Implementation Date
Fall 2008

PROGRAM CONCENTRATION: Architecture, Construction,
                                                Communications & Transportation
CAREER PATHWAY: Flight Operations
COURSE TITLE: Navigation and Communication

Navigation and Communication are essential to the safe operation of aircraft within the airspace system. This course provides a foundation that enables the student to apply the basics of aircraft navigation and utilize efficient communication methods for safe aircraft operations.

NAVIGATION

ACT-NC-1. Students will identify tools of basic, radio, and advanced navigation.

  a. Demonstrate proper use of landmarks to travel between points.
  b. Apply mathematics to solve navigation problems.
  c. Determine appropriate uses of pilotage and dead reckoning.
  d. Distinguish among the different instruments used in radio and advanced technologies.

ACADEMIC STANDARDS:

MM2P(b). Solve problems that arise in mathematics and in other contexts (using appropriate technology).

ACT-NC-2. Students will demonstrate an understanding of appropriate aviation measurements and calculations.

  a. Use appropriate units of measure.
  b. Apply units of latitude and longitude for geographic references accurately.
  c. Demonstrate the accurate interpretation of the compass as a navigation tool.
  d. Apply algebra and trigonometry to solve navigation problems.

ACADEMIC STANDARDS:

MA3P1. Students will solve problems (using appropriate technology).

MM2P(b). Solve problems that arise in mathematics and in other contexts (using appropriate technology).

SCSh5. Students will demonstrate the computation and estimation skills necessary for analyzing data and developing reasonable scientific explanations.

ACT-NC-3. Students will demonstrate an understanding of basic aeronautical charts and their application to flight planning.

a. Distinguish between different types of aeronautical charts and their intended uses.
b. Use symbols, colors, and scale to interpret aeronautical charts.

ACADEMIC STANDARDS:

MA3P1. Students will solve problems (using appropriate technology).

ACT-NC-4: Students will understand the complexities of operating in three-dimensional space.

a. Identify different airways and their intended use.
b. Understand the basic Visual and Instrument Flight Rules required for safe separation of aircraft.

ACADEMIC STANDARDS:

MRC. Students will enhance reading in all curriculum areas by:
a. Reading in all curriculum areas
   - *Read technical texts related to various subject areas.*
b. Building vocabulary knowledge
   - *Demonstrate an understanding of contextual vocabulary in various subjects*

SSCG15. The student will explain the functions of the departments and agencies of the federal bureaucracy.

ACT-NC-5. Students will incorporate navigation and communication tools to create a flight plan.

a. Use required references for flight planning.
b. Incorporate current meteorological data.
c. Apply measurements and calculations to accurately plan and file a cross-country flight.

ACADEMIC STANDARDS:

MRC. Students will enhance reading in all curriculum areas by:
a. Reading in all curriculum areas
   - *Read technical texts related to various subject areas.*
b. Building vocabulary knowledge

- *Demonstrate an understanding of contextual vocabulary in various subjects*

SSCG15. The student will explain the functions of the departments and agencies of the federal bureaucracy.

COMMUNICATION

ACT-NC-6. Students will incorporate standard aviation vocabulary, phraseology, and acronyms for communications.

a. Exhibit competence in utilizing the International Phonetic Alphabet.
b. Utilize standardized identifiers used for aircraft and airports.
c. Demonstrate understanding of standardized lighting and markings used at airports.
d. Use proper protocol required for radio communications.

ACADEMIC STANDARDS:

MRC. Students will enhance reading in all curriculum areas by:
a.   Reading in all curriculum areas
   - *Read technical texts related to various subject areas.*
b. Building vocabulary knowledge
   - *Demonstrate an understanding of contextual vocabulary in various subjects.*

ACT-NC-7. Students will incorporate current weather information when creating a flight plan.

a. Use available meteorological resources for flight planning.
b. Follow required procedures to file a flight plan.

ACADEMIC STANDARDS:

S4E4. Students will analyze weather charts/maps and collect weather data to predict weather events and infer patterns and seasonal changes.

S1E1. Students will observe, measure, and communicate weather data to see patterns in weather and climate.

S6CS5. Students will use the ideas of system, model, change, and scale in exploring scientific and technological matters.

ACT-NC-8. Students will demonstrate an understanding of the various roles of air traffic control in the airspace system.

a. Identify the differences in the responsibilities and duties of Air Traffic Controllers and TRACONS (Terminal Radar Approach Control) and ARTCC (Air Route Traffic Control Centers).
b. Understand the roles and responsibilities of the Air Traffic Controller: clearance delivery, ground, and local.
c. Recognize information on a tracking strip used for traffic management.

ACADEMIC STANDARDS:

SSCG15. The student will explain the functions of the departments and agencies of the federal bureaucracy.

CTAE Foundation Skills

The Foundation Skills for Career, Technical and Agricultural Education (CTAE) are critical competencies that students pursuing any career pathway should exhibit to be successful. As core standards for all career pathways in all program concentrations, these skills link career, technical and agricultural education to the state's academic performance standards.

The CTAE Foundation Skills are aligned to the foundation of the U. S. Department of Education's 16 Career Clusters. Endorsed by the National Career Technical Education Foundation (NCTEF) and the National Association of State Directors of Career Technical Education Consortium (NASDCTEC), the foundation skills were developed from an analysis of all pathways in the sixteen occupational areas. These standards were identified and validated by a national advisory group of employers, secondary and postsecondary educators, labor associations, and other stakeholders. The Knowledge and Skills provide learners a broad foundation for managing lifelong learning and career transitions in a rapidly changing economy.

CTAE-FS-1 Technical Skills: Learners achieve technical content skills necessary to pursue the full range of careers for all pathways in the program concentration.

CTAE-FS-2 Academic Foundations: Learners achieve state academic standards at or above grade level.

CTAE-FS-3 Communications: Learners use various communication skills in expressing and interpreting information.

CTAE-FS-4 Problem Solving and Critical Thinking: Learners define and solve problems, and use problem-solving and improvement methods and tools.

Implementation Date
Fall 2008

CTAE-FS-5 Information Technology Applications: Learners use multiple information technology devices to access, organize, process, transmit, and communicate information.

CTAE-FS-6 Systems: Learners understand a variety of organizational structures and functions.

CTAE-FS-7 Safety, Health and Environment: Learners employ safety, health and environmental management systems in corporations and comprehend their importance to organizational performance and regulatory compliance.

CTAE-FS-8 Leadership and Teamwork: Learners apply leadership and teamwork skills in collaborating with others to accomplish organizational goals and objectives.

CTAE-FS-9 Ethics and Legal Responsibilities: Learners commit to work ethics, behavior, and legal responsibilities in the workplace.

CTAE-FS-10 Career Development: Learners plan and manage academic-career plans and employment relations.

CTAE-FS-11 Entrepreneurship: Learners demonstrate understanding of concepts, processes, and behaviors associated with successful entrepreneurial performance.