George Mason University
Graduate Course Approval/Inventory Form

Please complete this form and attach a copy of the syllabus for new courses. Forward it as an email attachment to the Secretary of the Graduate Council. A printed copy of the form with signatures should be brought to the Graduate Council Meeting. Complete the Coordinator Form on page 2, if changes in this course will affect other units.

Please indicate:  ___X___ NEW  ____ MODIFY  ____ DELETE

Local Unit: SEOR  Graduate Council Approval Date:

Course Abbreviation: OR  Course Number: 660

Full Course Title: Air Transportation Systems Modeling

Abbreviated Course Title (24 characters max.): Air transport Syst Model

Credit hours: 3  Program of Record: SYST

Repeatable for Credit?  ___ D=Yes, not within same term  Up to hours ___ T=Yes, within the same term  Up to  hours  ___ N=Cannot be repeated for credit

Activity Code (please indicate):  ___X__ Lecture (LEC) ___ Lab (LAB)  ___ Recitation (RCT)  ___ Studio (STU)  ___ Internship (INT)  ___ Independent Study (IND)  ____ Seminar (SEM)

Catalog Credit Format:  :  :  Course Level: GF(500-600) ___X__ GA(700+) ___

Maximum Enrollment: 25  For NEW courses, first term to be offered: 04B

Prerequisites or corequisites: SYST 460/560 or permission of Instructor

Catalog Description (35 words or less)  Please use catalog format and attach a copy of the syllabus for new courses.:
The student will be introduced to a wide range of current issues in air transportation. The issues include: public policy toward the industry, industry economics, systems capacity, current system modeling capability, human factors considerations, safety analysis and surveillance systems, and new technological developments.

For MODIFIED or DELETED courses as appropriate:
Last term offered:  Previous Course Abbreviation:  Previous number:

Description of modification:

APPROVAL SIGNATURES:
Submitted by:  ___Josefine Wiecks___________ email: jwiecks@gmu.edu

Department/Program:  ___________________________ Date: __________________

College Committee:  ___________________________ Date: __________________

Graduate Council Representative:  ___________________________ Date: __________________
**Approval from other units:**

Please list those units outside of your own who may be affected by this new, modified, or deleted course. Each of these units must approve this change prior to its being submitted to the Graduate Council for approval.

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Graduate Council approval: ____________________________ Date: __________

Graduate Council representative: ____________________________ Date: __________

Provost Office representative: ____________________________ Date: __________
I. CATALOG DESCRIPTION

A. OR 660: Air Transportation Systems Modeling (3:3:0)

B. Prerequisites: graduate standing and experience in air traffic control design and modeling or SYST 460/560 or permission of instructor. SYST 611 and a graduate course in probability and statistics are also recommended.

C. Catalog Description:

The student will be introduced to a wide range of current issues in air transportation. The issues include public policy toward the industry; industry economics, system capacity, current system modeling capability; human factors considerations, safety analysis and surveillance systems and new technological developments. The student is expected to develop a broad understanding of the contemporary and future issues. The student’s knowledge will be evaluated through class discussions a take home mid-term exam and a term project to be completed by the end of the semester.

II. JUSTIFICATION

A. Course Objectives: Students will learn the necessary knowledge to conduct research in air traffic management, modeling/simulation, economic, and safety of today’s air transportation system. Students participate in class discussions and do independent projects. This course prepares students for work in both industry and a research environment.

B. Desirability of Introducing this Course: This course is required to conduct research in air transportation.

C. Relationship to Other Courses: This a required course for graduate students who want to study in the field of air transportation.

III. RECOMMENDATION

A. This course has been approved by the following:

SEOR Department Date: November 1, 2003

IT&E Graduate Committee Date: November 20, 2003

IT&E Dean Date: November 20, 2003
Proposed Instructors: Professors George L. Donohue, other faculty members as needed.

IV. SEMESTER AND YEAR FOR PLANNED OFFERING:
Every spring semester, starting in spring 2004 and every spring thereafter. This course has been offered as a special topic in system engineering for four years.

V. COURSE SYLLABUS

Requirements

10% class participation
35% mid-term
35% term papers
20% class presentations
Final exam consists of presentation of term papers selected at the beginning of the semester.

Topic Outline:
- USA and European ATM Systems – Similarities and Differences
- Economics of Congestion
- Airport Operation and Constraints
- Airspace Operation and Constraints
- Safety and Free Flight
- Cognitive Workload Analysis and The Change Role of The Air Traffic Controller
- Emerging Issues in Aircraft Self-Separation

Course Text: