

ITT Technical Institute  
**CM350**  
**Site Construction and Measurement**  
**Onsite Course**

**SYLLABUS**

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**Credit hours:** 4

**Contact/Instructional hours:** 50 (30 Theory Hours, 20 Lab Hours)

**Prerequisite(s) and/or Corequisite(s):**

Prerequisite: CD310 Civil Drafting and Introduction to GIS

**Course Description:**

Site construction methods, soil conditions and storm water drainage are discussed in this course. Additional topics include layout, leveling, surveying and underground utilities as they relate to the building site.

## Where Does This Course Belong?

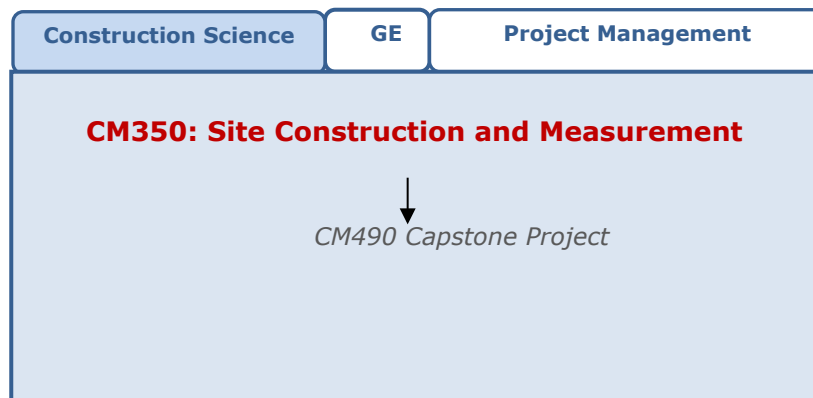
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Site Construction and Measurement is a course required to obtain a bachelor's degree in the Construction Management program. This course introduces site construction methods, soil conditions and storm water drainage. Additional topics include layout, leveling, surveying and underground utilities as they relate to the building site.

The goal of the program is to help the student acquire the necessary skills to become a versatile member of a construction team. Graduates may begin their careers in a variety of entry-level positions involving construction estimating, construction safety assurance, construction project management, or building code compliance.

The following course sequence provides an overview of how the Site Construction and Measurement course fits into the program.

### *Construction Management Core*



# Course Summary

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## ***Major Instructional Areas***

- Shaping the Built Environment
- Visualization of Spatial Information
- Site Selection
- Site Plan Development and Programming
- Site Layout
- Site Inventory
- Site Analysis
- Design Development
- Project Implementation

## **Course Objectives**

- Examine the basic steps associated with sustainable site design and measurement.
- Examine the regulations governing the environmental impact of site design activities and sustainability.
- Develop a sustainable master conceptual design plan.
- Examine the basic cost elements associated with sustainable site design and development.
- Select a site for a specific development.
- Examine the physical properties of the selected site.
- Examine the geotechnical properties of soil.
- Examine the biological attributes of the selected site
- Examine the cultural attributes of the selected site
- Examine the orientation considerations for any sustainable site development.
- Examine the requirements for any sustainable site plan.
- Conduct a site analysis for an assigned location.
- Examine the conditions that must be noted for design consideration.
- Interpret basic site plans.
- Incorporate site utility components, such as water, gas, electric and low voltage service, into site layout.
- Apply local right-of-way requirements to the site plan.
- Develop a conceptual storm water management plan.

## Learning Materials and References

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### Required Resources

Textbook Package	New to this Course	Carried over from Previous Course(s)	Required for Subsequent Course(s)
LaGro, J. (2013). <i>Site analysis: Informing context-sensitive and sustainable site planning and design</i> . (3rd ed.). Hoboken, NJ: John Wiley and Sons, Inc.	■		
Strom, S. (2013). <i>Site Engineering for Landscape Architects</i> (6th ed.). Hoboken, NJ: John Wiley and Sons, Inc.	■		
Woland, J. (2013). <i>Site Engineering for Landscape Architects Workbook</i> (2nd ed.). Hoboken, NJ: John Wiley and Sons, Inc.	■		

### Recommended Resources

- **Web Sites**

Site Plan Contents

<http://www.ci.minneapolis.mn.us/mdr/permits/SitePlan.asp>

Planning Pointers

[http://www.sanjoseca.gov/planning/counter/planning\\_sanjose/Planning\\_in\\_San\\_Jose\\_pt3.pdf](http://www.sanjoseca.gov/planning/counter/planning_sanjose/Planning_in_San_Jose_pt3.pdf)

Real Property Descriptions

<http://survey.rinaldinet.com/sufficiency-master.htm>

Subdivision and Site Plan Review Handbook

<http://www.nh.gov/oep/resource/library/referencelibrary/s/siteplanreview/documents/subdivisionsiteplanreviewhandbook.pdf>

Multi-Unit Small Subdivision Process Guide

[http://www.co.clear-creek.co.us/depts/Planning/Guides09/Multi-UnitSmall\\_Subdivision\\_PD\\_and\\_App.pdf](http://www.co.clear-creek.co.us/depts/Planning/Guides09/Multi-UnitSmall_Subdivision_PD_and_App.pdf)

Topographic Mapping

<http://egsc.usgs.gov/isb/pubs/booklets/topo/topo.html>

Topographic Map Symbols

<http://egsc.usgs.gov/isb/pubs/booklets/symbols/>

#### Weight-Volume Relationships of Soil Aggregates

[http://faculty.fortlewis.edu/kenny\\_r/Geol%2030%20Eng%20Geol/Pwrpts/PDF%20powerpts/ENG%20soil%20Consistency%20Weight%20Volume%20liquid%20limit%20W11A.pdf](http://faculty.fortlewis.edu/kenny_r/Geol%2030%20Eng%20Geol/Pwrpts/PDF%20powerpts/ENG%20soil%20Consistency%20Weight%20Volume%20liquid%20limit%20W11A.pdf)

#### Soil Orders

<http://soils.cals.uidaho.edu/soilorders/links.htm>

#### Soil Quality Publications

<http://soils.usda.gov/sqi/publications/publications.html>

#### Soil Characteristics

<http://soils.gsfc.nasa.gov/links/charac.htm#distr>

#### Natural Resources Conservation Service

<http://esis.sc.egov.usda.gov/>

#### Top 15 Skylines of the World

<http://www.diserio.com/top15-skylines.html>

#### World's Best Skylines

<http://homepages.ipact.nl/~egram/skylines.html>

#### Pedestrian-Friendly Transit Supportive Development

<http://contextsensitivesolutions.org/content/reading/alternative-6/resources/3015-alternative-strategies-and-measures-pedestrian-friendly-transit-supportive-development/>

#### Shades of Green

[http://www.peterli.com/spm/resources/articles/archive.php?article\\_id=821](http://www.peterli.com/spm/resources/articles/archive.php?article_id=821)

#### ▪ Professional Organizations

- American Society of Civil Engineers <http://www.asce.org>
- American Institute of Architects <http://www.aia.org>
- American Society of Landscape Architects ("ASLA") <http://www.asla.org>
- American Real Estate and Urban Economics Association ("AREUEA") <http://www.areuea.org>
- National Association of Home Builders ("NAHB") <http://www.nahb.com>
- U.S. Green Building Council ("USGBC") <http://www.usgbc.org>

### Information Search

Use the following keywords to search for additional online resources that may be used for supporting your work on the course assignments:

Site Design and Measurement

Land Development Process

Environmental Permitting

Master Plan

Sustainable Building

Cut and Fill Process  
 Soil Attributes  
 Site Inventory  
 Spatial Organization  
 LEED Certification

**NOTE:** All links to web references are subject to change without prior notice.

## Course Plan

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### Instructional Methods

This course is designed to promote learner-centered activities and support the development of cognitive strategies and competencies necessary for effective task performance and critical problem solving. The course utilizes individual and group learning activities, performance-driven assignments, problem-based cases, projects, and discussions. These methods focus on building engaging learning experiences conducive to development of critical knowledge and skills that can be effectively applied in professional contexts.

### Suggested Learning Approach

In this course, you will be studying individually and within a group of your peers. As you work on the course deliverables, you are encouraged to share ideas with your peers and instructor, work collaboratively on projects and team assignments, raise critical questions, and provide constructive feedback.

Use the following advice to receive maximum learning benefits from your participation in this course:

DO	DON'T
<ul style="list-style-type: none"> <li>▪ Do take a proactive learning approach</li> <li>▪ Do share your thoughts on critical issues and potential problem solutions</li> <li>▪ Do plan your course work in advance</li> <li>▪ Do explore a variety of learning resources in addition to the textbook</li> <li>▪ Do offer relevant examples from your experience</li> <li>▪ Do make an effort to understand different points of view</li> <li>▪ Do connect concepts explored in this course to real-life professional situations and your own experiences</li> </ul>	<ul style="list-style-type: none"> <li>▪ Don't assume there is only one correct answer to a question</li> <li>▪ Don't be afraid to share your perspective on the issues analyzed in the course</li> <li>▪ Don't be negative about the points of view that are different from yours</li> <li>▪ Don't underestimate the impact of collaboration on your learning</li> <li>▪ Don't limit your course experience to reading the textbook</li> <li>▪ Don't postpone your work on the course deliverables – work on small assignment components every day</li> </ul>

### Course Outline

Unit	Reading Assignments	Graded Activities & Deliverables
<i>1. Shaping the Built Environment</i>	LaGro, Chapter 1 and Chapter 9 and Chapter 5, pp140-150.	<ul style="list-style-type: none"> <li>▪ Unit 1. Assignment 1. Sustainable Approach to Urban Site Planning</li> <li>▪ Unit 1. Exercise 1. Review of Site Investigation Components</li> </ul>
<i>2. Visualization of Spatial Information</i>	LaGro, Appendix A, pp. 72-80 (Base map, topology, elevation, slope, and aspect), Pp. 167-69 (Morphology); 42-60 (Sections 2.3-2.7).  Strom, Chapters 3-4, and 8	<ul style="list-style-type: none"> <li>▪ Unit 2. Assignment 1. Creating a Manual Takeoff</li> <li>▪ Unit 2. Exercise 1. Sustainable Master Concept Design Plan Development</li> </ul>
3. Site Selection	LaGro, Chapter 2	<ul style="list-style-type: none"> <li>▪ Unit 3. Assignment 1. Selecting a Development Site</li> <li>▪ Unit 3. Assignment 2. The Zoning Change Petition Process</li> <li>▪ Unit 3. Exercise 1. Sustainable Site Selection Plan for a New Business Facility</li> </ul>
4. Site Plan Development and Programming	LaGro, Chapter 2  Strom, Chapters 1-2	<ul style="list-style-type: none"> <li>▪ Unit 4. Assignment 1. Common Site Plan Elements</li> <li>▪ Unit 4. Assignment 2. Case-Study: Review of the Alleghany Sports Complex Feasibility Study</li> <li>▪ Unit 4. Exercise 1. Creation of a Local Site Selection Plan</li> </ul>
5. Site Inventory: Physiographic Context	LaGro, Chapter 3  Strom, Chapters 7, and 11	<ul style="list-style-type: none"> <li>▪ Unit 5. Assignment 1. Geotechnical Soil Properties</li> <li>▪ Unit 5. Assignment 2. Field-Examination of Soil Composition</li> <li>▪ Unit 5. Exercise 1. Evaluating a Soil Analysis Article</li> </ul>
6. Site Inventory: Biological Context and Cultural and Historic Context	LaGro, Chapters 4 and 6	<ul style="list-style-type: none"> <li>▪ Unit 6. Assignment 1. Graphically Mapping Biological Attribute Factors</li> <li>▪ Unit 6. Exercise 1. Graphically Mapping Physical and Public Infrastructure Attribute Factors</li> </ul>
7. Sustainable Site Layout and Site Analysis: Integration and Synthesis	Strom, Chapters 5 and 15	<ul style="list-style-type: none"> <li>▪ Unit 7. Assignment 1. Elements of Site Analysis</li> <li>▪ Unit 7. Assignment 2. Creating a Site Layout</li> </ul>

		<ul style="list-style-type: none"> <li>▪ Unit 7. Project 1. Sustainable Master Concept Design Plan: Undeveloped Site</li> </ul>
8. Street and Public-Way Design and Storm Water Management	LaGro, Chapter 8  Strom, Chapters 10, 12 and 14 and Management Philosophy, p. 150	<ul style="list-style-type: none"> <li>▪ Unit 8. Assignment 1. Creating a Drainage Perspective</li> <li>▪ Unit 8. Assignment 2. Creating a Street and Sidewalk Design</li> <li>▪ Unit 8. Project 1. Sustainable Master Concept Plan: Developed Site</li> </ul>
9. Sustainable Conceptual Design Assignments	LaGro, Chapter 8	<ul style="list-style-type: none"> <li>▪ Unit 9. Assignment 1. McHarg's Conceptual Design Approach</li> <li>▪ Unit 9. Assignment 2. Concept Plan Graphics</li> <li>▪ Unit 9. Project 1. Concept Evaluation and Refinement</li> </ul>
10. Design Development and Project Implementation	LaGro, Chapters 5 and 9	<ul style="list-style-type: none"> <li>▪ Unit 10. Project 1. LEED Certification Review for an Undeveloped Site Plan</li> <li>▪ Unit 10. Project 2. LEED Certification Review for a Developed Site Plan</li> <li>▪ Unit 10. Project 3. LEED Executive Summary</li> </ul>
11. Course Review and Final		<i>Final Exam</i>

## Evaluation and Grading

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### Evaluation Criteria

The graded assignments will be evaluated using the following weighted categories:

Category	Weight
Assignment	45%
Exercise	18%
Project	17%
Exam	20%
<b>TOTAL</b>	<b>100%</b>

### Grade Conversion

The final grades will be calculated from the percentages earned in the course, as follows:



<b>Grade</b>	<b>Percentage</b>	<b>Credit</b>
A	90–100%	4.0
B+	85–89%	3.5
B	80–84%	3.0
C+	75–79%	2.5
C	70–74%	2.0
D+	65–69%	1.5
D	60–64%	1.0
F	<60%	0.0

**Graded Activities and Deliverables**

<b>Grading Category</b>	<b>Category Weight</b>	<b>Graded Deliverable</b>	<b>Weight</b>
Assignment	45%	Unit 1. Assignment 1. Sustainable Approach to Urban Site Planning	3%
		Unit 2. Assignment 1. Creating a Manual Takeoff	3%
		Unit 3. Assignment 1. Selecting a Development Site	3%
		Unit 3. Assignment 2. The Zoning Change Petition Process	3%
		Unit 4. Assignment 1. Common Site Plan Elements	3%
		Unit 4. Assignment 2. Case-Study: Review of the Allegheny Sports Complex Feasibility Study	3%
		Unit 5. Assignment 1. Geotechnical Soil Properties	3%
		Unit 5. Assignment 2. Field-Examination of Soil Composition	3%
		Unit 6. Assignment 1. Graphically Mapping Biological Attribute Factors	3%
		Unit 7. Assignment 1. Elements of Site Analysis	3%
		Unit 7. Assignment 2. Creating a Site Layout	3%
		Unit 8. Assignment 1. Creating a Drainage Perspective	3%
		Unit 8. Assignment 2. Creating a Street and Sidewalk Design	3%
		Unit 9. Assignment 1. McHarg's Conceptual Design Approach	3%
		Unit 9. Assignment 2. Concept Plan Graphics	3%
Exercise	18%	Unit 1. Exercise 1. Review of Site Investigation Components	3%
		Unit 2. Exercise 1. Sustainable Master Concept Design Plan Development	3%
		Unit 3. Exercise 1. Sustainable Site Selection Plan for a New Business Facility	3%
		Unit 4. Exercise 1. Creation of a Local Site Selection Plan	3%
		Unit 5. Exercise 1. Evaluating a Soil Analysis Article	3%
		Unit 6. Exercise 1. Graphically Mapping Physical and Public Infrastructure Attribute Factors	3%
Project	17%	Unit 7. Project 1. Sustainable Master Concept Design Plan: Undeveloped Site	3%
		Unit 8. Project 1. Sustainable Master Concept Plan: Developed Site	3%
		Unit 9. Project 1. Concept Evaluation and Refinement	3%

Grading Category	Category Weight	Graded Deliverable	Weight
		Unit 10. Project 1. LEED Certification Review for an Undeveloped Site Plan	3%
		Unit 10. Project 2. LEED Certification Review for a Developed Site Plan	3%
		Unit 10. Project 3. LEED Executive Summary	2%
Exam	20%	Final Exam Units 1-10	20%

## Academic Integrity

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All students must comply with the policies that regulate all forms of academic dishonesty, or academic misconduct, including plagiarism, self-plagiarism, fabrication, deception, cheating, and sabotage. For more information on the academic honesty policies, refer to the Student Handbook and the Course Catalog.

*(End of Syllabus)*