SET 360-102: Digital Surveying Methods

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# SET 360 - 102
## DIGITAL SURVEYING METHODS

**Textbooks:**

**Course Structure:**  (3-0-3) (Lecture hr/wk - lab hr/wk - course credits)

## Tentative Course Outline:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Class meets at</th>
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| 1/21/20 | Introduction to the Course  
Surveying Methods & Terminologies  
Surveying Instrumentation | GITC 2315A            |
| 1/28/20 | Theory of Errors & Theory of “survey control”: Traverse vs. Resection  
Accuracy Standards vs. TLS Instrument Limitations  
Digital data collection & Georeferenced Scans workflows  
Instrumentation: system components & limitations | Online - WebEx         |
| 2/4/20  | Digital Surveying Project Requirements  
Instrumentation: Calibration and Validation tests | GITC 2315A - Field Exercise |
| 2/11/20 | Mathematical model supporting high definition laser scanning | GITC 2315A            |
| 2/18/20 | Survey data inspection & review  
Merging scans & test points evaluation  
Data optimization and integration | Online - WebEx         |
| 2/25/20 | Data processing software applications  
Data analysis and export | GITC 2315A            |
| 3/3/20  | Field Data collection  
Field conditions and applicable methods | GITC 2315A - Field Exercise |
| 3/10/20 | Introduction to Cyclone Software  
Working with point clouds | GITC 2315A            |
| 3/24/20 | Scan data field editing/augmentation  
Field features’ attributes collection and classification | GITC 2315A - Field Exercise |
| 4/7/20  | NJ State Plane Coordinate System  
Point Cloud Georeferencing process  
Layers definition and cartographic features’ symbol creation | Online - WebEx         |
| 4/14/20 | CAD modeling of DTM and finalization of the map | GITC 2315A            |
| 4/21/20 | GIS shape files creation and export  
3D modeling of existing objects  
3D model analysis and presentations | GITC 2315A            |
| 4/28/20 | Digital Surveying Project Paper review & evaluation  
Groups’ presentation of the project | GITC 2315A            |
| 5/12/20 | Final Exam | GITC 2315A            |