THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Air Traffic Management Systems and Environment

AVIATN 3900

Credit Hours:
3.00

Course Levels:
Undergraduate (1000-5000 level)

Course Components:
Lecture

Course Description:
This course is the second in a two-course sequence examining the role and function of the Air Traffic Control environment as it relates to operations and pilot communications within the National Airspace System (NAS).

Prerequisites and Co-requisites:
2900

Course Goals / Objectives:
- Practice and demonstrate correct phraseology and communication in both the VFR and IFR environments.
- Identify the components of radar, differentiate the uses and characteristics of both primary and secondary radar, and identify uses and characteristics of available navaids and other navigational tools available to pilots (ILS), RNAV, GPS, ADSB
- Assess environmental factors that influence the air traffic environment and NAS, including weather, noise abatement, and other concerns.
- Examine aircraft systems and performance as they relate to capabilities within the air traffic environment.
- Evaluate the role of NextGen and how new technologies will affect the flight experience for both air traffic controllers and pilots.

Course Topics:

- Overview and review of air traffic control and airspace structure
- Phraseology and communication; VFR and IFR, clearances, low and high altitude IFR charts
- Radar and Navigation components in the NAS: ILS systems, RNAV, GPS, ADSB, approaches, RSA, etc.
- Environmental factors, hazards, and concerns; weather and the effects on the NAS
- Managing the NAS: examination of capabilities, limitations, and performance of aircraft in various real-world situations and separation requirements
- Analysis of contemporary issues related to air traffic and the NAS: NextGen, uncrewed and autonomous air traffic in the NAS
- Future of the NAS including the use of AI, autonomous vehicles, and technology in both aircraft and ATC facilities

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Designation:

Elective