CE 505-005 – 3D laser scanning
3 Units, Fall Quarter 2013, Tuesday Thursday 13:00-15:50pm lecture/lab combo

Fundamental principles of 3D laser scanning and LiDAR, including sensor types (ground-based, mobile, airborne), acquisition, processing, visualization, and analysis. Establishing control for laser scan surveys. Discussion on errors, limitations, and overall quality control of laser scan data. Generation of topographic and CAD models from laser scan data. Introduction to Building Information Management (BIM). Applicable to many disciplines, such as:

- Civil/Construction Eng.
- Geosciences/Geology
- Coastal Science
- GIScience
- Computer Science
- Forestry
- And many more!

Pre-reqs: Surveying course and/or GIS experience. Open to graduate students and seniors. Open to all majors. Counts as a GISScience Elective!

Laser scan data acquisition

Processing and modeling

Scan to CAD\BIM

Questions? Please contact michael.olsen@oregonstate.edu
CE 562 - Digital Terrain Modeling
4 Units, Winter Quarter 2014, MW 10-10:50am lecture Friday. 10-13:50am lab

Understanding and development of algorithms and workflows used to model terrain from data acquired using remote sensing techniques. The course will focus on optimizing triangulations (Delaunay, etc.) and grids (i.e. Spline, IDW, etc) using high resolution data (such as LiDAR). Development of computer code to enhance data processing. Discussion on errors and quality control for DTM.s. Calculations using DTM.s. GIS Spatial analysis. Applicable to many disciplines, such as:

- Civil/Construction Eng.
- Geosciences/Geology
- Coastal Science
- GIScience
- Computer Science
- Forestry
- And many more!

Pre-reqs: Surveying course and/or GIS experience. Some programming experience. Open to graduate students and seniors. Open to all majors. Counts as a GIScience Elective!

LiDAR data acquisition, processing and modeling

High resolution triangulations, grids and texture mapping

DTM change analysis

Questions? Please contact michael.olsen@oregonstate.edu