Our Vision

To Provide Industry Driven, Nationally Recognized, Aerospace Maintenance & Geospatial Intelligence Training Programs Through Knowledge, Skill, & Innovation
Minnesota State Colleges & Universities System

- 31 Institutions: 24 Two-Year Colleges | 7 State Universities
- 54 Campuses in 47 Minnesota Communities
- Annually Serves About 250,000 Students in Credit-Based Courses
- Produces an Average of 33,500 Graduates Each Year
- Customized Training Courses Annually Serve Over 150,000 Employees from 6,000 Businesses
- The System is the Fifth Largest System of Two-Year & Four-Year Colleges and Universities in the Country (Based Upon Enrollment)
Northland Community & Technical College

- Campus Locations: Thief River Falls & East Grand Forks
- Satellite Location in Roseau and Online Courses
- Comprehensive Two-Year Community & Technical College
- Accredited by the Higher Learning Commission of the North Central Association
- Currently Offer Over 110 Certificates, Diplomas or Degrees
- Over 300 Faculty & Staff Serve Over 5,000 Students Annually
- Average Annual Tuition & Fees is $5,000 (Depends Upon Program or Degree Choice)
- Estimated $85M Regional Economic Impact
Northland Aerospace Foundation

- Minnesota Registered 501(c)(3) Non-Profit Corporation
- Nationally Represented Board of Directors
- Contractual Services at the Speed of Business
- Acquire and Leverage Assets
- Philanthropic Investments
- Reinvest into Northland Aerospace to Grow Capabilities to Support Industry
Northland Aerospace

Aviation Maintenance Technology
Airframe & Powerplant, Avionics
(FAA Part 147 A&P Certificate)

Northland Aerospace Foundation

Small Unmanned Aerial Systems - sUAS

UAS Maintenance Training
(A&P Certificate is a Prerequisite)

Geospatial Intelligence Training
(Imagery and Data Analysts & Open Source Collection and Dissemination)
Modern Aerospace Technology
Complexity of Systems

https://engineering.purdue.edu
Certificates and Requirements

Aviation Maintenance Technology Graduate

- NCTC Diploma / AAS
- FAA Airframe License
- FAA Power-plant License
- Avionics (NCATT)
  - Aviation Electronics Technician Certificate
  - Radio Communication Systems Endorsement
  - Dependent Navigation Systems Endorsement
- Computers (CISCO)
  - Information Technology Fundamentals Certificate
  - Networking Certificate
- Composites
  - Cirrus Composites Certificate
  - NCATT Composites Certificate (Pending)
- FCC
  - Human Factors
  - Safety
  - Soft Skills
- NCATT UAS Maintenance Technician Certificate
- Northland UAS Maintenance Technician Certificate
Equipment
Innocon Mini Falcon II
Modern Aerospace Technology

Global Hawk - Block 40

- 34 Hr Endurance
- 8,700 Mile Range
- 60,000 ft Ceiling
- 350 MPH Cruise
Modern Aerospace Technology
Complexity of Systems

Boeing 787 - Dreamliner

https://www.boeing.com
National Airspace System
Safety - UAS Airspace Integration
National Airspace System
FAA Six Test Sites

- North Dakota Department of Commerce
- Griffiss International Airport (NY)
- State of Nevada
- Virginia Polytechnic Institute & State University
- University of Alaska Fairbanks
- Texas A&M University Corpus Christi

www.faa.gov
1) Section 333 Exemption – a grant of exemption in accordance with Section 333 AND a civil Certificate of Waiver or Authorization (COA); this process may be used to perform commercial operations in low-risk, controlled environments. (Commercial Operations)

2) Special Airworthiness Certificate (SAC) – applicants must be able to describe how their system is designed, constructed, and manufactured, including engineering processes, software development and control, configuration management, and quality assurance procedures used, along with how and where they intend to fly.
NCTC COA - Roseau County, MN

- 1678 sq miles
- 500 ft AGL and below
- Specifically Purposed for Precision Agriculture
NCTC COA - Roseau County
NCTC COA - Roseau County
NCTC COA - Roseau County
NCTC COA - Roseau County
Vireo - Manufactured by Sentera Aircraft
NCTC COA - Roseau County, MN

- MnSCU Programs - Grant Initiatives
- New locations Thief River Falls, Willmar, Brainerd
NCTC COA - Roseau County
Small Unmanned Aerial Systems
600 Hours / 30 Credits

- FAA Ground School & Safety Training
- System Specific Flight Training
- Operations Training
  - Agriculture Applications
  - Civil Application
  - Search and Rescue
Small Unmanned Aerial Systems
FAA Proposed Rules - Operations and Certificate of sUAS

- Pass an initial aeronautical knowledge test at an FAA-approved knowledge testing center.
- Obtain an unmanned aircraft operator certificate with a small UAS rating (like existing pilot airman certificates, never expires).
- Pass a recurrent aeronautical knowledge test every 24 months.
- Be at least 17 years old and be vetted by the Transportation Security Administration.
- Make available to the FAA, upon request, the small UAS for inspection or testing, and any associated documents/records required to be kept under the proposed rule.
- Report an accident to the FAA within 10 days of any operation that results in injury or property damage.
Conduct a preflight inspection, to include specific aircraft and control station systems checks, to ensure the small UAS is safe for operation.

Make available to the FAA, upon request, the small UAS for inspection or testing, and any associated documents/records required to be kept under the proposed rule.

Report an accident to the FAA within 10 days of any operation that results in injury or property damage.

Conduct a preflight inspection, to include specific aircraft and control station systems checks, to ensure the small UAS is safe for operation.
Small Unmanned Aerial Systems

FAA Proposed Rules

- A small UAS operator must always see and avoid manned aircraft. If there is a risk of collision, the UAS operator must be the first to maneuver away.

- The operator must discontinue the flight when continuing would pose a hazard to other aircraft, people or property.

- A small UAS operator must assess weather conditions, airspace restrictions and the location of people to lessen risks if he or she loses control of the UAS.

- A small UAS may not fly over people, except those directly involved with the flight.

- Flights should be limited to 500 feet altitude and no faster than 100 mph.

- Operators must stay out of airport flight paths and restricted airspace areas, and obey any FAA Temporary Flight Restrictions (TFRs).
Market Trends

Next Gen Aerospace Technologies

- $82 billion total impact by 2025
- 100k new jobs in US alone
- US likely most regulated
Technician Training Gap

MnSCU / MAC Report (2013)
Training Resources

- Innovative Approach
- Aerospace Legacy - AMT Training Since 1959
- State of Minnesota Partnerships / Resources - State Agencies
  - MnDOT, MN Guard, MN Highway Patrol, MN Department of Ag
- Higher Education Network
  - MnSCU Transportation Center of Excellence
  - MnSCU Ag COE - AgCentric
- University of Minnesota
  - Center for Transportation Studies
  - MnDRIVE - Robotics
  - UAS Research Lab
- University of North Dakota
  - Significant UAS Training Programs
- Industry Partners
  - UAS Center of Excellence