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SET 360-102: Digital Surveying Methods

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SET 360 - 102
DIGITAL SURVEYING METHODS

Textbooks:
Airborne and Terrestrial Laser Scanning, by G. Vosselman and H.-G. Mass, 1th Edition, 2010.
Elementary Surveying: An Introduction to Geomatics, by C. D. Ghilani and P. R. Wolf, 13th Edition, 2012.

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

Tentative Course Outline:

Week	Topic	Class meets at
1 1/21/20	• Introduction to the Course • Surveying Methods & Terminologies • Surveying Instrumentation	GITC 2315A
2 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
3 2/4/20	• Digital Surveying Project Requirements • Instrumentation: Calibration and Validation tests	GITC 2315A - Field Exercise
4 2/11/20	**Quiz I** • Mathematical model supporting high definition laser scanning	GITC 2315A
5 2/18/20	• Survey data inspection & review • Merging scans & test points evaluation • Data optimization and integration	Online - WebEx
6 2/25/20	• Data processing software applications • Data analysis and export	GITC 2315A
7 3/3/20	• Field Data collection • Field conditions and applicable methods	GITC 2315A - Field Exercise
8 3/10/20	**Midterm Exam**	GITC 2315A
9 3/24/20	• introduction to Cyclone Software • Working with point clouds	GITC 2315A
10 3/31/20	• Scan data field editing/augmentation • Field features' attributes collection and classification	GITC 2315A - Field Exercise
11 4/7/20	• NJ State Plane Coordinate System • Point Cloud Georeferencing process • Layers definition and cartographic features' symbol creation	Online - WebEx
12 4/14/20	**Quiz II** • CAD modeling of DTM and finalization of the map	GITC 2315A
13 4/21/20	• GIS shape files creation and export • 3D modeling of existing objects • 3D model analysis and presentations	GITC 2315A
14 4/28/20	• Digital Surveying Project Paper review & evaluation • Groups' presentation of the project	GITC 2315A
5/12/20	**Final Exam**	GITC 2315A