

**GEORGE MASON UNIVERSITY
SCHOOL OF INFORMATION TECHNOLOGY AND ENGINEERING**

I. CATALOG DESCRIPTION:

- A. SYST 560 Introduction To Air Traffic Control (3: 3: 0)
- B. Prerequisites: graduate standing, STAT 344 and SYST 335, SYST 417.
OR 542 is encouraged as a co-requisite.
- C. Catalog Description:

This course is intended as an introduction to Air Traffic Control (ATC) for those who plan professions in the aviation industry. It is a necessary introduction for students who will later specialize and take more in-depth courses. The course will survey the entire field, presenting the history of ATC and how it came to be as it is, the technology on which the system is based, the procedures used by controllers to meet the safety and efficiency goals of the system, the organizational structure of the FAA, challenges facing the system and means under investigation to meet these challenges. This course will involve some field work for data collection and analysis. A class project requiring a system simulation will be required.

II. JUSTIFICATION:

- A. Course Objective: Students will learn the necessary basic knowledge in air traffic management of today's air transportation system. This course prepares students for work in both industry and at a graduate level.
- B. Relationship to Other Courses: This is a required course for graduate students who want to study in the field of air transportation. SYST 560 is a prerequisite to SYST 660. Credit will not be given for both SYST 460 and 560.

III. RECOMMENDATION:

- A. This course has been approved by the following:

SEOR Committee	Date: <u>1 Nov 2002</u>
SITE graduate Committee	Date: <u>Jan 2003</u>
SITE Dean	Date: <u>Feb 2003</u>

Instructors: George L. Donohue and/or Adjunct faculty from MITRE/CAASD, the FAA, or METRON Aviation as needed.

- IV. SEMESTER AND YEAR FOR OFFERING: This course is offered for the Fall semester of 2003 and every Fall semester after that.

V. COURSE SYLLABUS

Topic Outline:

1. History of ATC:

- Early development of control systems
- Involvement of the Federal government
- Key enabling and regulating legislation
- Emergence of the FAA
- Recent development issues (e.g., controller's strike)

2. Basic ATC Technology:

- Navigation systems
- Communications systems
- Surveillance systems (Radar, etc.)
- Automation systems

3. Operations and Procedures:

- Airports
- Terminal airspace
- En route airspace
- Radar and non-radar control
- Oceanic ATC

4. System modernization:

- Motivation for modernization
- Key challenges faced by the system
- New technology and procedures to meet these challenges

Airport operations data will be collected and analyzed as part of the course field work. Visits to FAA control facilities are planned.

Final Exam will satisfy the FAA Private Pilot written exam requirement to obtain a pilots license.

Course Texts:

Fundamentals of Air Traffic Control, 3rd Edition, Michael Nolan, International Thomson Publishing, 2001

Private Pilot Manual, Jeppesen, 2002.

5/29/2003