topographic survey using Civil3D

3.5 Identify and demonstrate the connection interface between the data collector and the total station and the GPS unit

3.6 Explain and demonstrate how DPGS (Differential GPS) works

Course Outcome 4.

Upon successful completion, the student will be able to:

4. Participate as a member of a survey team by applying surveying concepts and basic technical mathematics to produce a topographic survey plan

Learning Objectives 4.

4.1 Collect, interpret and check survey data by using systematic approaches in accordance to recognized standards and practices

4.2 Perform a differential leveling activity to establish elevations for control points

4.3 Perform total station activities to define topographic tree, catch basin, fire hydrant points, building polygons, road/sidewalk lines and ground shot

4.4 Perform GPS activities to collect topographic data for

4.5 Illustrate and layout grade stakes for a go kart track

4.6 implement checks to ensure that survey field work is accurate

4.7 Interpret issues found during checking the survey work and provide recommendations to solve matters

4.7 Perform an interlining activity to lay out a reference line for a proposed extension of a



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- building
- 4.8 Implement checks to ensure that field work is accurate
- 4.9 Seek assistance to resolve situations that are beyond the student's scope of knowledge.
- 4.10 Describe the basis of coordinate geometry and apply it surveying problems

Course Outcome 5.

Upon successful completion, the student will be able to:

- 5. Apply teamwork, leadership and interpersonal skills when working individually or within a team to complete the survey field camp projects.

Learning Objectives 5.

- 5.1 Take initiative while working with your team to complete the field projects
- 5.2 Assume accountability for self in managing the use of time and resources to meet established deadline
- 5.3 Work as an effective team player to complete the survey projects while promoting a positive work environment
- 5.4 Use effective time-management and organizational techniques to prioritize project tasks and to accomplish goals set by the team
- 5.5 Use conflict resolution skills in the field including cooperation and compromise

Date:

Friday, September 1, 2017

Please refer to the course outline addendum on the Learning Management System for further information.