Building the Next Generation of Surveyors

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What is a Surveyor?
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- A person who, by reason of knowledge of law, mathematics, physical sciences, and techniques of measuring acquired by professional education and practical experience, is qualified to engage in the practice of professional surveying.
I. Boundary Surveying
Retracing Old Boundaries
I. Boundary Surveying

Creating New Boundaries
II. Geodetic Surveying
Measuring the Size, the Shape, the Gravity Field of the Earth, and its Orientation in Space, as well as the changes of these, as a function of time.
III. Design Surveying/Construction
Layout
IV. Geographic Information Systems
(Map-Data Base-Query Mechanism)
V. Cartography
Va. Topographic Surveys
Vb. Hydrographic Surveys
Surveying Applications
Bridge Layout and Monitoring
High Speed Rail
Deformation Studies
Architectural Surveying
Building Information Modeling (BIM)
Mobile Mapping
Satellite Imaging
Machine Guidance
Precision Agriculture
Precision Agriculture

- Grid sampling guided by GPS gives more accurate soil test data.
- Variable rate fertilizer application can improve efficiency.
- Variable rate seeding, variety changes and starter can adjust for soil properties and productivity.
- Crop scouting with new technology improves field records.
- On-the-go yield monitors can quickly track variability in the field.

Layers:
- Past Year's Yields
- Soil Test (K)
- Soil Test (P)
- Soil Map
Metronics
Metronics
U2 Concert Stage
Environmental Remediation
Forensic Surveying/Laser Scanning
Search and Rescue
Energy Exploration
Mineral Surveys

• Performing Seismic Surveys
• Establishing Easements and Rights of Way
• Determining Drilling Units
• Well Location Surveys
Crustal Motion Surveys
Reconnaissance
Military Targeting and Navigation
Geospatial Intelligence
Mining and Tunneling
Mining and Tunneling
Quarry Operations
Mapping
(Extraterrestrial)
Sunken Wrecks and Pirate Gold
Northwestern Michigan College

Founded in 1951

#2 ranked Veterans college in the country
Top 10 in nation for short term study abroad
Industry leading Commercial Pilot program

GLMA - 1 of 6 federally authorized maritime academies

Strategic Directions

- Global preparation
- National/International leadership/competencies
- Networked delivery
- Lifelong relationships
- Transcribe most learning
Surveying Degree at Northwestern Michigan College

- Comprehensive survey specific courses:
  - Fundamentals of Survey Operations
  - CAD for Surveying
  - Construction Survey Applications
  - Surveying Calculations
  - Survey Positioning
  - Boundary Surveying
  - Remote Sensing Systems
  - GIS
  - Great Lakes Research Technologies
  - UAS Survey Operations
Thank you

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