PHOTOGRAMMETRY COMPETENCY COURSE

Want to increase your proficiency in photogrammetry?

Upcoming Schedule

Section 1 & 4 Offered in the Fall

Section 2 & 3 Offered in the Spring

Check the Calendar for Details

ADDITIONAL DETAILS ON BACK

With the integration of UAVs into many companies, the base knowledge of photogrammetry and error analysis has been bypassed. Technology has enabled simple flight planning, flying and post processing of the data without the underlying knowledge of photogrammetry. Completing coursework covering a specific area and gaining experience under a qualified professional are two methods of obtaining competency.

1 SECTION 1

FAA Part 107 (24 PDHs)

This course will consist of training and exercises in preparation for the FAA Part 107 Remote Pilot Knowledge exam. This course is for future UAS Commercial Operators, Surveyors, Construction Managers, UAS Managers, and Safety Managers. Attendees should have a basic familiarity with Unmanned Aerial Systems and capabilities.

2 SECTION 2

Basic Photogrammetry (16 PDHs)

In this section, attendees will look at the history of photogrammetry as well as gain a working understanding of the components and terminology. Information covered will lead to a greater understanding and appreciation of aerial mapping using UAVs.

3 SECTION 3

Aerial Image Processing (8 PDHs)

The third section will look at a variety of sUAV image processing softwares. A survey of existing softwares and their capabilities will be discussed focusing on surveying and mapping capabilities.

Prerequisite: Section 2 - call to register.

4 SECTION 4

UAV Field to Finish (16 PDHs)

The final section in the UAS series will introduce the fundamental components of small unmanned aerial systems (sUAS) and how they function together to produce high resolution, spatially accurate planimetric maps and 3D models of terrain.

Prerequisite: Section 2 & 3 - call to register.

SECTION 1 - UAS Knowledge Exam Prep/FAA Part 107 (24 hrs.)
Instructor: Richard Mankin
This 24-hour course will consist of training and exercises in preparation for the FAA Part 107 Remote Pilot Knowledge exam. Through use of exercises in filing waivers, dispatch procedures, preflight preparation, communications and crew resource management, students will gain an understanding in best practices for the implementation of Unmanned Aerial Systems in the commercial UAS industry. At the end of the course, students will plan and prepare 3 UAS missions using real-time weather and flight planning materials. The following activities will be conducted: preflight and dispatch actions, planning missions based on current internal and external factors, understanding Part 107 FAA waiver/exemption process and communication procedures with air traffic control. This course is for future UAS Commercial Operators, Surveyors, Construction Managers, UAS Managers, and Safety Managers. Attendees should have a basic familiarity with Unmanned Aerial Systems and capabilities.

SECTION 2 - Basic Photogrammetry (16 hrs.)
Instructors: Peggy Fersner, Geomatics Coordinator NCA&T
This is a 15-hour course that looks at the basics of photogrammetry. Attendees will look at the history of photogrammetry as well as gain a working understanding of the components and terminology. Information covered will lead to a greater understanding and appreciation of aerial mapping using UAVs. Topics include image measurements, object space coordinate systems, vertical and tilted photogrammetry, parallax, digital imagery, and stereoscopic viewing. Flight planning for traditional data collection will be covered. The process of orthorectification will be discussed including interior and exterior orientations, triangulation and bundle adjustments. At the end of the course, an exam will be given to determine the core knowledge of the participant.

SECTION 3 - Aerial Image Processing (8 hrs.)
Instructor: Dr. Jerry Nave, PhD, PLS and Peggy Fersner, Geomatics Coordinator NCA&T
This is the third block in the photogrammetry series. The two-day workshop will look at a variety of sUAV image processing softwares. A survey of existing softwares and their capabilities will be discussed focusing on surveying and mapping capabilities. Data previously collected will be used during the class for a hands-on experience in aerial image processing as well as examining the analytics. A simple processing project will be used to determine the knowledge of the participant.

SECTION 4 - UAV Field to Finish (16 hrs.)
Instructor: Dr. Jerry Nave, PhD, PLS and Peggy Fersner, Geomatics Coordinator NCA&T
This workshop is the fourth in the UAS series and will introduce participants to the fundamental components of small unmanned aerial systems (sUAS) and how they function together to produce high resolution, spatially accurate planimetric maps and 3D models of terrain. The components of this two day workshop will include 1) planning and setting ground control using GNSS, 2) Pre-flight planning of flight paths and programming the UAVs with the flight plans, 3) using UAVs to collect data in the field, and 4) post-processing and analysis of the data collected. Participants will be required to show competence in all four areas to receive the certificate of completion.

Richard B. Mankin, CFI-I #3206423, CWO3 (OSS), USCG Ret.
Mr. Mankin is a native of Jacksonville, NC who retired from the USCG after 24 years of service as enlisted and a Chief Warrant Officer. He began his flying career in Key West in 1998 where he received his Private Pilot Certificate. In 2000, he earned his instrument rating at Charleston AFB and Commercial Certificate in Cleveland, OH in 2003. He finally received his Certified Flight Instructor's Certificate in 2007 in Pensacola, FL. Working nights and weekends he began instructing students to where he has now helped train over 500 students receive their Sport, Private, Remote and Commercial Pilot's Certifications. In 2015, he graduated from Embry-Riddle Aeronautical University with a degree in Aeronautics and is currently the manager of flight training and operations for Total Flight Solutions in Raleigh and Pinehurst, NC. In 2017, he received a certification as a Flight Instructor- Instrument and in early 2018 he completed Airline Transport Certification Training in Dallas, Tx. He has accumulated over 2,500 flight hours in 30 manned and unmanned aircraft and holds a Commercial Single-Engine, Multi-engine, Flight Instructor, Remote pilot and FAA testing proctor certificate. He has been working with the North Carolina Society of Surveyors since 2016 providing remote pilot training. He lives in Wendell, NC with his wife Alicia and 2 boys, Richard and Ian.

Peggy Fersner, Geomatics Coordinator NCA&T
Mrs. Fersner has been on the faculty of North Carolina A&T State University since 1993 teaching surveying, GIS, and hydrology courses. She is also the coordinator of the 4-year Geomatics program at NC A&T State University. Prior to this, she was a consulting engineer in Charleston, SC with an emphasis on subdivision design. She holds her BS and MS degrees in Civil Engineering from Virginia Tech and Clemson University, respectively.

Dr. Jerry W. Nave, EdD, PLS
Dr. Nave is an assistant professor of Geomatics at NC A&T State University where he teaches courses in boundary location and legal principles, land systems, geodetic surveying, satellite positioning, ethics and professionalism and subdivision design. He earned his BS and MS in Surveying and Mapping and his doctorate in Educational Leadership and Policy Analysis at East Tennessee State University. He received his PLS in 1993 and has over 21 years of experience in the private and public sectors.