



COURSE OUTLINE

SUR101

Prepared: Sal lenco Approved: Corey Meunier

Course Code: Title	SUR101: 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 introduces you to basic surveying principles. The topics will deal with theory, application and care of the level, distance measurement equipment and total station/theodolite. The theory is enhanced with practical field exercises.</p>
Total Credits:	4
Hours/Week:	4
Total Hours:	60
Substitutes:	OEL810, SUR100, SUR109
This course is a pre-requisite for:	SUR201, SUR205, SUR235
Vocational Learning Outcomes (VLO's): <small>Please refer to program web page for a complete listing of program outcomes where applicable.</small>	<p>#2. comply with workplace health and safety practices and procedures in accordance with current legislation and regulations.</p> <p>#6. collect, process and interpret technical data to produce written and graphical project-related documents.</p> <p>#7. use industry-specific electronic and digital technologies to support civil engineering projects.</p> <p>#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.</p> <p>#11. apply teamwork, leadership and interpersonal skills when working individually or within multidisciplinary teams to complete civil engineering projects.</p>
Essential Employability Skills (EES):	<p>#1. Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.</p> <p>#2. Respond to written, spoken, or visual messages in a manner that ensures effective communication.</p>



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- #3. Execute mathematical operations accurately.
- #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 & Participation (total of eight activities)	20%
Final Test	20%
Mid Term Test	20%
Paper Assignments (total of three assignments)	15%
Quizzes (total of five quizzes)	15%
Two Practical Tests (equal weight)	10%

Books and Required Resources: Surveying with Construction Applications by Barry F. Kavanagh/Dianne K. Slattery
 Publisher: Pearson Edition: 8th Edition



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ISBN: 10: 0-13-276698-1

Course Outcomes and Learning Objectives:

Course Outcome 1.

Upon successful completion, the student will be able to:

1. Define, list and demonstrate basic surveying concepts from a historical and procedural perspective.

Learning Objectives 1.

- 1.1 Define geomatics and surveying.
- 1.2 List the various branches of surveying.
- 1.3 Define and identify systematic and random errors.
- 1.4 Define and identify mistakes or blunders.
- 1.5 Identify the basic components of a surveyor's level, chain and total station.
- 1.6 Describe the proper care and handling of survey equipment.
- 1.7 Identify and demonstrate suitable formats for note taking

Course Outcome 2.

Upon successful completion, the student will be able to:

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

Learning Objectives 2.

- 2.1 Conduct self in safe manner and in accordance with the requirements of work situation.
- 2.2 Identify unsafe situations in the field.
- 2.3 Apply best safety practices when working outdoors.

Course Outcome 3.

Upon successful completion, the student will be able to:

3. Use industry-specific automatic level, digital level, taping and total stations and technologies to support the survey field activities.



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Learning Objectives 3.

- 3.1 Select and use standard survey equipment such as automatic level, digital level, tapes and total station.
- 3.2 Apply survey techniques and use survey equipment such as automatic level, digital level, chains, tapes and total station.
- 3.3 Use Excel to reduce field notes.

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 review and produce leveling, taping and total station activities.

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, benchmark and profile leveling field activity.
- 4.3 Perform a taping activity on level and sloping ground in the field.
- 4.4 Measure and record the horizontal angles of a closed traverse.
- 4.5 Present a field book that is complete, neat and illustrated with appropriate sketches at the mid-term and end of semester timeframes.
- 4.6 Apply known and routine calculations to check the closure of a leveling route.
- 4.7 Implement checks to ensure that field work is accurate.
- 4.8 Determine elevation differences by trigonometric leveling and level circuit adjustments.
- 4.9 Perform calculations of right angle triangles.
- 4.10 Convert horizontal angles to azimuths and bearings for a closed traverse.
- 4.11 Perform computations of open traverse by determining the azimuth and bearing of each segment of the traverse.
- 4.12 Seek assistance to resolve situations that are beyond the student's scope of training or knowledge.

Course Outcome 5.

Upon successful completion, the student will be able to:



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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.