The Marine Center
Northwestern Michigan College

Geospatial Applications
at Northwestern Michigan College

Spring 2021 Schedule

Revision date: 02.24.2021

Fundamental Technology Series:

Course	Description	Delivery	Dates / Times	Cost
Fiber Optic Fundamentals	The Fiber Optics fundamentals course will focus on fiber optic technology including data transmission, system design, and repair techniques. Emphasis will be on the troubleshooting and test of applications.	Streaming	May 7,14,21,28 0900 - 1100	$450
Fundamentals of Fluid Power	This course is designed to provide students with a basic understanding of the concepts and applications of fluid power technology. The course is an overview of fluid power technology applications; the general concept of fluid power systems and auxiliary components.	Streaming	May 7,14,21,28 0900-1100	$450

Marine Systems & Technologies Series:

Course	Description	Delivery	Dates / Times	Cost
Fundamentals of ROV operations.	Training to mobilize, deploy and operate two different commercial-grade remotely operated vehicles (ROVs) in Grand Traverse Bay deployed from the RV Northwestern. No previous experience is required.	Direct	June17, 2021 0830-1630	$550
Fundamentals of SONAR.	Introductory operations for visualizing the lake floor using commercial grade acoustic sonar systems. Multibeam, side scan, and scanning sonar systems will be presented. Operations will occur from the RV Northwestern in Grand Traverse Bay. No previous experience is required.	Direct	June 24, 2021 0830-1630	$550

UAS Courses:

Course	Description	Delivery	Dates / Times	Cost
UAS FAA 107	This course is structured to provide the student with the knowledge to pass the FAA Remote Pilot written test (FAA 107). This certification is required to be a Commercial Drone Operator. Topics include airport operations, aircraft performance, regulations, meteorology, airspace, maintenance, UAS operations, risk assessment/management. The course fee excludes the FAA exam costs	Direct	April 29-30 0800-1630	$450
UAS Survey Applications	This course will train you on how to use drones for mapping and survey uses. Students will conduct mapping flight with a drone out in the field and then learn how to use photo stitching software to create orthomosaics, 3D maps, 3D models, volumetric surveys, and more. Largely based on the OJI series of drones and Pix4D mapping software, this hands-on course will get you started with aerial survey operations.	Direct	May 6,7 0800-1630	$750

Data Management and Technology Application Series:

Course	Description	Delivery	Dates / Times	Cost
Geospatial Technologies Primer	This course discusses the underlying technologies associated with surveys utilizing emerging tools within the industry. It provides an overview of the applications and collection of data with UAS and LIDAR, mobile land-based laser scanning survey equipment, and marine-based scanning sonar. Participants will learn the theory behind each of these technologies, field applications, and the integration of the data into a reportable format.	Streaming	April 22-23 0800-1630	$1,250
Advanced Marine Survey & Data	This course provides a foundation in the coordination of maritime surveys from a pre-deployment standpoint. Students will be expected to have a strong understanding of remote sensing science including the capabilities and limitations of the sensor systems. The course will be to develop student skillsets for processing and merging marine and terrestrial datasets from a wide range of sources and systems. Significant time will be devoted to proper manipulation of data using commercial and freely-available tools	Streaming	March 3-May 21 M, W, F 1510-1750	$1,260
CARIS HIPS and SIPS	The CARIS HIPS and SIPS course is primarily intended for Data Processors who are required to process hydrographic or bathymetric data. This is a hands-on course, in which participants import raw data into CARIS and learn to use the various tools available in CARIS to create final products according to client requirements. This course provides a foundation for the use of acoustic data in the marine environment while focusing on best practices for underwater search, survey, and visualization programs. Multiple sonar systems are presented and are representative of current industry equipment, operations, and practices.	Streaming	May 10-14, 0900 – 1700	$1,260
Introduction to Terrain Modeling	This course introduces the theory and methods of the creation, analysis, and applications of digital terrain modeling. Specific topics include terrain data formats, including LIDAR, photogrammetry, terrain surface modeling, and terrain visualization. The course includes computer exercises in the generation and processing of digital elevation models using GIS and image processing software packages including QGIS (open source GIS software) and Autodesk's Recap and Civil 3D. Using publicly available terrain data, including LIDAR, we will develop 2D & 3D digital terrain models suitable for use in agriculture, construction, engineering, surveying, forestry, and environmental analysis.	Streaming	April 30, May 7, 14, 21 0800-1200	$1,250