Date: 12 March 2007

To: Randy Smith
    Vice Provost, Office of Academic Affairs

From: Ed McCaul
    Secretary College of Engineering Committee on Academy Affairs

Subject: New Undergraduate Track in Aviation

Attached is a copy of the Department of Aviation’s proposed new Undergraduate Track in Aviation. After a review and discussion the College’s Committee on Academic Affairs (CCAA) unanimously approved this proposal on the 8th of March 2007. If you have any questions concerning this proposal please let me know.
Proposed NEW Undergraduate Track in Aviation

The Ohio State University
Department of Aviation
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Columbus, OH 43210-1110
292-2405

6 October 2006
(Revised 27 November 2006)
(Revision 2, 5 January 2007)
(Revision 3, 24 January 2007)
(Revision 4, 6 February 2007)
(Revision 5, 8 March 2007)
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Proposed NEW Undergraduate Track in Aviation

The following major paragraphs and subdivisions are in accordance with Suggested Guidelines for the University Council on Academic Affairs (CAA)’s Proposal Creation and Submissions, as downloaded on 22 Sep 2006.

Executive Summary

The Department of Aviation in the College of Engineering wants to secure CAA approval to offer a new track for the Bachelor of Science in Aviation. This proposal has been prepared in response to the reorganization of Aviation curricula following the re-formation of the Department of Aviation with the separation of the Aviation Program from the combined Aerospace Engineering and Aviation Department in January 2005. Earlier, a Task Force on Aviation appointed by the Dean then, James Williams, strongly recommended an autonomous Department of Aviation and the establishment of both undergraduate and graduate programs in Air Transportation Systems (ATS). That study noted a national and international need for qualified professionals to work in the air transportation system. ATS graduates would fill a critical need for people who know how to appropriately design the organization, do the systems engineering, perform operations management, and implement the technological innovations required to meet current and future demands. This need is distinctly different from the design of new aircraft and the training of pilots; this unmet need to provide ATS specialists is believed to be a principal cause of the troubled operation of current air transportation systems.

Further, this proposal is in support of the current Dean’s direction (Dr. Baeslack) to better align the Aviation academic program with the College’s mission, by providing instruction more compatible with undergraduate engineering students. This program would have strong emphasis on analysis, design, and engineering as it relates to Aviation. This new program will focus on overall systems and operations engineering rather than the design of component products or processes. Industrial and systems engineering serves as a core disciplinary model for this program; that relationship is not unlike the one between mechanical and aerospace engineering. However, aviation is the most heavily regulated industry in the world. Our students also need to be grounded in the federal regulatory process that affects design, manufacturing, repair, and personnel certification as well as the economic and policy issues that strongly influence Aviation. Finally, the ATS track being proposed here is being developed to meet the requirements for possible ABET (Accrediting Board of Engineering and Technology) accrediting in Systems Engineering.

The proposed curriculum also provides the analysis and design foundation for our complementary proposal to establish a graduate program of study for the M.S. in Air Transportation Systems. A separate and related Graduate Program proposal has been prepared and is being submitted in parallel to this undergraduate proposal. Courses in the undergraduate program may eventually become prerequisites for graduate courses, and some of the proposed upper-level undergraduate courses may be used as technical electives in graduate programs in this or other departments.
An important link between the undergraduate and graduate programs will be the faculty. All present tenured / tenure track faculty (and all future tenure track faculty will) have engineering degrees. The current faculty in the Aviation Department consists of 6 full time faculty (incl. 2 Lecturers). The department has already been awarded one additional faculty position by the College to support the staffing of our proposed M.S. program (being separately submitted) and a new track in the undergraduate level (this proposal). This undergraduate track will be in Air Transportation Systems. Accordingly, new faculty additions will be hired into areas that will contribute to both the BS and MS programs. The recruiting for the one approved new faculty member has already begun. With the total number of anticipated faculty available being 7, if initially (on an interim basis) each taught 2-3 graduate courses per year, the basic curriculum needs would be met. As the program attracts students and funded research support, faculty loads will be adjusted accordingly. Normal faculty assignments in undergraduate course teaching and research are compatible with the faculty that have been planned for and budgeted.

Corollary Issues with Implementation

The rationale for this proposal, along with discussion of collegiate aviation programs at other institutions is presented in the body of our proposal and is not repeated here.

- **Effect on Constituencies**

A track in ATS fills a need not found elsewhere, either in collegiate aviation programs or in engineering curricula. It should therefore enhance the reputation of OSU’s Aviation program as providing national leadership in this academic area. Collegiate aviation programs are not presently part of the ABET structure. So, our existing tracks for pilots and managers do not presently impact, positively or negatively, the College’s accreditation process. The Department plan and the preliminary evaluation of CCAA are consistent in planning for ABET accreditation of the ATS track as an engineering curriculum from the very outset. We have endeavored to do that in the materials presented.

Historically, ABET accrediting was not appropriate for aviation programs. The principal concern ABET had was who could serve as the national authority on the engineering content of this field. Then as today, non-engineering collegiate aviation programs were being accredited by the Council on Aviation Accreditation (recently renamed the Aviation Accreditation Board International (AABI)) and there was no single engineering-based authority. However, since that time several new initiatives related to air transportation systems engineering have emerged in professional societies. In particular, some from within the American Institute of Aeronautics and Astronautics (AIAA) align extremely well with our current proposal (as further explained below).

In the preparation of the current proposal, the faculty anticipated eventual ABET accreditation. We recognized the functional similarity between the curriculum that we are proposing and the current Industrial and Systems Engineering curriculum, which is accredited, and built our curriculum along the lines of the existing ISE bingo sheet for
Industrial and Systems Engineering undergraduates. Course topics for the air transportation systems track, however, are specific to aviation.

Faculty input was organized through the formation of an Undergraduate Studies Committee, which functioned over the last year and a half for the purpose of reviewing national trends and problem areas and defining critical areas of faculty expertise. Potential new courses that could be offered by existing faculty that would support the new track in ATS were identified, as well as new courses which would require original development. One example of this is an engineering content course in Aircraft Manufacturing, which is not offered in any US university. There was unanimous agreement of the full faculty to reorganize our College of Engineering tracks. The Human Factors track was eliminated because of a long-term lack of student enrollment.

We also recognized that much of component engineering assumes design in compliance with a given technical specification. Our design emphasis is on a larger issue: how to translate primitive customer needs into the appropriate technical design specifications that component designers expect to begin their work. Aviation is not only heavily regulated, it requires enormous capital outlays and substantial risks for investors. For example, *The Economist* (13 Jan 2007) in reviewing John Newhouse’s text (published by Knopf) on *Boeing versus Airbus: The Inside Story of the Greatest International Competition in Business*, states that “The struggle over the world market … makes for epic narrative … there is nothing quite like it in global business … Only big oil comes close. … In the civil aircraft business … make one bad bet, or suffer a single flop, and you have to live with the consequences for years.” Further, Newhouse (2007) states “Nor is it lost on various government agencies that the aircraft industry operates at the cutting edge of more high technologies than any other and its product historically earns more foreign exchange than any other single U. S. export.” (p. 214)

Specific Course Structure Related to ABET Accreditation

A ‘bingo’ sheet was prepared which reflected the 8 new recommended courses in the ATS track. Courses were also added in MSE and Statistics to strengthen the basic engineering and science cores. Also, because of the difference in curricular needs of management and professional pilot tracks, a new version of AVN 310 will now also be offered (Designation will be 310.02 – for Aviation Management majors). This will be more suitable to students who have no intention of learning to fly but need the topical content of AV 310.01 for pilots. Students taking the ATS track may take either version.

As the question of content as it relates to eventual ABET accreditation is critical, Table 1 is an aid to understanding the relative organization of the propose ATS curriculum and that for ISE.

- The first year course experience is the same for all students in the College, including those now enrolled in the two existing Aviation tracks, so those courses are not shown in the table.
• The second year curriculum is very similar with a few exceptions. We propose CSE 230 instead of ME 420 because air transportation systems involves software intensive systems (like avionics) and our students have less need for the content of ME 420. Also, while ISE students take ISE 311 Manufacturing Engineering in their second year, we would prefer to offer a new course, AVN 570 Influences on Aircraft Production. Our emphasis is on WHY aircraft get designed the way they do (rather than how that is done). Much of component engineering assumes design in compliance with a given technical specification. Our emphasis is on how to translate primitive customer needs into the technical design specifications component designers expect to begin their work (see Norris, Thomas, Wagner, and Forbes (2005), Boeing 787 Dreamliner – Flying Redefined, Aerospace Technical Publications International, Perth, Australia).

• The third and fourth years are the upper level, analysis and design courses that typify the engineering content of a specialty area within engineering. Table 1 shows how we have drawn upon and paralleled the industrial engineering curriculum. Both programs have an introductory level course for all their majors, although Aviation offers AVN 300 to the University community at large, meeting a need for basic information on aircraft and flight. As with other curricula, many students do not know the content and career potential of Aviation and Air Transportation until after they arrive at OSU.

Following is some specific discussion of the content of courses in Table 1. While ISE’s take Accounting 501 as a fundamental underpinning to later coursework (e.g. engineering economics: assessment of capital outlays, etc.), AVN 550 introduces all aviation majors to business concepts as they occur in aviation (e.g., RASM/CASM – revenue / cost per aviation seat mile). ISE Operations Research is a three quarter sequence in history, methods, and field application. AAE 200 and 201 are the first two courses in the Aeronautical Engineering sequence, and ALL engineering students in Aviation take these courses now: they are required of engineering students whether they are in the aircraft systems track (professional pilots) or the management track (airline / airport). The ATS track will simply impose that same requirement on engineering students.

Similarly, all aviation students take AVN 310 since it covers the fundamentals of flight operations in the National Airspace System (NAS). While ISE emphasizes work physiology and biomechanics in ISE 503, AVN 540 gives little attention to that topic while more broadly covering human factors issues in aviation as a whole (in the context of operations, maintenance, and management). ISE 573 covers Cognitive Engineering, deepening substantially what is covered briefly in AVN 540, Aviation finds it necessary to include a fundamental course on Aviation Safety (AVN 560) instead. So AVN 540 and 560 are Aviation’s parallels to ISE 503 & 573, albeit quite different in content. While ISE allows a technical elective, Aviation requires Physics 133, since weather phenomena are largely the result of thermal dynamics, and wave theory applies in several contexts.

Production System Design is another 3 course sequence in ISE. While the sequence may not be apparent from the titles, the Aviation equivalent is: AVN 520, AVN 674, and AVN 590. AVN 520 covers the communications, navigation, and surveillance techniques
that provide the infrastructure for operations in the NAS. AVN 674 addresses one of the major system constraints on throughput and capacity: airport design and operation. AVN 590 and 591 then address the practices and options air carriers have to optimize operations, this includes not simply current constrained optimization, but the evaluation of propose alternatives such as ‘Free Flight’ as a means to fly direct rather than on the conventional airways.

While there is no direct equivalent to ISE 517 Materials Handling, AVN 591 draws on similar analytic techniques, but applies them in a very different context, with different parameters and constraints. CE 570 is meant to equip ATS students with an appreciation for multi-modal transportation system issues and analysis techniques adopted in these other applications contexts with which aviation interfaces. Again, we do not offer an equivalent to ISE Project Management. However, we would encourage students to consider that course as a recommended technical elective, since it complements what we offer and adds to that we want our students to know.

ISE 608.01 and .02 is another two quarter sequence that is roughly equivalent to what we hope to achieve with AVN 570 and AVN 575. AVN 575 is more focused on what must be done to capture and translate primitive industry ‘needs statements’ into specific technical design specifications (what component engineers could then use to design airplanes or their component parts). AVN 570 then treats the additional economic, regulatory, and policy issues that influence “why” airplanes get designed, assembled, and supported (by manufacturers) the way they do.

Since no equivalent to ISE 610 is offered, it is recommended as another technical elective, particularly for anyone expecting to do empirical studies of proposed operational changes. AVN 597 is required of ATS students to bring together all of the preceding coursework into a capstone design project that focuses on the integration and interaction among aviation system components. Hopefully, this shows the focus and forward looking orientation of what we have proposed, as reflected in more detail in the course syllabi. Given that this is a dynamic area of study, we expect faculty to supplement existing texts with other materials reflecting their professional and technical experience, all of whom do have experience in the aviation industry as well as having appropriate academic credentials.

General Curriculum Organization Related to ABET Accreditation

Three of our four tenured faculty have served as Dept. Chairs during ABET accreditation of the Aeronautical and Astronautical Engineering program. They had a major role in contributing to the design and refinement of this proposal. We have studied the ABET Policies and Procedures Manual as well as the Criteria for Accrediting Engineering Programs.

It will simply be noted here that all programs in (non-engineering) aviation curricula are evaluated by the Aviation Accreditation Board International (AABI). In general, ABET’s
procedures appear similar in nature. Both organizations are members of the Council on Higher Education Accreditation (CHEA). However, the ABET standards for science, analysis, and design courses differ, since AABI is for non-engineering aviation programs.

The presently proposed curriculum is designed to largely satisfy the requirements for analysis and design courses (as well as general education requirements). However, further refinements in specific course syllabi may be required as our self-study for ABET accreditation matures. There is a point to be made about the emergence of Air Transportation Systems as a specific discipline in aerospace industrial and professional activity. In recent years, there has been the addition of 13 technical committees to the approximately 60 technical committees in the American Institute of Aeronautics and Astronautics (AIAA). Faculty members have been actively engaged in one of these, the Aviation Operations Technical Committee (AOTC) which interacts strongly and consistently with the Air Transportation TC. Dr. Chubb serves as a reviewer for and the AOTC representative to the *AIAA Journal of Aircraft*.

This initiative to establish an Air Transportation Systems program should have no major impact on staff, other than the student advisor, who would be able to offer engineering students a new option better aligned with their career interests.

Table 2 shows the present allocation of courses to faculty and staff, the bottom portion indicating which specific faculty will be assigned additional teaching duties for the proposed curriculum. The graduate program will require some further adjustments in loading but those assignments are separately addressed in that proposal, which is being submitted independent of this one. However, faculty loading across both programs has been, is, and will continue to be considered as we move forward. For example, while it was necessary to offer AVN 540 twice per year when our enrollment peaked at 520 students, it appears that one offering would be sufficient for our current and near term anticipated enrollment. (Note that in Table 1 AVN 694 A is Air Transportation Systems - Demand & Supply Analysis and AVN 694B is Research and Analysis Methods in Air Transportation Systems. Both are offered now as technical electives in anticipation of the new curriculum and graduate program.)

- **Internal Programmatic Changes**

No changes are envisioned, apart from hiring faculty on existing allocated budget authorizations, and even then no new faculty are required to start offering the undergraduate courses proposed here. Realignment of present faculty loads will accommodate all proposed courses. We are presently seeking to fill a position previously vacated and have college approval to fill another position if a suitable candidate is found. Six of the 8 proposed courses can be accommodated within the workload constraints existing faculty commitments. Three courses (AVN 590, AVN 591, and AVN 610) are being accepted by the assigned faculty (Taneja and Lee) as an additional teaching load. Should new faculty not be found in a timely fashion, additional adjustments in load could be made to accommodate these two courses and reduce this temporary extra load. All the
Table 1. Comparison of 3rd & 4th Years of ISE and ATS Curricula.

**Third Year Coursework**

<table>
<thead>
<tr>
<th>ISE Curriculum</th>
<th>Aviation Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISE 500 Introduction to Industrial Engineering (3)</td>
<td>AVN 300 Introduction to Aviation (3)</td>
</tr>
<tr>
<td>Accounting 501 (3)</td>
<td>AVN 550 Aviation Management (3)</td>
</tr>
<tr>
<td>ISE 521 Operations Research I (5)</td>
<td>AAE 200 Aircraft Performance (3/5) *</td>
</tr>
<tr>
<td>ISE 522 Operations Research II (3)</td>
<td>AAE 201 Acft. Stab. &amp; Cntrl. (3/5) *</td>
</tr>
<tr>
<td>ISE 503 Phys. Of Biomech. Work (3)</td>
<td>AVN 540 Aviation Human Factors (3)</td>
</tr>
<tr>
<td>ISE: an additional science elective (4)</td>
<td>Physics 133 Thermal, Waves, … (5)</td>
</tr>
<tr>
<td>ISE 523 Operations Research III (3)</td>
<td>AVN 310 Fundamentals of A/C Sys. (5)</td>
</tr>
<tr>
<td>ISE 531 Production Sys I (3)</td>
<td>AVN 520 Intro to Avionics (CNS) (3)</td>
</tr>
<tr>
<td>ISE 517 Applied Matls Handling (3)</td>
<td>CE 570 Transp. Sys. Anal. (3)</td>
</tr>
<tr>
<td>ISE 573 Cognitive Engineering (3)</td>
<td>AVN 560 Aviation Safety (3)</td>
</tr>
<tr>
<td>Technical Elective (3)</td>
<td>Technical Elective (3)</td>
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</table>

**Fourth Year Coursework**

<table>
<thead>
<tr>
<th>ISE Curriculum</th>
<th>Aviation Curriculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISE 509 Statistical Process Control (3)</td>
<td>AVN 610 Simulation of Air Transp Sys. (3)</td>
</tr>
<tr>
<td>ISE 532 Production Systems II (4)</td>
<td>AVN 674 Airport Sys. &amp; Operations (3)</td>
</tr>
<tr>
<td>ISE 533 Production Systems III (4)</td>
<td>AVN 590 Airline Practices &amp; Design (5)</td>
</tr>
<tr>
<td>ISE 640 Project Management (3)</td>
<td>AVN 591 Flt. Network Opt. &amp; Anal. (3)</td>
</tr>
<tr>
<td>ISE 608.01 Ind. Prac. Sys. Design (4)</td>
<td>AVN 570 Influences on Acft Production (3)</td>
</tr>
<tr>
<td>ISE 610 Plng. Engr. Experiments (3)</td>
<td>AVN 597 ATS Design (5)</td>
</tr>
<tr>
<td>ISE 614 Lab (2) &amp; 615 Lab (2)</td>
<td>AAE 200 Lab (2) &amp; AAE 201 Lab (2) *</td>
</tr>
</tbody>
</table>

* Note: in ISE the Labs are independent courses whereas in AAE the labs are integral to the course; AAE 200 & 201 consist of 3 hours of lecture and 2 hours of lab, for 5 hours for the total course.

Comment: The arrangement of courses for aviation does not match the bingo sheet shown later for 3rd & 4th year studies, nor do we imply there is an exact match between the kinds of courses in ISE versus aviation; the parallels are explained better in the accompanying text.
Table 2: Faculty Course Loading

<table>
<thead>
<tr>
<th>Current Loading:</th>
<th>Autumn</th>
<th>Winter</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>G. P. Chubb</td>
<td>AVN 540</td>
<td>AVN 560</td>
<td>AVN 540</td>
</tr>
<tr>
<td>G. Doernhoefer</td>
<td></td>
<td></td>
<td>AVN 530</td>
</tr>
<tr>
<td>G. Gregorek</td>
<td>none</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>D. Hammon</td>
<td>AVN 552</td>
<td></td>
<td>AVN 552</td>
</tr>
<tr>
<td>E. Hardick</td>
<td>AVN 415</td>
<td>AVN 410</td>
<td>none</td>
</tr>
<tr>
<td>C. Lee</td>
<td>AVN 694A</td>
<td></td>
<td>AVN 694B</td>
</tr>
<tr>
<td>R. Litvay</td>
<td>AVN 300</td>
<td>AVN 300</td>
<td>AVN 300</td>
</tr>
<tr>
<td>J. Oppermann</td>
<td>AVN 550</td>
<td>AVN 652</td>
<td>AVN 550</td>
</tr>
<tr>
<td>C. Roby</td>
<td>AVN 413</td>
<td></td>
<td>AVN 650</td>
</tr>
</tbody>
</table>

AND AS REQUIRED: AVN 461 AVN 461 AVN 461
AVN 462 AVN 462 AVN 462
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Flt. Ed. Staff (All Av. Flt. Labs.)
AVN 342 AVN 342 AVN 342
AVN 441 AVN 441
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AVN 443 AVN 443 AVN 443
AVN 444 AVN 444 AVN 444
AVN 445 AVN 445 AVN 445
AVN 446 AVN 446 AVN 446
AVN 447 AVN 447

N. K Taneja
none AVN 750 none

T. York
AVN 593 AVN 322 AVN 593

Proposed Load(s):

<table>
<thead>
<tr>
<th>Autumn</th>
<th>Winter</th>
<th>Spring</th>
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<tbody>
<tr>
<td>G. Chubb</td>
<td>as above</td>
<td>as above</td>
</tr>
<tr>
<td>G. Doernhoefer</td>
<td>as above</td>
<td>as above</td>
</tr>
<tr>
<td>G. Gregorek</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>D. Hammon</td>
<td>AVN 552</td>
<td>AVN 674</td>
</tr>
<tr>
<td>E. Hardick</td>
<td>as above</td>
<td>as above</td>
</tr>
<tr>
<td>C. Lee</td>
<td>AVN 694A</td>
<td>AVN 610</td>
</tr>
<tr>
<td>R. Litvay</td>
<td>as above</td>
<td>as above</td>
</tr>
<tr>
<td>J. Oppermann</td>
<td>as above</td>
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<tr>
<td>C. Roby</td>
<td>as above</td>
<td>as above</td>
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<td>Flt. Ed. Staff</td>
<td>as above</td>
<td>as above</td>
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<tr>
<td>N. K Taneja</td>
<td>AVN 590</td>
<td>AVN 750</td>
</tr>
<tr>
<td>T. York</td>
<td>AVN 570</td>
<td>AVN 322</td>
</tr>
</tbody>
</table>

New assignments / additional courses are Underlined; (AVN 493, AVN 489 (Professional Practices in Industry), and AVN 693H (Avn. Honors) not shown: assigned as required)
proposed courses are within the academic capabilities of current faculty, who individually prepared the course syllabi.

- **Affect on Those Outside the Dept.**

  We see no negative impact on programs outside the department. While Civil Engineering 570, Transportation Systems Analysis which will be a required part of the proposed new track / concentration, this track may in fact attract freshman engineering students into this program that might have otherwise chosen some other major within the college. We hope to recruit students with an interest in Aviation who would not normally consider a traditional engineering degree, students attracted to a new and different technical with greater emphasis on a mix of technical, operationally oriented content. Clearly, Aviation’s willingness to teach AVN / CE 674 as a jointly listed course does offer students in Civil Engineering an elective option that has not been available for a number of years but may still be of interest if offered again.

- **Overlap with Other Units**

  As just mentioned, one of the proposed courses (AVN 674) is to be joint listed with civil engineering – the course on Airport Planning, Design, and Development. While a course on simulation is also proposed, its emphasis is on aviation applications, not simulation in general – the emphasis is on analysis of aviation operations and maintenance activities.

  Since our original proposal submission, Industrial, Welding, and Systems Engineering (IWSE) has expressed interest in working with us in the development of the new, proposed course on aircraft manufacturing (AVN 570). They may also have interest in other possible joint ventures, such as future technical electives on Aviation Quality Control and Assurance, Project Planning and Management, and other courses of mutual interest.

- **Concurrence of Other Units**

  Faculty in civil engineering have already supported the teaching of the Airport Planning course if offered as AV 694 this coming Winter Quarter. The Chair of IWSE proposed giving us assistance with developing AVN 570 and proposed the title we have now assigned, until a revised syllabus is prepared as we develop this course further.

- **Process Prior to Submission to CAA**

  This proposal was reviewed and approved by the faculty of the department, and has been shown to student groups (AHP and Flight Team members) and representative alumni (professional pilots, airport managers, etc.), all of whom have reacted favorably since the Aviation Task Force’s initial recommendations were shared with these same groups.
A. Title of Major: Aviation

B. Title of Proposed NEW Track: Air Transportation Systems

C. Rationale for Proposal Initiation

Aviation eliminated the Human Factors track / area of concentration due to low enrollment and the need for graduate education in this specialty area, when Aviation at present has no graduate program and Industrial, Welding, and Systems Engineering already has a Human Factors program certified by the Ergonomics and Human Factors Society.

The Aviation Task Force established by Dean Williams not only recommended Aviation again be made a separate and independent program, but that same Task Force recommended the establishment of this proposed new track / concentration in Air Transportation Systems. This was predicated on NASA Langley’s having looked for such a program and not finding one anywhere in the United States. Dr. Holmes concept of this kind of program was presented in a previous edition of the University Aviation Association’s (UAA) Newsletter (Vol. 30, No. 2 – Spring 2006) and is included as Attachment 5.

Also, Dean Baeslack asked that the department take steps to attract more engineering students into the Aviation program and better align the curriculum to the vision and mission of the college. This proposal is the first step in that process.

D. Relation to Mission of the Department and College

College Mission: To educate professionals in engineering and architecture, and to create and disseminate knowledge and technology, and to provide innovative solutions to societal problems.

Air Transportation Systems provides a vital service to the global economy, a major national resource affecting balance of trade, and a major employment opportunity in both the state and the nation. While many engineering disciplines contribute to design of component subsystems (aircraft, engines, airport facilities, etc.), the emphasis in this track will be on the efficiency and effectiveness of the overall system as a whole, to include its interface to other parts of the intermodal transportation network.

Department’s Mission:

The mission of The Ohio State University Department of Aviation is to serve the University's teaching, research and public service missions as
a nationally and internationally recognized interdisciplinary university aviation program.

1. We will provide a progressive learning experience for students of diverse backgrounds to lead, develop, and operate tomorrow's global aviation system with baccalaureate and graduate degree programs.

2. We will assist practicing professionals to improve their effectiveness in a dynamic aviation industry.

3. We will conduct research leading to progressive concepts for expanding aviation applications, eliminating barriers to the growth of aviation, and advancing aviation safety and efficiency.

4. We will operate superior facilities and associated services to fulfill and enhance all three aspects of the Department's mission (teaching, research, and public service).

E. Proposed Implementation Date: Autumn 2007, with selected courses being introduced as early as WI 07.

F. Responsible and Supportive Departments: Aviation will be responsible for this track, and while students may take related electives, support is not requested from other departments or programs

G. Description of the Aviation Program and the ATS Concentration
See attached materials:
Attachment 1: Overall Aviation Program Description and Specifics on the Proposed Air Transportation System (ATS) Engineering track
Attachment 2: DRAFT Bingo Sheet for ATS Option
Attachment 3: New Course Proposal Forms (catalog information)
Attachment 4: Syllabi for New Courses
Attachment 5: Air Transportation Systems Innovation Concept Paper

H. Details Regarding Source of Students and Estimated Numbers (FTE) for the Next Four Years

While Aviation at Ohio State has attracted students from literally across the world, the major percentage of our students come from Central Ohio, Western New York and Pennsylvania, and Eastern Indiana. Students North of us tend to go to Kent State or Bowling Green, and those South of us tend to go to Ohio University or the University of Cincinnati. Those further West of us tend to go to Purdue, U of IL, or SUIC.
Prior surveys of our students indicated that many did not hear about OSU’s Aviation program until after they arrived on campus. Alpha Eta Rho and the OSU Flight Team have both been encouraged to increase their efforts during Welcome Week to attract new first quarter freshman into the Aviation program, and both have done so.

The Dean has asked that increasing attention be given to attracting more engineering students into the Aviation program. Promotional brochures have been revised and recruiting efforts are being changed to address that issue. We believe this proposed concentration will help achieve the objective of attracting more engineering students.

However, internal to the program, nearly half of all entering students think they want to be professional pilots. Once they learn the cost and discipline required to complete the series of required Aviation Flight Laboratories, half of those students migrate into another area of concentration. Right now, the only option is Aviation Management. The proposed new track would provide yet another option.

### FTE Historical Numbers of Students

<table>
<thead>
<tr>
<th>Years:</th>
<th>02-03</th>
<th>03-04</th>
<th>04-05</th>
<th>05-06</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG</td>
<td>39</td>
<td>46</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>ASC</td>
<td>200</td>
<td>177</td>
<td>163</td>
<td>140</td>
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<tr>
<td>BUS</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>6</td>
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<tr>
<td>Subtotals:</td>
<td>243</td>
<td>227</td>
<td>192</td>
<td>178</td>
</tr>
</tbody>
</table>

These data reflect the 15th day enrollment statistics. Data by program track are not available. However, for future enrollment, we show the data by track, not college.

* Separately, we are proposing to change the name of “Aircraft Systems” (Acft. Sys. -- AVS) concentration to “Aircraft Operations” – the name used for an associated American Institute of Aeronautics and Astronautics (AIAA) Technical Committee (TC), and the name most frequently used by airlines to identify flight operations and associated flight crews. The following table therefore uses this new designation in future projections.

### Future FTE Estimates

<table>
<thead>
<tr>
<th>Years:</th>
<th>07-08</th>
<th>08-09</th>
<th>09-10</th>
<th>10-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>AvOps.</td>
<td>140</td>
<td>142</td>
<td>148</td>
<td>152</td>
</tr>
<tr>
<td>AvMgt.</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>ATS</td>
<td>35</td>
<td>42</td>
<td>45</td>
<td>50</td>
</tr>
<tr>
<td>Subtotals:</td>
<td>180</td>
<td>190</td>
<td>200</td>
<td>210</td>
</tr>
</tbody>
</table>
The current downturn reflected in these numbers is affected by a: 1) general decline in OSU enrollment, and 2) depressed aviation industry. The aviation industry has begun to expand, although further airline consolidation / mergers are anticipated. The Air Transport Association has already expressed its concern over the potential for seeing a large increase in Very Light Jets (VLJs), with a subsequent impact on the Air Traffic Management system. The introduction of VLJs later this year will fuel at least two new air taxi startups, and it is estimated that 1,000 aircraft are needed by each to reach an economic 'break even' point. Therefore, demands for professional pilots and many other kinds of aviation professionals to support that surge, are anticipated. Additionally, the introduction of Uninhabited Aerial Systems (UAS) into the National Airspace System (NAS) as Air Force Guard Units, the Department of Homeland Security (DHS), and various police agencies are attracted to using this new class of aviation vehicle.

I. Availability of the Aviation Major at Other Universities

The University Aviation Association (UAA) represents 115 collegiate aviation programs, in this country, in Canada, and in other parts of the world. Aviation programs exist at two other Big Ten institutions: Purdue University and the University of Illinois. Purdue’s program is offered in the School of Technology which has strong ties to the College of Engineering in various research efforts. At the University of Illinois, the program is operated in a separate Aviation Institute, the equivalent of a college, offers a Masters degree in Human Factors, is world renowned for its research in Aviation Psychology and Human Factors Engineering, and has ties with both the Industrial Engineering and Mechanical Engineering Departments as well as Psychology. The largest collegiate aviation programs are at Embry Riddle Aeronautical University (ERAU – which has Daytona Beach, FL and Prescott, AZ campuses, as well as a world-wide Extension Program), the College of Aviation at the University of North Dakota, and the College of Aviation at Western Michigan University. Dr. Holbrook served on the Board of Trustees for ERAU.

No one has the kind of ATS program proposed here. Its closest parallels are at MIT in the US and Cranfield in the UK. The need for the program proposed here was identified and suggested by Dr. Bruce J, Holmes of NASA Langley Research Center while serving on Dean Williams’ Aviation Task Force. His definition of Air Transportation Systems appeared in a recent issue of UAA’s Collegiate Aviation News (Spring 2006) and is attached (Attachment 5). Dr. Holmes’ organization has previously sponsored a number of NASA funded research efforts completed by both the Aeronautical and Astronautical Engineering and the Aviation Departments. OSU’s offering an ATS track would therefore represent a leadership position in the community Collegiate Aviation educators, a role we have played many times in the past.

J. Impact on Facilities, Faculty, and Support Services

a. Facilities Impact:
Aviation currently uses Room 201 in the Aviation Building for most of its classes; when time / scheduling conflicts occur, Room 200 is also used. Both rooms are open
(i.e. unused) during portions of the day, as are adjacent classrooms. It is anticipated that these classrooms will suffice, and at most, one additional classroom may be needed (beyond 200 & 201) for some new classes if they are to be scheduled concurrent with existing classes.

While OSU’s Department of Aviation also operates the OSU Airport under Part 139 of the Federal Aviation Regulations, no changes to the airport are required to support this proposed area of concentration. However, the airport will serve as a suitable ‘laboratory’ for related studies, analyses, and research.

b. Faculty Impact:
Existing faculty can handle this load. With the addition of only one new faculty member (already authorized by the Dean), even the minor proposed overload of 3 courses disappears. When Aerospace Engineering became a separate department, one of their faculty requested transfer to Aviation (Dr. York) and has been teaching a variety of optional, elective courses. In this proposal, he will instead teach three of the courses in the new proposed track. We have recently hired one new faculty member (Dr. Lee, hired on a retiring faculty member’s position—Dr. Jensen). However, with the Dean’s permission, we are already in the process of hiring not one, but two new faculty members, not only to support this new area of concentration but a graduate program we plan to propose as well, but which will be proposed separately. Other faculty members will be sought as current faculty retire (e.g., Drs. Chubb, Gregorek, and York, who are eligible and may retire in the next few years).

c. Support Services Impact:
There is no envisioned need for special or additional support services.

K. Estimated Total Costs Above Current Level of Operation for Next Four Years

Although the courses will be allocated to a number of existing as well as new faculty members, it is estimated that the incremental load is the equivalent of one assistant professor.

<table>
<thead>
<tr>
<th></th>
<th>06-07</th>
<th>07-08</th>
<th>08-09</th>
<th>09-10</th>
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<td>$75,712</td>
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<td>Subtotals</td>
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<td>$102,362</td>
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<tr>
<td>One-time start-up package:</td>
<td>$63,572</td>
<td></td>
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<td>$63,572</td>
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<tr>
<td>Overall Total:</td>
<td></td>
<td></td>
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<td>$450,000</td>
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</table>

*Salary for this new position has been provided by the College of Engineering and is included in our Permanent Budget Allocation (PBA).

Over head was estimated at 30% and annual wage adjustments at 2.5%
L. Faculty Participation and Area of Specialization Relative to Proposed Track

Faculty support for this area of concentration is presented in Attachment 1 and duplicated here.

**Anticipated Teaching Loads for ATS Courses**

Faculty: Taneja(1/2), Chubb, York, Lee, Gregorek (1/3) 4
Oppermann, Litvay 2
+ 2 new faculty @ 1 U (& 1 G) course/quarter/faculty 2

So, Supply New Undergrad. Teaching  8 courses/yr
And, Demand: New ATS Curric. - 8 courses/yr
(Approx. 3 courses/quarter)

**Projected Faculty Needs for MS (& ATS) Programs**

**ATS Concentration:**

1. Communications/ATC
   Information Technology (IT) New Areas, New Fac. (1)
2. Human Factors
   Security Issues Replace Fac (1)
   Operations
3. Aircraft Systems
   ATSystems Anal & Synthesis Replace Fac.(1.5)
   FAA, NTSB, & Airport Policies New Areas,
   Aviation Regulatory Issues New Fac. (1)

**NOTE:** The proposed assignment of the 2 New Faculty needed (for a separately proposed MS in Aviation and Proposed New Undergraduate Major in Air Transportation Systems). Also noted are the areas where replacements will be needed as current faculty retire.
Attachment 1: Overall Aviation Program Description and Specifics on the Proposed Air Transportation System (ATS) Track

*Aviation Department*
The Ohio State University

**Description of Undergraduate Programs**
The programs of study being offered in the Aviation Department offer the prospective student choices that allow a range of educational opportunities that prepare the graduate to enter today’s employment market, while satisfying personal goals for a sound education. The programs allow concentration in Aircraft Operations (Professional Pilot), Aviation Management, and Air Transportation Systems.

The student may study in three colleges: **Social and Behavioral Sciences (SBS)**, **Fisher College of Business (CoB)** and the **College of Engineering (CoE)**. All programs are incorporated in (four year) study which results in Bachelor of Science or Bachelor of Arts degrees. The foundation for each program rests on the basic, core degree requirements of the college.

Programs in SBS emphasize a broad education within the requirements set down for all the Colleges of the Arts and Sciences. “They draw upon the full tool kit of the modern-day social and behavioral sciences (including experimental, observational, survey, interpretive, game theoretic, and statistical methods of analysis) to study people, groups, and their institutions in the United States and other countries. SBS majors develop the analytical and communication skills and the knowledge that enable them to address issues that also will serve them well in a variety of careers, including work in both the private and public sectors, as well as further training.”

“The baccalaureate program in the Fisher College of Business provides quality, nationally recognized opportunities for students to develop the knowledge, skills, and global perspectives to be effective leaders in business, government, and other organizations. The program also provides a strong foundation for graduate or professional study.”

Programs in the College of Engineering have a number of educational goals; they are based in science and engineering. They are described as follows. “Integrating strong engineering education and research programs into all aspects of the College of Engineering continues to be our commitment. This effort is clearly recognized by our industry partners, who fund research in our laboratories and then recruit and hire our students. We continually strengthen our traditional engineering programs while investing in emerging fields, thereby preparing our students for the workforce of the future.” Within the framework of the college degree programs, students may specialize in the following concentrations:

<table>
<thead>
<tr>
<th>Social and Behav. Sci.:</th>
<th>Aircraft Systems</th>
<th>BA or BS in SBS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aviation Management</td>
<td>BA or BS in SBS</td>
</tr>
<tr>
<td><strong>Fisher College of Business:</strong></td>
<td>Aviation Management</td>
<td>BS in Bus. Admin</td>
</tr>
<tr>
<td><strong>College of Engineering:</strong></td>
<td>Aircraft Systems</td>
<td>BS in Aviation</td>
</tr>
<tr>
<td></td>
<td>Aviation Management</td>
<td>BS in Aviation</td>
</tr>
<tr>
<td></td>
<td>Air Trans. Systems</td>
<td>BS in Aviation</td>
</tr>
</tbody>
</table>
Description of Programs of Study,
College of Engineering

College Course Framework:
All programs of study in the College of Engineering share a common grouping of courses that comprise approximately 150 credits of the total of 190 credits for the degree. That common grouping of courses includes 87 credits of Freshman Engineering courses, mathematics, physics and chemistry and other basic engineering courses common to engineering curricula. There is also a block of about 30 credits in Aviation courses which are common and provide the foundation in topics such as the National Aviation System, Introduction to Aircraft Operation and Performance, Project Management, Human Factors, and Aviation Safety. There are 38 credits of General Education Curriculum (GEC) requirements. All graduates receive the B.S in Aviation from the College of Engineering

Aircraft Operations (Professional Pilot Track): (40 credits of specialization)
Students may choose to participate in OSU’s quality flight education program, which is the professional pilot track. For those students planning on becoming professional pilots, and who wish to complement their flight education with a general engineering education, the Aircraft Operations program of study through the College of Engineering provides this solid foundation. Graduates are FAA certificated commercial pilots with a multi-engine rating or a flight instructor certificate, and have the additional advantage of a general engineering education.

Aviation Management: (40 credits of specialization)
The Aviation Management Program in the College of Engineering offers a Management perspective to the coordination of the Physical and Capital resources that make up the Aviation infrastructure. The analysis and calculation skills of an Engineering education is an ongoing need for an infrastructure that is constantly evolving and growing.

Air Transportation Systems: (40 credits of specialization)
The proposed Air Transportation Systems track is designed to meet the needs of aerospace industry operators and manufacturers of aircraft. Emphasis is placed on the application of engineering theory to the particular demands of the aviation industry, such as detailed knowledge of commercial airplanes including preliminary layout and design, structures as they relate to unique manufacturing processes and life-cycle, systems integration and vehicle certification. The Air Transportation Systems track will focus on the analysis and design of interacting elements of the National Airspace System (NAS): synthesis and integration of the vehicle into the multi-aircraft operating system (commercial and military) in order to suggest the optimal Next Generation Air Transportation System (NGATS). This differentiates the program from aerospace engineering where emphasis is placed on detailed analysis of vehicle components.

The Air Transportation Systems track will take the view that the knowledge, understanding and skills necessary for the practice of aircraft design and evaluation are best acquired through interdisciplinary teaching (in the broader sense) and demanding application, rather than through a systematic series of individually assessed modules of analysis. The program will be designed to
stress pragmatic solutions to the technological problems our graduates are likely to face in the aviation / aerospace industry.

Description of Programs of Study,
College of Social and Behavioral Sciences

College Course Framework.

The two Aviation Majors available within the College of Social and Behavioral Sciences include an educational foundation emphasizing communication, decision making, and analysis with a global perspective. The degree requirements are generally distributed as follows: about 90 credits in Writing, Quantitative skills, Natural Science, Social Science, Arts and Humanities and Foreign Language; about 45 credits of electives; about 26 credits in Aviation Core courses and about 30 credits in Aircraft Operations (Professional Pilot) or Management tracks.

Both Aviation programs of study build upon the base education with aviation industry core courses to prepare students for careers in the dynamic air transportation industry. Students choose to either participate in OSU’s quality flight education program, which is the professional pilot track, or to focus on aviation management (airline / airport), depending on their career goals.

Aircraft Operations (Professional Pilot Track)
For those students planning on becoming professional pilots, the well-rounded, general education provided through the College of Social and Behavioral Sciences is a solid foundation to build upon with aviation industry knowledge and flight education. Graduates are FAA certificated commercial pilots with a multi-engine rating or a flight instructor certificate and the education needed to compete in this demanding and competitive industry. Graduates receive a B.S. or B.A. degree in Aircraft Operations from the College of Social and Behavioral Sciences.

Aviation Management:
The Aviation Management Program in the College of Social and Behavioral Sciences offers a Management perspective to how Aviation facilitates Economies and Societies. The analysis and communication skills of an Arts and Sciences education is an ongoing need for the global connecting nature of Aviation. For those students who desire to have a career in the business or operational side of the air transportation industry, this curriculum provides the aviation industry core education as well as air transportation-focused management courses as preparation. Graduates receive a B.S. or B.A. degree in Aviation Management from the College of Social and Behavioral Sciences.

Description of Programs of Study,
Fisher College of Business

College Course Framework.

All Majors in the Fisher College of Business share a common foundation of approximately 160 foundation credits before specializing in a chosen Major. The foundation credits include First Year, Education, Science, and Humanities areas. The Business foundation credits include
Business Administration, Management, Accounting, Economics, Finance, Law, and Human Resources. The specialized Major in Aviation Management requires 29 credits.

**Aviation Management:**
The Aviation Management Program in the Fisher College of Business offers a Management perspective to the efficiencies and performance of Aviation organizations. The analysis and measurement skills of a Business education meet the needs of the challenging, competitive, and evolving Aviation Marketplace.


### The 8 New Courses for Our Proposed ATS Track

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avn 520</td>
<td>Introduction to Avionics.</td>
<td>(3)</td>
</tr>
<tr>
<td>Avn 570</td>
<td>Influences on Aircraft Production</td>
<td>(3)</td>
</tr>
<tr>
<td>Avn 575</td>
<td>Develop. &amp; Design of AC Syst.</td>
<td>(5)</td>
</tr>
<tr>
<td>Avn 590</td>
<td>Airline Practices and Design</td>
<td>(5)</td>
</tr>
<tr>
<td>Avn 591</td>
<td>Flight Network Analysis &amp; Optimization</td>
<td>(3)</td>
</tr>
<tr>
<td>Avn 597</td>
<td>Air Transportation Systems Design</td>
<td>(5)</td>
</tr>
<tr>
<td>Avn 610</td>
<td>Simulation of Air Trans. Systems</td>
<td>(3)</td>
</tr>
<tr>
<td>Avn 674</td>
<td>Airport Systems &amp; Operations</td>
<td>(3)</td>
</tr>
</tbody>
</table>

### Anticipated Teaching Loads for ATS Courses

Faculty: Taneja(1/2), Chubb, York, Lee, Gregorek (1/3) 4
         Oppermann, Litvay 2

+ 2 new faculty @ 1 U (& 1 G) course/quarter/faculty

So, Supply: New Undergrad. Teaching 8 courses/yr
But, Demand: New ATS Curric. - 8 courses/yr (Approx. 3 courses/quarter)

### Projected Faculty Needs for MS (& ATS) Programs

**Concentration:**

1. Communications/ATC Information Technology (IT) New Areas, New Fac. (1)
2. Human Factors Security Issues Operations Existing Areas, Replace Fac (1)
3. Aircraft Systems
   ATSystems Anal & Synthesis

   FAA, NTSB, & Airport Policies

Proposed assignment of the 2 New Faculty needed (for a separately proposed MS in Aviation and Proposed New Undergraduate Major in Air Transportation Systems). Also noted are the areas where replacements will be needed as current faculty retire.

All students in this engineering-oriented track must take either AVN 310 or AVN 310-M (not both); AVN 310 is an existing course and a required pre-requisite to AVN 341. AVN 310-M is a proposed new version of this course and will NOT satisfy the pre-requisite requirement for AVN 341 and the Aviation Flight Laboratory (AFL) sequence.

Also, all students in this track are required to take Civil Engineering 570, Transportation Systems Analysis, which provides the over-arching principles used in analyzing all of the varied multi-modal transportation systems. The rest of the curriculum then focuses specifically on air transportation systems analyses as a special case of the more general topic.

**AVN 310.01 (5) Aircraft Operations and Performance**
Flight fundamentals, aircraft operation and performance, aviation weather, and Federal Aviation Regulations are studied in this intensive, FAA approved, Private Pilot Ground School course to provide the foundation required to begin the Academic Flight Laboratory (AFL) sequence, starting with AVN 341. AVN 310 is a comprehensive class that also prepares the student for the FAA Private Pilot written exam, and is the first step towards becoming a pilot (for which oral and practical exams are also required).

**AVN 310.02 (5) Aircraft Operations and Performance**
This course provides fundamental knowledge on aircraft components, operation, navigation and regulations oriented for future air transportation industry professionals who do not plan to become pilots. Knowledge of the National Airspace System, airplane operations, Federal Aviation Regulations, and safety of flight considerations are included to establish a foundation for students principally interested in studying aviation management.

**AVN 520 (3 cr.) Introduction to Avionics (ATC, Comm., Navig.)**
Fundamentals and applications of avionics (aviation electronics). This topic provides the technology essential for aircraft communication, aircraft navigation and communication throughout the air transportation airway system (e.g. ATC and Dispatch). This course provides basic analysis and applications including the engineering and design process.

**Outline:**
- Avionics fundamentals,
• System design concepts,
• Electrical systems, including engine driven power generation,
• Sensors, communication & navigational aids,
• Principles of navigation, flight control, and systems integration.


**AVN 570 (3 cr.) Influences on Aircraft Production**

Introduction to the principles and practices of modern aerospace manufacturing, specifically focused on the idiosyncrasies of aircraft production. This course provides an introduction to manufacturing processes, materials and systems that are unique to aircraft and those that are common in vehicle manufacturing. One goal of this course is to promote a positive information base for compatibility within the air transportation industry.

**Outline:**

- Overview of aircraft systems analysis and design
- Overview of airplane production processes and process planning
- Individual manufacturing processes and technologies used to manufacture various components and subsystems of modern aircraft.
  - Process limits
  - Economic implications
  - Operations requirements
  - Materials considerations
- Production costs concepts including basic cost estimating
  - Materials vs. Cost
  - Tolerances vs. Cost
  - Production Volume vs. Cost
- Production Systems Management and Control


NOTE: Course Notes and reading assignments will be used in lieu of a textbook, since there is nothing currently available that adequately covers these topics in this context. Reading assignments in the syllabus are for illustration only, being based on the best currently available textbooks.

**AVN 575 (5) Development and Design of Aircraft Systems**

Introduction to how aircraft systems are designed and have evolved, encompassing the systems approach. There is an emphasis on how the complex aircraft systems’ technical requirements emerge from a primitive customer requirement or need statement. Individual systems are integrated for the purpose of developing a fit-for-purpose aircraft product

**Outline:**

- The design and development process
- Design drivers
• Systems architecture
• Systems integration
• Configuration control
• Aircraft systems examples and case studies


AVN 590 (5) Airline Practices and Design
This course will address and analyze the principal issues in structuring the air transport markets, devising the cost and revenue equation of airline operations, determining aircraft and flight scheduling, optimizing crew and maintenance scheduling, and performing analyses for network and fleet planning processes. The course will also examine financial issues related to aircraft acquisition and sales as well as infrastructure financing (runways, terminals, hangars, air navigation control facilities) and pricing of the aviation services this infrastructure provides.

This course is designed to provide students with an opportunity to:
• Understand the importance and scope of airline operations in both the domestic and international arenas.
• Understand the economic forces that shape the airline industry and the measures that are taken in response to those forces.
• Comprehend the nature of the product airlines provide, their characteristics, forms, and methods of delivery.
• Understand the factors that affect the choice of airline business strategy.

Reference Texts:

AVN 591 (3) Flight Network Analysis and Optimization
This course provides a comprehensive introduction to the functional activities involved in planning and operating an airline and their integration with corporate strategies and policies. The complete airline planning process is explored, beginning with longer-term strategic decisions about fleet planning and route development, followed by medium-term schedule planning, fleet assignment, maintenance and operational considerations. The course will also examine a variety of network optimization models adopted by air transportation entities around the world.

Reference Texts:
• Massoud Bazargan Airline Operations and Scheduling (UK: Ashgate, 2004.)
AVN 597 (5) ATS Design – Aircraft Design for Utilization in AT System
Development of basic system elements of aircraft vehicle design. Fundamental approach is defined by demands of airline/commercial user. Emphasis is on synthesis of the aircraft role in the whole AT System. In particular, the focus of this course will be on the analyzing design alternatives for the Next Generation Air Transportation System (NGATS). Inclusion of Very Lights Jets, Uninhabited Aerial Systems, and self-separation / self-sequencing of airplanes into airports will be considered.

Outline:
- Overview (and review) of the vehicle design process (AVN 570 & AVN 575)
- Aircraft performance fundamentals – component interactions
  - Sizing from conceptual demands
  - Configuration layout (emphasis on use and aircraft flexibility in operation)
  - Cost analysis

This course will involve completion and reporting of a design study, including issues relating to use of the aircraft in fleet ops., of a unique aircraft development/ modification initiated to meet demands of ATS commercial users.

Texts:

AVN 610 (3) Introduction to Computer Modeling and Simulation in Aviation
This course will introduce the process of developing, implementing, verifying, and validating models used for constructive modeling in NGATS design and evaluation. Attention will also be given to functional and physical audits of flight training devices and simulators as part of acceptance testing. The alternative methods for implementing simulations will be reviewed, using examples of commercial off the shelf tools. Kinds of types of simulation models will be introduced, distinguishing between discrete event, network, continuous times, and hybrid modeling methods.

Outline:
- Overview both constructive modeling for systems analysis and design evaluation as well as man-in-the-loop simulation for research, development, training applications.
- Understand the Federal Aviation Administration distinction between flight training devices and simulators, and the corresponding differences in certification of each
• Appreciate the steps that have to be taken in order to develop a model and implement a simulation to be sure the results correspond to the real system, appreciating the difference and need for both verification and validation.
• Learn the basic principles for designing device interfaces that affect both work station control / display dynamics and the design of an instructor / operator station.

Reference Books

**AVN 674 (3) Airport Systems Planning & Operations**
A comprehensive study of airport planning & operations, the role of the airport and its components as part of the overall Air Transportation System, and the issues related to the planning, design, and development of the airport and its systems.

**Course Objectives:**
⇒ To provide an understanding of the process for planning the various airport systems, including site studies, master plans, and environmental studies;
⇒ To provide an understanding of the criteria used in designing airport systems, and to introduce the airport design process;
⇒ To provide an understanding of the managerial, operational, financial, technical, environmental, and political issues related to airport planning & development; and
⇒ To provide the practical knowledge necessary to enter the airport planning & design field.

**Outline:**
• Master Planning
• Environmental Studies
• Airfield Systems (Runways, Taxiways, Safety Areas)
• Electrical Systems (Lighting, Communications, NAVAIDS)
• Airport Services Support Systems (Terminals, Ramps, Hangars, Tie-downs, Fuel Facilities)
• Air Navigation System (ATC, Uncontrolled Airports); Weather Reporting Systems
• Airport Security Systems; Airport Access/Ground Vehicle Support Systems
• Airport Area Development (Airport Zoning, Federal Aviation Regulation, Part 77)
• Airport Layout Plan
• Airport Capital Improvement Program

**Course Material:**  *Airport Planning and Management*, A.T. Wells, McGraw-Hill
Project Notes:
1. Description: The planning and design of an airport
2. Location: Bellefontaine Quad
3. Information Provided: Local weather data, pre-determined forecast of based aircraft and operations levels, critical aircraft.
Attachment 2: DRAFT Bingo Sheet for ATS Option

(see following page)

Note: ISE curriculum is similar in all but technical major courses. 71 total ISE; 68 total AVN AVN/aero
**Proposed Revisions for BS in Air Transportation Systems 2005-2006**

(Bold font indicates changes from BS in Aviation)

| Name: __________________________ | SSN: ____________________ | Phone: ________________ |
| New to OSU: _________ email:                                                @osu.edu |

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<td>Math 152 .........................5___</td>
<td>Math 153 .........................5___</td>
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<td>Physics 132 .........................5___</td>
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<td>AVN 550* Avn Proj, Mangmt ....3___</td>
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<td>Stat 428 .............................3___</td>
<td>AVN 540* Avn Hum Factors ...3___</td>
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<td>AVN 674 Airport Sys &amp; Ops ....3___</td>
<td>Free Elective .............................3___</td>
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<td>AVN575 Dev&amp;Dsgn of Acft. Sys 5___</td>
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**GENERAL EDUCATION (38 hrs)**

**English & Communication Skills (10)**

- English 110.xx (5)
- 2nd English (5)

**Social Sciences (9)**

- Econ 200 (5)
- ( )
- ( )

**Historical Survey (10)**

- ( )
- ( )

**Arts & Humanities (9)**

- a. Literature (1 course)
  - ( )
- b. Visual/Performing Arts or Other Humanities (1 course)
  - ( )

**GENERAL COURSE TRACKS**

**Choose ARS (45), MGT(45 hrs), or ATS(47)**

**ATS**

- Stat 245(5)  Stat 245(5)  Stat 427(3)
- Avn 341(2)  Avn 552(3)  Avn 550(3)
- Avn 342(2)  Avn 650(3)  MSE 205(3)
- Avn 410(3)  Avn 652(3)  CSE 202(4)
- Avn 413(3)  Avn 654(3)  Avn 520(4)
- Avn 415(3)  B-Mgt 330(5)  Avn 570(3)
- Avn 441(3)  B-Mgt 331(4)  Avn 575(5)
- Avn 442(3)  Econ 201(5)  Avn 674(3)
- Avn 443(3)  Geog 645(5)  Avn 590(5)
- Avn 444(3)  ( )
- Avn 445(3)  ( )
- Avn 446(3)  ( )

**ADMISSION CONDITION**

- ( )

**SOCIAL DIVERSITY**

- (May overlap with another GEC Category)

- Free Elective (3)

**CORE AVIATION COURSES**

- Avn 300 (3)
- Avn 310 or Avn 310M (5)
- Avn 530’ (3)
- Avn 540’ (3)
- Avn 550’ (3)
- Avn 560’ (3)

* Writing assignments in these courses satisfies the need for a 3rd writing course
Attachment 3: New Course Proposal Forms (catalog information)
(see following pages)
**OHIO STATE NEW COURSE REQUEST**

College:  
**Engineering**

Academic unit:  
**Aviation**

Book 3 Listing:  
**Aviation (AVN)**

Proposed Course No.:  
**3104**

Full Title of Course:  
Private Pilot Fundamentals for Management Majors

Proposed Effective Qu/yr:  
SU  [ ] SU  [ ] AU  [ ] AU  [ ] WI  [ ] WI  [ ] SP  [X] SP  [ ] YEAR  [ ] 
(See OA Academic Organization and Curriculum Handbook for Deadlines)

---


*Is this a course with decimal subdivisions?* If so, use one New Course Request form for the generic information that will apply to all subcategories. Use separate forms for each new decimal subdivision, including on each form only the information that is unique to that subdivision.

10 Character Transcript Abbreviation:  
**AVN**

Paper Fund:  
**MENT**

Level:  
**U**  [ ]  **G**  [ ]  **P**  [ ]  Credit Hours:  
**3.5**

Description (not to exceed 25 words):  
Study of flight fundamentals, aircraft operation, weather, and regulations that influence air transportation regulations.

Quarter offered (check):  
**SU**  [ ]  **AU**  [ ]  **WI**  [ ]  **SP**  [X]  
Distribution of class time/contact hours:

Wk:  
**[ ]**

Hrs:  
**[ ]**

*Distribution of class time/contact hours.*

Quarter and contact information should be omitted from Book 3 publication. (check here)  
**[ ]**

Prerequisite(s):  
**Math 164 or equivalent**

Exclusion or limiting clause:

Repeatable to a maximum of ___ credit hours.  
**[X]**

Cross-listed with:  
**[ ]**

Grade Option (Please check):  
**Letter**  [X]  **SU**  [ ]  **Progress**  [ ]

If this course is Progress graded, what course is the last one in the series?

Honors Statement:  
**[ ]**

OF-Campus:  
**[ ]**

GEO:  
**[ ]**

EM:  
**[ ]**

Admission Condition:  
**[ ]**

Course:  
**[ ]**

Other General Course Information:  
**[ ]**

(e.g. "Taught in English." "Credit does not count toward BSBA degree." )

Subject Code:  
**[ ]**

Subsidy Level (V, G, T, B, M, D, or P):  
**[ ]**

(If you have questions, please email Jedd D'Innocenzo at d'innocenzo.1@osu.edu)

Will course be taught in distance learning format:  
**[ ]**

---

**B. General Information:**

1. Provide the rationale for proposing this course:

   Management majors will not take AVN 341 and AVN 342 as

   full-on courses. Content and emphasis here is flight is cpts.

2. List Major/Minor affected by the creation of this new course. Attach revisions of all affected programs.

   This course is (check one):  
   **[X]** Required  
   **[ ]** Elective  
   **[ ]** Other (Explain)  

   **All majors must take either AVN 341 or AVN 342.**

* If the course offered is less than quarter, term, or semester, please also complete the Flexibility Schedule/OMT Campus/Workshop Request form.
3. Indicate the nature of the program adjustments, new funding, and/or withdrawals that make possible the implementation of this new course. All aviation majors now take AVN 341, whether they go on to AVN 341/342 or not. This provides non-pilots an option.

4. Is the approval of this request contingent upon the approval of other course requests or curricular requests?
   Yes ☐ No ☒ List:

5. If this course is part of a sequence, list the number of other course(s) in the sequence: K. L. M. N.

6. Expected section size: 25 Proposed number of sections per year: 2

7. Do you want prerequisites enforced electronically? (See OAA Curriculum Manual for what can be enforced.) Yes ☒

8. This course has been discussed with and has the concurrence of the following academic units needing this course or with academic units having directly related interests (List units and attach letters and/or forms): Not Applicable ☒

9. Attach a course syllabus that includes a topical outline of the course, student learning outcomes and/or course objectives, off-campus field experience, methods of evaluation, and other items as stated in the OAA Curriculum Handbook.

APPROVING SIGNATURES: All signatures are to be in ALL CAPS (e.g. ACADEMIC UNIT) and must be completed.

Gerald P. Chubb 10/6/2006

| Academic Unit Undergraduate Studies Committee Chair (Undergraduate courses) | Printed Name | Date |
| Academic Unit Graduate Studies Committee Chair (Undergraduate/Graduate courses) | Printed Name | Date |
| School / College Undergraduate Curriculum Committee (Undergraduate/Graduate courses) | Printed Name | Date |
| School / College Graduate Curriculum Committee (Undergraduate/Graduate courses) | Printed Name | Date |
| ACADEMIC UNIT CHAIR / SCHOOL DIRECTOR | Printed Name | Date |

| COLLEGE DEAN | Printed Name | Date |
| Graduate School (If Applicable) | Printed Name | Date |
| ASC Curriculum Committee Chair (If Applicable) | Printed Name | Date |
| University Honors Center (If Applicable) | Printed Name | Date |
| Office of International Education (Study Tour only) | Printed Name | Date |
| ACADEMIC AFFAIRS | Printed Name | Date |
OHIO STATE NEW COURSE REQUEST

College: Engineering
Academic Unit: Aviation
Proposed Course No.: 576
Book 3 Listing: Aviation (AVN)
Full Title of Course: Introduction to Aviation
Program/Minor Name: RT
AI ☐ W ☐ SP ☒ YEAR: 07 (See OAA Academic Organization and Curriculum Handbook for Deadlines)


Is this a course with decimal subdivisions? If so, use one New Course Request form for the generic information that will apply to all subdivisions. Use separate forms for each new decimal subdivision, including on each form only the information that is unique to that subdivision.

Description (not to exceed 25 words): Fundamentals and applications of aviation electronic avionics, including aircraft communication and navigation systems.

Quarter offered (check): SU ☒ AU ☒ WI ☒ SP ☒ Distribution of class time/contact hours: 

Quarter and contact class time/hours information should be omitted from Book 3 publication: (check here)

Prerequisite(s): Phys 152, CE 262, AAE 321

Exclusion or limiting clause: N/A

Repeatable to a maximum of ___ credit hours. N/A

Cross-listed with:

Grade Option (Please check): Letter ☒ SU ☒ Progress ☒

If this course is Progress graded, what course is the last one in the series?

Honors Statement: Yes ☒ No ☐ SEC: Yes ☒ No ☒ Admission Condition: Yes ☒ No ☒

Off-Campus: Yes ☒ No ☐ EM: Yes ☒ No ☒

Other General Course Information: N/A (e.g., "Taught in English." "Credit does not count toward BSBA degree.")

Subject Code: Subsidy Level (V, G, T, B, M, D, or P).

(If you have questions please email Jed Dickhaut @ dickhaut.1@osu.edu)

Will course be taught in distance learning format: Yes ☒ No ☐

B. General Information:

1. Provide the rationale for proposing this course:

A transportation system engineers need to know what kinds of types of systems are used in their principles of operation/limitations

2. List Major/Minor affected by the creation of this new course. Attach revisions of all affected programs.

The course is (check one): Required ☒ Elective ☒ Other [Explain] ☐

Air Transportation Systems (ATS) Engineering Track/Concentration

If the course offered is less than quarter, term, or semester, please complete the Faculty Schedule/Off Campus Workshop Request Form.
3. Indicate the nature of the program adjustments, new funding, and/or withdrawals that make possible the implementation of this course (e.g., AWR 353)

4. Is the approval of this request contingent upon the approval of other course requests or curricular requests?
   Yes ☐ No ☑ List:

5. If this course is part of a sequence, list the number of other course(s) in the sequence:

6. Expected section size: ☑ Proposed number of sections per year:

7. Do you want prerequisites enforced electronically? (See OAA Curriculum Manual for what can be enforced.) Yes ☑

8. This course has been discussed with and has the concurrence of the following academic units needing this course or with academic units having directly related interests (List units and attach letters and/or forms): Not Applicable ☑

9. Attach a course syllabus that includes a topical outline of the course, student learning outcomes and/or course objectives, off-campus field experience, methods of evaluation, and other items as stated in the OAA curriculum handbook.

APPROVAL SIGNATURES: As needed. All signatures on lines in ALL CAPS (e.g. ACADEMIC UNIT) must be completed.

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<th>Printed Name</th>
<th>Date</th>
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<td>Gerald P. Chubb</td>
<td>10/6/2006</td>
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ACADEMIC UNIT CHAIR / SCHOOL DIRECTOR

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OHIO STATE NEW COURSE REQUEST

College: Engineering
Academic Unit: Aviation
Book 3 Listing: Aviation (AVN)

Proposed Course No: 570 Full Title of Course: Influences on Aircraft Production

Proposed Effective Qtr/Yr: SU □ AU X WI □ SP □ YEAR: 08
(See OAA Academic Organization and Curriculum Handbook for Deadlines)


Is this a course with decimal subdivisions? If so, use one New Course Request form for the generic information that will apply to all subdivisions. Use separate forms for each new decimal subdivision, including on each form only the information that is unique to that subdivision.

18-Character Transcript Abbreviation: Influ Aircraft Production U □ G □ P □ Credit Hours: 3

Description (not to exceed 25 words): Analyzes key economic, military, technical, and international influences affecting airplane design specifications.

Quarter offered (check): SU □ AU X WI □ SP □ *Distribution of class time/contact hours:

Quarter and contact class time hours information should be omitted from Book 3 publication (check here) □

Prerequisite(s): Phy. 13.1, CSE102R, & AAE 201

Exclusion or limiting clause: None

Repeatable to a maximum of ___ credit hours.

Cross-listed with: N/A

Grade Option (Please check): Letter □ S/U □ Progress □

If this course is Progress graded, what course is the last one in the series?

Honors Statement: Yes □ No □ GEC: Yes □ No □ Admission Condition

Other General Course Information:

Other General Course Information:

(e.g. "Taught in English." "Credit does not count toward SSSA degree.")

Subsidy Level (Y, G, T, B, M, D, or P)

(If you have questions please email Jeff Dickhaut @ dickhaut.1@osu.edu)

Will course be taught in distance learning format: Yes □ No □

B. General Information:

1. Provide the rationale for proposing this course:
Air Transportation Systems (ATS) specialists need to understand what shapes the translation of primitive customer needs into design requirements.

2. List Major/Minor affected by the creation of this new course. Attach revisions of all affected programs. This course is (check one) Required □ Elective □ Other (Explain) □

New Track in Air Transportation Systems (ATS)

If the course offered is less than quarter, term, or semester, please also complete the Flexibly Scheduled/Off Campus/Workshop Request form.
3. Indicate the nature of the program adjustments, new funding, and/or withdrawals that make possible the implementation of this new course.

Dr. York prepared the syllabus and is prepared to teach this in lieu of other assignments — currently AVN493.

4. Is the approval of this request contingent upon the approval of other course requests or curricular requests?

Yes ☒ No ☐ List: ISM Controlled, based on change of title (as shown)

5. If this course is part of a sequence, list the number of the other course(s) in the sequence: 530, 575, 590, 591, 597, 610, 674

6. Expected section size: 12 Proposed number of sections per year: 1

7. Do you want prerequisites enforced electronically? (See OAA Curriculum Manual for what can be enforced.) Yes ☒

8. This course has been discussed with and has the concurrence of the following academic units needing the course or with academic units having directly related interests (List units and attach letters and/or forms): Not Applicable ☐

Syllabus shared with ISM and title was changed from ISM Manufacturing to Influences on Aircraft Production for their recommendation.

9. Attach a course syllabus that includes a topical outline of the course, student learning outcomes and/or course objectives, off-campus field experience, methods of evaluation, and other items as stated in the OAA Curriculum Manual.

__________________________
Academic Unit Undergraduate Studies Committee Chair (Uggraduate course) Printed Name Date

__________________________
Academic Unit Graduate Studies Committee Chair (Graduate course) Printed Name Date

__________________________
School/College Undergraduate Curriculum Committee Chair (Uggraduate course) Printed Name Date

__________________________
School/College Graduate Curriculum Committee Chair (Graduate course) Printed Name Date

__________________________
ACADEMIC UNIT CHAIR/ SCHOOL DIRECTOR Printed Name Date

__________________________
COLLEGE DEAN Printed Name Date

__________________________
Graduate School (if applicable) Printed Name Date

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ASC Curriculum Committee Chair (if applicable) Printed Name Date

__________________________
University Honors Center (if applicable) Printed Name Date

__________________________
Office of International Education (study tour only) Printed Name Date

__________________________
ACADEMIC AFFAIRS Printed Name Date

Department of Aviation 36 College of Engineering
OHIO STATE NEW COURSE REQUEST

College: Engineering

Academic unit: Aviation

Book 3 Listing: Aviation (AVN)

Proposed Course No: 576

Full Title of Course: Development and Design of Aircraft Systems

Proposed Effective Qtr/Yr: SU ☐ AU ☐ WI ☒ SP ☐ YEAR: 2023 ☐ (See OAA Academic Organization and Curriculum Handbook for Deadlines)


Is this a course with decimal subdivisions? If so, use the New Course Request form for the generic information that will apply to all subdivisions. Use separate forms for each new decimal subdivision, including on each form only the information that is unique to that subdivision.

15 Character Transmittal Code: PNEALSMAFSTY 1 credit 1 R 0 P 0 Credit Hours: 5

Description (not to exceed 25 words): Introduction to operations based system design, process and aircraft systems development evolution.

Quarter offered (check): SU ☐ AU ☐ WI ☒ SP ☐ Distribution of class time/contact hours: T-R-2 1/2 hrs.

Quarter and contact/class time/credit hours information should be omitted from Book 3 publication: (Check here) ☐

Prerequisite(s): AVN 520 & AVN 570

Exclusion or limiting clause:

Repeatability to a maximum of ___ credit hours.

Cross-listed with: N/A

Grade Option (Please check): Letter ☒ SU ☐ Progress ☐

If this course is Progress graded, what course is the last one in the series?

Honors Statement: Yes ☐ No ☒ GEC: Yes ☐ No ☒ Admission Condition: Yes ☐ No ☒

Off-Campus: Yes ☐ No ☒ EM: Yes ☐ No ☒

Other General Course Information:

(e.g., "Taught in English." "Credit does not count toward BSRA degree.")

Subject Code
Subsidy Level (Y, G, T, B, M, D, or P)

(If you have questions please email Jed Dickhaut @ dickhaut.1@osu.edu)

Will course be taught in distance learning format: Yes ☐ No ☒

B. General Information:

1. Provide the rationale for proposing this course:

Introduces air transportation system (ATS) Engineers to airframe component design requirements and technology-driven changes for improved performance, fuel efficiency, and emissions. This course is required for all affected programs.

If the course differs less than quarter, term, or semester, please also complete the Flexibly Scheduled/Off-Campus/Workshop Request form.
3. Indicate the nature of the program adjustments, new funding, and/or withdrawals that make possible the implementation of this new course. 

[Signature]

This work will be assigned this course in lieu of [signature].

4. Is the approval of this request contingent upon the approval of other course requests or curricular requests?

Yes ☐ No ☒ List:

5. If this course is part of a sequence, list the number of the other course(s) in the sequence:

6. Expected section size: 20; Proposed number of sections per year: 1

7. Do you want prerequisites enforced electronically? (See OAA Curriculum Manual for what can be enforced.) Yes ☒

8. This course has been discussed with and has the concurrence of the following academic units needing this course or with academic units having directly related interests (List units and attach letters and/or forms): Not Applicable ☒

9. Attach a course syllabus that includes a topical outline of the course, student learning outcomes and/or course objectives, off-campus field experience, methods of evaluation, and other items as stated in the OAA Curriculum Handbook.

[Signature]

Gerald P. Chubb 10/6/2006

Printed Name

Date

Academic Unit Undergraduate Studies Committee Chair (Undergraduate course)

Printed Name

Date

Academic Unit Graduate Studies Committee Chair (Undergraduate/Graduate course)

Printed Name

Date

Dean (College) Undergraduate Curriculum Committee (Undergraduate/Graduate course)

Printed Name

Date

School/College Graduate Curriculum Committee (Undergraduate/Graduate course)

Printed Name

Date

ACADEMIC UNIT CHAIR (SCHOOL DIRECTOR)

Printed Name

Date

COLLEGE DEAN

Printed Name

Date

Graduate School (If Appropriate)

Printed Name

Date

AGC Curriculum Committee Chair (If Appropriate)

Printed Name

Date

University Honors Center (If Appropriate)

Printed Name

Date

Office of International Education (study abroad)

Printed Name

Date

ACADEMIC AFFAIRS

Printed Name

Date
OHIO STATE NEW COURSE REQUEST

College: Engineering
Academic unit: Aviation
Book 3 Listing: Aviation (AVN)

Proposed Course No.: 590
Full Title of Course: Air Transport Practices and Design

Proposed Effective On/yr: SU ☐ AU ☐ WI ☒ SO ☒ VER ☒ CT ☒ (See OAA Academic Organization and Curriculum Handbook for Deadlines)


Is this a course with decimal subdivisions? If so, use one New Course Request form for the generic information that will apply to all subdivisions. Use separate forms for each new decimal subdivision, including on each form only the information that is unique to that subdivision.

Credit Hours: 3

Description (not to exceed 25 words): Analysis of principle issues in structuring air transportation markets, including financial impact of traffic input.

Quarter offered (check): SU ☐ AU ☒ WI ☒ SP ☐ *Distribution of class time contact hours:

Quarter and contact/labor hours information should be omitted from Book 3 publication. (check here) ☐

Prerequisite(s): AVN 300 & AVN 530

Exclusion or limiting clause:

Repeatable to a maximum of ___ credit hours.

Cross-listed with:

Grade Option (Please check): Letter ☒ SU ☐ Progress ☐

If this course is Progress graded, what course is the last one in the series?

Honor Statement: Yes ☒ No ☐ GEC: Yes ☐ No ☒ Admission Condition: Yes ☒ No ☐

OK-Campus: Yes ☒ No ☐ EMI: Yes ☐ No ☒ Course: Yes ☒ No ☐

Other General Course Information:

(4) "Taught in English." (Credit does not count toward BSBA degree.)

Subject Code: Subsidy Level (V, G, T, B, M, D, or P):
(If you have questions please email Jed Dishman at dishmanj@osu.edu)

Will course be taught in distance learning format: Yes ☐ No ☒

B. General Information:

1. Provide the rationale for proposing this course:

Examines the issues driving profitability in a globalized service market and the impact technology has on revenue and cost.

2. List Major/Minor affected by the creation of this new course. Attach revisions of all affected programs.

Air Transportation Systems (ATS) Engineering Track/Centers

If the course offered is less than quarter, term, or semester, please also complete the Flexibility Scheduled/OFF Campus/Workshop Request form.
3. Indicate the nature of the program adjustments, new funding, and/or withdrawals that make possible the implementation of this new course.

Virtually proposing teaching this as an extrem

course to his present load.

4. Is the approval of this request contingent upon the approval of other course requests or curricular requests?

Yes ☐ No ☑ List:

5. If this course is part of a sequence, list the number of the other course(s) in the sequence: 528, 529, 576, 577

6. Expected section size: 30 Proposed number of sections per year: 1

7. Do you want prerequisites enforced electronically? (See OAA Curriculum Manual for what can be enforced.) Yes ☐

8. This course has been discussed with and has the concurrence of the following academic units needing this course or with academic units having directly related interests (List units and attach letters and/or forms): Not Applicable ☑

9. Attach a course syllabus that includes a topical outline of the course, student learning outcomes and/or course objectives, off-campus field experience, methods of evaluation, and other items as stated in the OAA Curriculum Handbook.

APPROVAL SIGNATURES ARE NEEDED. All signatures or lines in ALL CAPS (e.g. ACADEMIC UNIT) must be completed.

__________________________  ____________________________  10/6/2006
Academic Unit Undergraduate Studies Committee Chair (Undergraduate course)  Printed Name   Date

__________________________  ____________________________  10/6/2006
Academic Unit Graduate Studies Committee Chair (Undergraduate/Graduate course)  Printed Name   Date

__________________________  ____________________________  10/6/2006
School/College Undergrad Curriculum Committee (Undergraduate/Graduate course)  Printed Name   Date

__________________________  ____________________________  10/6/2006
School/College Graduate Curriculum Committee (Undergraduate/Graduate course)  Printed Name   Date

__________________________  ____________________________  10/6/2006
ACADEMIC UNIT CHAIR/SCHOOL DIRECTOR  Printed Name   Date

__________________________  ____________________________  10/6/2006
COLLEGE DEAN  Printed Name   Date

__________________________  ____________________________  10/6/2006
Graduate School (if appropriate)  Printed Name   Date

__________________________  ____________________________  10/6/2006
ASC Curriculum Committee Chair (if appropriate)  Printed Name   Date

__________________________  ____________________________  10/6/2006
University Honors Center (if appropriate)  Printed Name   Date

__________________________  ____________________________  10/6/2006
Office of International Education (Study Away only)  Printed Name   Date

__________________________  ____________________________  10/6/2006
ACADEMIC AFFAIRS  Printed Name   Date
OHIO STATE NEW COURSE REQUEST

College: **Engineering**  
Academic unit: **Aviation**  
Book 3 Listing: **Aviation (AVN)**  

Proposed Course No.: **591**  
Full Title of Course: **Flight Network Analysis and Optimization**  
Proposed Effective Qtr./Yr.: **SU**  
**SP**  
**Year:** **CT**  


Is this a course with decimal subdivisions? **Yes**  
Use one New Course Request form for each new decimal subdivision, including each form only the information that is unique to that subdivision.

18-Character Transcript Abbreviation: **FLT NET ANAL**  
Level: **U**  
**G**  
**P**  
Credit Hours. **3**

Description (not to exceed 25 words): **Entire route planning and operating up-air live, including route analysis, scheduling, fleet planning, and maintenance.**

Quarter offered (check): **SU**  
**W**  
**SP**  
Distribution of class time (contact hours): **M-W 1 1/2 hr.**

Quarter and combined class time hours information should be omitted from Book 3 publication: (check here) **No**

Prerequisite(s): **AVN 300 & AVN 530**

Exclusion or limiting clause:

Repeatable to a maximum of **3** credit hours.

Cross-listed with:

Grade Option (Please check): **Letter**  
**Progress**

If this course is Progress graded, what course is the last one in the series?

Honors Statement:  
**Yes**  
**No**  
**GEC:**  
**Yes**  
**No**

Admission Condition:  
**Yes**  
**No**

Other General Course Information:  
(e.g. "Taught in English", "Credit does not count toward BSBA degree.")

Subject Code:  
Subsidy Level (V, G, T, B, M, D, or P):  
(If you have questions please email Jed Dinkham @ dinkham.1@osu.edu)

Will course be taught in distance learning format:  
**Yes**  
**No**

B. General Information:

1. **Provide the rationale for proposing this course:**
   **Introduces Flight Transportation Systems (HTS) engineers to the types of analysis required to optimize airline operations.**

2. **List Major/Minor affected by the creation of this new course:**
   **Transportation Systems (HTS) Engineering Track/Concentration**
   **If the course offered is less than quarter-time, term, or annual, please also complete the Flexibly Scheduled/Off Campus/Workshop Request Form.**

Department of Aviation  
College of Engineering
3. Indicate the nature of the program adjustments, new funding, and/or withdrawals that make possible the implementation of this new course.

MEMBER AS PART OF HIS NORMAL LOAD

Member will teach this as our newest faculty

4. Is the approval of this request contingent upon the approval of other course requests or curricular requests?

Yes [ ] No [X] List:

5. If this course is part of a sequence, list the number of the other course(s) in the sequence.

6. Expected section size: 20 Proposed number of sections per year: 1

7. Do you want prerequisites enforced electronically? (See OAA Curriculum Manual for what can be enforced.) [ ] Yes [X]

8. This course has been discussed with and has the concurrence of the following academic units needing this course or with academic units having directly related interests (List units and attach letters and/or forms): Not Applicable [X]

9. Attach a course syllabus that includes a topical outline of the course, student learning outcomes and/or course objectives, off-campus field experience, methods of evaluation, and other items as stated in the OAA Curriculum Handbook.

APPROVAL SIGNATURES (Use of all caps is in ALL CAPS. E.g. ACADEMIC UNIT must be completed)

Gerald F. Chubb 10/6/006

Academic Unit Undergraduate Studies Committee Chair (Undergraduate course) Printed Name Date

Academic Unit Graduate Studies Committee Chair (Undergraduate/Graduate course) Printed Name Date

School/College Undergraduate Curriculum Committee (Undergraduate/Graduate course) Printed Name Date

School/College Graduate Curriculum Committee (Undergraduate/Graduate course) Printed Name Date

ACADEMIC UNIT CHAIR / SCHOOL DIRECTOR Printed Name Date

COLLEGE DEAN Printed Name Date

Graduate School (if appropriate) Printed Name Date

Graduate Curriculum Committee Chair (if appropriate) Printed Name Date

University Honors Center (if appropriate) Printed Name Date

Office of International Education (study tour only) Printed Name Date

ACADEMIC AFFAIRS Printed Name Date
OHIO STATE NEW COURSE REQUEST

College: Engineering  Academic unit: Aviation

Proposed Course No: 597 Full Title of Course: Air Transportation System Design

Proposed Effective Term/Yr: SU All WI SP YEAR 07 (See OAA Academic Organization and Curriculum Handbook for Deadlines)

A. Course Offerings Bulletin Information. Follow instructions in the OAA Academic Organization and
Curriculum Handbook.

Is this course with decimal subdivisions? If so, use one New Course Request form for the generic information that will apply to
all subdivisions. Use separate forms for each new decimal subdivision, including on each form only the information that is unique to
that subdivision.

In-Character Transcript Abbreviation: AVS 2036N Level: U X G O P Credit Hours: 5

Description (not to exceed 25 words): Analysis of commercial operations and its
effect on both initial design and modification of aircraft.

Quarter offered (check): SU □ AU □ WI □ SP □ Distribution of class time/Contact Hours:

Quarter and contact/class time hours information should be omitted from Book 3 publication: (check here) □

Prerequisite (s): AVN 5795

Exclusion or limiting clause:

Repeatable to a maximum of ___ credit hours.

Cross-listed with:

Grade Option (Please check): Letter X SU □ Progress □

If this course is Progress graded, what course is the last one in the series?

Honors Statement: Yes □ No X GEC: Yes □ No X Admission Condition:

Off-Campus: Yes □ No X EM: Yes □ No X Course: Yes □ No X

Other General Course Information:

Subject Code: (If you have questions please email Jed Dickhaut @ dickhaut.1@osu.edu)

Subsidy Level (V, G, T, B, M, D, or P):

Will course be taught in distance learning format: Yes □ No □

B. General Information:

1. Provide the rationale for proposing this course:

   Examines the design issues and focuses on aircraft
   utilization in commercial aviation (versus initial design).

2. List Major/Minor affected by the creation of this new course. Attach revisions of all affected programs.

   This course is (check one) Required □ Elective □ Other (Explain) □

   Air Transportation Systems (ATS) Engineering Track/Concentration

   If this course is offered as less than quarter, term, or semester, please fill out the Flexibility Scheduled/Off
   Campus/Workshop Request form.
3. Indicate the nature of the program adjustments, new funding, and/or withdrawals that make possible the implementation of this course.

4. Is the approval of this request contingent upon the approval of other course requests or curricular requests?  
   Yes [ ] No [X] List:

5. If this course is part of a sequence, list the number of other course(s) in the sequence: 526, 527, 528, 529, 531, 534, 610, 674

6. Expected section size: 20  Proposed number of sections per year: 1

7. Do you want prerequisites enforced electronically? (See OAA Curriculum Manual for what can be enforced.)  
   Yes [X] No [ ]

8. This course has been discussed with and has the concurrence of the following academic units needing this course or with academic units having directly related interests (List units and attach letters and/or forms): Not Applicable [X]

9. Attach a course syllabus that includes a topical outline of the course, student learning outcomes and/or course objectives, off-campus field experience, methods of evaluation, and other items as stated in the OAA Curriculum Handbook.

APPROVAL SIGNATURES  (An unsigned or signed letter of intent in ALL CAPS (e.g. ACADEMIC UNIT) must be completed)

SIGNED NAME:  Gerald P. Chubb  
Printed Name:  Gerald P. Chubb  
Date:  10/6/2006

Academic Unit Undergraduate Studies Committee Chair (Undergraduate course)  
Printed Name:  
Date:  

Academic Unit Graduate Studies Committee Chair (Undergraduate/Graduate course)  
Printed Name:  
Date:  

School/College Undergraduate Curriculum Committee (Undergraduate/Graduate course)  
Printed Name:  
Date:  

School/College Graduate Curriculum Committee (Undergraduate/Graduate course)  
Printed Name:  
Date:  

ACADEMIC UNIT CHAIR/DEPARTMENT CHAIR  
Printed Name:  
Date:  

COLLEGE DEAN  
Printed Name:  
Date:  

Graduate School (If Appropriate)  
Printed Name:  
Date:  

ASC Curriculum Committee Chair (If Appropriate)  
Printed Name:  
Date:  

University Honors Center (If Appropriate)  
Printed Name:  
Date:  

Office of International Education (Study Abroad)  
Printed Name:  
Date:  

ACADEMIC AFFAIRS  
Printed Name:  
Date:  

Department of Aviation  44  College of Engineering
OHIO STATE NEW COURSE REQUEST

College: Engineering
Academic Unit: Aviation
Book 3 Listing: Aviation (AVN)

Proposed Course No: 610
Full Title of Course: Introduction to Computer Modelling & Simulation in Aviation

Proposed Effective Term: Fall, Winter, Spring

Year: 2023

A. Course Offerings Bulletin Information.

Is this a course with decimal subdivisions? Yes
If so, use one New Course Request form for the generic information that will apply to all subdivisions. Use separate forms for each new decimal subdivision, including on each form only the information that is unique to that subdivision.

Description not to exceed 25 words: Development of hybrid models of aviation activities to describe and predict performance.

Quarter offered (check): SU ☐ AU ☒ WI ☒ SP ☒ *Distribution of class time/credit hours:
M-T-W-Th 4 1/2 HR.

Quarter and contact/class time hours information should be omitted from Book 3 publication: (check here) ☐

Prerequisites (if any): AVN 310, ENG 182

Exclusion or limiting clauses:

Repeatable to a maximum of ___ credit hours.

Cross-listed with:

Grade Option (Please check): Letter ☒ SU ☐ Progress ☐

If this course is Progress graded, what course is the last one in the series?

Honors Statement: Yes ☒ No ☐
GEC: Yes ☒ No ☐
Admission Condition: Course: Yes ☒ No ☒

Other General Course Information: Requires familiarity with MATLAB.

Subject Code: (If you have questions please email Jed Dickhaut @ dickhaut.1@osu.edu)

Will course be taught in distance learning format: Yes ☒ No ☐

B. General Information:

1. Provide the rationale for proposing this course:

   Introduction to Computer Modelling & Simulation for descriptive and predictive analysis of simplified operations, and maintenance activities.

2. List Major/minor affected by the creation of this new course. Attach revisions of all affected programs.

   Air Transportation Systems (ATS) Engineering Track/Concentration

   If the course offered is less than quarter, term, or semester, please also complete the Flexible Schedule/Off Campus/Workshop Request form.
3. Indicate the nature of the program adjustments, new funding, and/or withdrawals that make possible the implementation of this course.

Dr. Chubb will teach this as a second course that quarter in addition to HIS 180. Aviation Safety.

4. Is the approval of this request contingent upon the approval of other course requests or curricular requests? 

Yes ☐ No ☒ List: 

5. If this course is part of a sequence, list the number of the other course(s) in the sequence. 52, 516, 517A, 510, 514, 517B, 517C, 517D.


7. Do you want prerequisites enforced electronically? (See OAA Curriculum Manual for what can be enforced.) Yes ☒

8. This course has been discussed with and has the concurrence of the following academic units needing this course or with academic units having directly related interests (List units and attach letters and/or forms): Not Applicable ☒

9. Attach a course syllabus that includes a topical outline of the course, student learning outcomes and/or course objectives, off-campus field experience, methods of evaluation, and other items as stated in the OAA Curriculum Handbook.

APPROVAL SIGNATURES: All signatures on all forms in ALL CAPS (e.g., ACADEMIC UNIT) must be completed.

Gerald P. Chubb 10/16/2006

[Signatures and dates for Academic Unit, Graduate Studies Committee Chair, Undergraduate/Graduate course, School/College Undergraduate Curriculum Committee, School/College Graduate Curriculum Committee, ACADEMIC UNIT CHAIR/SCHOOL DIRECTOR, COLLEGE DEAN, Graduate School (If Appropriate), ASC Curriculum Committee Chair (If Appropriate), University Honors Center (If Appropriate), Office of International Education (study tour only), ACADEMIC AFFAIRS]
OHIO STATE NEW COURSE REQUEST

College: Engineering

Academic unit: Aviation

Book Listing: Aviation (AVA)

Proposed Course No: 674

Full Title of Course: Airport Systems Planning, Design and Development

Proposed Effective Quarter: SU □ AU X WI □ SP □ YEAR: 2023


Is this a course with decimal subdivisions? If so, use one New Course Request form for the generic information that will apply to all subdivisions. Use separate forms for each new decimal subdivision, including on each form only the information that is unique to that subdivision.

Credit Hours: 3

Description (not to exceed 25 words): Comprehensive study of airport planning, design, and development to support commercial and general aviation.

Quarter offered (check): SU □ AU X WI □ SP □ *Distribution of class time/contact hours:

Quarter and contact hours: Information should be omitted from Book 3 publication. (check here) □

Prerequisite(s): AVN 552 (recommended)

Exclusion or limiting clause:

Repeatable to a maximum of ___ credit hours.

Cross-listed with: CE 674

Grade Option (Please check): Letter X SU □ Progress □

If this course is Progress graded, what course is the last one in the series?

Honors Statement: Yes □ No X GEC: Yes □ No X Admission Condition

Off-Campus: Yes □ No X EM: Yes □ No X Course: Yes □ No X

Other General Course Information:

Subj Code, Subj Level (Y, G, T, B, M, D, or P) (If you have questions please email Jed Dickhaus @ dickhaus.1@osu.edu)

Will course be taught in distance learning format: Yes □ No X

B. General Information:

1. Provide the rationale for proposing this course:
   Airport design can be a limiting or enabling factor in air transportation systems, influencing airline and private flight costs and maintenance.

2. List Major/Minor affected by the creation of this new course. Attach revisions of all affected programs:
   Air Transportation Systems (ATS), Engineering, Transportation

   If the course offered is less than quarter, term, or semester, please also complete the Flexibly Scheduled/Off-Campus/Workshop Request Form.
3. Indicate the nature of the program adjustments, new funding, and/or withdrawals that make possible the implementation of this new course. 

4. Is the approval of this request contingent upon the approval of other course requests or curricular requests?

Yes ☐ No ☒ List:

5. If this course is part of a sequence, list the number of the other course(s) in the sequence.

6. Expected section size: [ ]

7. Do you want prerequisites enforced electronically? (See OAA Curriculum Manual for what can be enforced.) Yes ☒

8. This course has been discussed with and has the concurrence of the following academic units: [List units and attach letters and/or forms].

9. Attach a course syllabus that includes a topical outline of the course, student learning outcomes and/or course objectives, off-campus field experience, methods of evaluation, and other items as stated in the OAA Curriculum Handbook.

<table>
<thead>
<tr>
<th>APPROPRIATE SIGNATURES</th>
<th>Printed Name</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Academic Unit Undergraduate Studies Committee Chair (Undergraduate course)</td>
<td>[ ]</td>
<td>10/16/2006</td>
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<tr>
<td>Academic Unit Graduate Studies Committee Chair (Undergraduate/Graduate course)</td>
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<td>ASC Curriculum Committee Chair (if applicable)</td>
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<td>University Honors Center (if applicable)</td>
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<tr>
<td>Office of International Education (study tour only)</td>
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<tr>
<td>ACADEMIC AFFAIRS</td>
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</tbody>
</table>

Department of Aviation

College of Engineering
Attachment 4: Syllabi for New Courses

(see following pages)
Course No. and Title: Private Pilot Fundamentals for Management Majors

Instructor: Robyn O. Litvay, Lecturer, Airline Transport Pilot (ATP), Certificated Flight Instructor (CFII, MEI)

Office: 412 Aviation Building
(614) 688-4177, litvay.1@osu.edu
Office hours are by appointment only.

Aviation Website: http://www.aviation.ohio-state.edu,

Course Description: Study of flight fundamentals, aircraft operation, weather, and regulations essential for future air transportation professionals.

Credit Hours: U5
Class Meetings: Tues. and Thurs., 8:30 to 9:48 AM, and Fri., 8:30 to 10:18 AM.

Prerequisites: Math 104 or equivalent

Quarters Offered: AU, WI, and SP

Texts/Supplies:
*ASA The Pilot’s Manual: Ground School, third edition,
*2006 ASA Private Pilot Test Prep
*FAR/AIM 2006  *Plotter  * E6-B Flight Computer
+ Cincinnati Sectional Chart
+ Airport/ Facility Directory, East Central U.S. (EC)
+ C-152 Pilot Operating Handbook and a Calculator (any)

*Included in Private Pilot Kit available at the OSU Airport Terminal
+Available from Customer Service at the OSU Airport Terminal

Evaluation Criteria: Exam I (10%), Exam II (10%), Exam III (10%), Quizzes (4 x 5% = 20%), Homework (20%), Final Exam (30%)

Course Letter Grade Minima:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Minimimum</th>
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<tbody>
<tr>
<td>A</td>
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<td>A-</td>
<td>90%</td>
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<td>D+</td>
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<tr>
<td>D</td>
<td>60%</td>
</tr>
<tr>
<td>Failing Grade: below 60%</td>
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</table>

Notes:
This course is conducted under the guidelines specified in Phase 1 of the Training Course Outline for the Ohio State University’s Commercial Pilot Certification Course, approved by the FAA under FAR Part 141.
Private Pilot Fundamentals for Management Majors

**NOTE:**
1. Attendance will be taken daily; arriving more than 15 min. late is considered a missed class.
2. A student absent from an exam is responsible for arranging a makeup BEFORE the exam is returned. **No makeups are permitted after the return of an exam.** A valid and acceptable written excuse explaining the student’s absence from an exam is required.
3. There will be four, take-home quizzes given. **There will be no late quizzes accepted without a valid, written excuse.**
4. Late homework accepted for only one week after due date (& with 50% grade deduction).
5. Students are expected to be familiar with the Code of Student Conduct, which covers such issues as plagiarism and academic misconduct.
6. Students with physical or learning disabilities requiring alternative accommodations for completing course requirements (e.g. tests) should make appropriate arrangements by contacting Disability Services (150 Pomerene Hall, 2-3307) AND THE INSTRUCTOR at the BEGINNING of the Quarter.
7. Students are expected to be aware of important dates published in the Master Schedule (like Final Exam date and time). This is a fast-paced class requiring daily study and preparation.

<table>
<thead>
<tr>
<th>Week</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>[Daily schedule of topics and assignments are subject to rearrangement] Introduction, overview, course objectives. Basic Aerodynamics</td>
</tr>
<tr>
<td>Week 4</td>
<td>EXAM 1, Performance. Flight Instruments.</td>
</tr>
<tr>
<td>Week 5</td>
<td>Flight Instruments Quiz 3 (Take-home), FARs, AIM, ACs</td>
</tr>
<tr>
<td>Week 6</td>
<td>Basic Weather Theory, Aviation Weather Services, and Airports.</td>
</tr>
<tr>
<td>Week 7</td>
<td>EXAM 2, Aviation Weather Services, continued Airports, Airspace, Flight Environment.</td>
</tr>
<tr>
<td>Week 8</td>
<td>Airspace, Radio Procedures, Radar Services, Quiz 4 (Take-home), Basic Navigation.</td>
</tr>
<tr>
<td>Week 10</td>
<td>Decision Making and Collision Avoidance.</td>
</tr>
</tbody>
</table>
COURSE SYLLABUS

Course No. and Title: AVN 520, Introduction to Avionics

Responsible Faculty: Thomas M. York, Prof., Aviation Bldg. Rm 405; 292-3839

Office Hours: By Appointment

Course Description: Fundamentals and applications of avionics (aviation electronics) incl. aircraft communications and navigation systems

Course Objectives: Description, function and analysis of aircraft electronics systems, including the design and engineering processes.

Credit Hours: UG 3

Class Meetings: T, R 9:30-11:18, Rm. 201 Aviation Bldg

Prerequisites: Phys 132, CSE 202, AAE 201

Quarters Offered: SP (only)


Elements of Course Grade: 15% Homework; 35% Midterm Exam; 50 % Final Exam (comprehensive).

Course Letter Grade Minima: A (94%), A-(91%), B+(88%), B (84%), B-(81%), C+(78%), C (74%), C-(71%), D+(68%), D (61%)

Notes:
1. A student absent from an exam is responsible for arranging a makeup before the exam is returned. No makeups are permitted after the return of an exam. A valid and acceptable written excuse explaining the absence from an exam is required.
2. Attendance in lecture will be helpful in acquiring the knowledge required for successful course completion.
3. Students are expected to be familiar with the Student Handbook provisions, including plagiarism and academic misconduct.
4. Students are expected to be aware of important dates published in the Master Schedule of Classes.
5. Students with physical or learning disabilities requiring alternative accommodations for completing course requirements (e.g. tests) should make appropriate arrangements by contacting Disability Services (150 Pomerene Hall, 2-3307) AND THE INSTRUCTOR at the BEGINNING of the Quarter.
### COURSE SYLLABUS

**Course Title:** Introduction to Avionics  
**Quarter:** SP

<table>
<thead>
<tr>
<th>WK</th>
<th>DATE</th>
<th>Topics/Assignments</th>
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<tbody>
<tr>
<td>01</td>
<td>3/29/07</td>
<td>Chapters 1 &amp; 2 (pp. 1-32) Introduction and Overview of Avionics Technology.</td>
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<td>02</td>
<td>4/5/07</td>
<td>Chapters 3 &amp; Intro to 4 (pp. 33-80) System Development and Primary Power Generation &amp; Distribution</td>
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<tr>
<td>03</td>
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<td>Chapter 4 (cont.) and Chapter 5 (pp. 81-121) Secondary Power Generation &amp; Distribution; and non-Radar Sensors</td>
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<td>04</td>
<td>4/19/07</td>
<td>Chapters 5 &amp; 6 (pp. 122-159) Radar Sensors, Communication, and Navigation Aids</td>
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<td>05</td>
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<td>Chapters 7 (pp. 161-212) Displays</td>
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<td>06</td>
<td>5/3/07</td>
<td><strong>MIDTERM</strong> (Tues.) covering lecture topics for weeks 1-7</td>
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<td>5/5/07</td>
<td>Chapter 8 (pp. 215-249) Navigation</td>
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<tr>
<td>07</td>
<td>5/10/07</td>
<td>Chapter 9 (pp. 251-287) Flight Control Systems</td>
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<td>08</td>
<td>5/17/07</td>
<td>Chapter 10 (pp. 289-328) Engine and Utility Systems</td>
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<td>09</td>
<td>5/24/07</td>
<td>Chapter 11 (pp. 329-347) Systems Integration</td>
</tr>
<tr>
<td></td>
<td>5/26/07</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>6/02/07</td>
<td>Chapter 12 (pp. 349-373) Future Air Navigation Systems</td>
</tr>
</tbody>
</table>

Depending on student interest and Air Force scheduling constraints, a trip to the Avionics, Flight Dynamics, and Human Effectiveness Laboratories at Wright-Patterson Air Force Base may also be arranged (outside of normal class time); US citizens will be required to provide their social security number; and foreign nationals will have to provide appropriate credentials (Air Force documentation requirements will be discussed early in the quarter).
Course No. and Title: AVN 570, Influences on Aircraft Production

Responsible Faculty: Thomas M. York, Prof., Aviation Bldg. Rm 405; 292-3839

Office Hours: By Appointment

Course Description: Analyzes key economic, military, technical, and international influences that have affected airplane design and economic operation as well as describing how airplanes get built.

Course Objectives: Describe the process of deciding what kind of airplane should be manufactured and then managing the production and assembly process to deliver and support that product in airline operations.

Credit Hours: UG3  Class Meetings: T, R 9:30-10:48, Rm. 201 Aviation Bldg

Prerequisites  Phys 132, CSE 202, AAE 201  Quarters Offered: AU (only)


Elements of Course Grade: 15% Homework; 35% Midterm Exam; 50% Final Exam

Course Letter Grade Minima: A (94%), A-(91%), B+(88%), B (84%), B-(81%), C+(78%), C (74%), C-(71%), D+(68%), D (61%)

Notes:
1. A student absent from an exam is responsible for arranging a makeup before the exam is returned. No makeups are permitted after the return of an exam. A valid and acceptable written excuse explaining the absence from an exam is required.
2. Attendance in lecture will be helpful in acquiring the knowledge required for successful course completion.
3. Students are expected to be familiar with the Student Handbook provisions, including plagiarism and academic misconduct.
4. Students are expected to be aware of important dates published in the Master Schedule of Classes.
5. Students with physical or learning disabilities requiring alternative accommodations for completing course requirements (e.g. tests) should make appropriate arrangements by contacting Disability Services (150 Pomerene Hall, 2-3307) AND THE INSTRUCTOR at the BEGINNING of the Quarter.
<table>
<thead>
<tr>
<th>WK</th>
<th>DATE</th>
<th>Topics/Assignments</th>
</tr>
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<tbody>
<tr>
<td>01</td>
<td>9/22</td>
<td>GH: Chapters 1.1 &amp; 1.2 Intro: What IS Manufacturing? Overview of Aircraft Assembly (Floor Layout, Fixtures, and Work Flow)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DM: Pioneers &amp; WW I Industry (pp. 5-38)</td>
</tr>
<tr>
<td>02</td>
<td>9/27/07</td>
<td>GH: Chapters 1.3 &amp; 1.4 E-Manufacturing and Its Future</td>
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<tr>
<td></td>
<td>9/29/07</td>
<td>PC: Market Evaluation (pp. 45 – 104) – Getting Requirements Right</td>
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<td></td>
<td>Assignment: DM: Building the Industry – Golden Era (pp. 39-86)</td>
</tr>
<tr>
<td>03</td>
<td>10/04/07</td>
<td>DM: ‘30s Struggle, ’35-‘40 Survey, &amp; WW II Buildup (pp. 87-126)</td>
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<tr>
<td></td>
<td>10/06/07</td>
<td>PC: The Airline &amp; the Airplane Product (pp. 105-132) –the Cabin</td>
</tr>
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<td></td>
<td></td>
<td>Assignment: GH: Chapters 2.1-2.3 Intro to Mfg. &amp; Assy; Design for Assy; &amp; QC</td>
</tr>
<tr>
<td>04</td>
<td>10/11/07</td>
<td>GH: Chapter 2.4 Choice of Materials and Processes</td>
</tr>
<tr>
<td></td>
<td>10/13/07</td>
<td>DM: Industry in Wartime &amp; Postwar Adjustment(s); ’45-‘54 Survey</td>
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<td></td>
<td>Assignment: PC: Aircraft Performance (pp. 135-193) – Design vs. Operation</td>
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<tr>
<td>05</td>
<td>10/18/07</td>
<td>DM: Cold War Industry &amp; Transition &amp; Aerospace Convergence</td>
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<td>10/20/07</td>
<td>PC: Airplane Economics: Cost Components (pp. 195-219)</td>
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<tr>
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<td></td>
<td>Assignment: GH: Chapter 2.5 Detailed Design for Manufacture</td>
</tr>
<tr>
<td>06</td>
<td>10/25/07</td>
<td><strong>MIDTERM</strong> (Tues.) covering lecture topics for weeks 1-5</td>
</tr>
<tr>
<td></td>
<td>10/27/07</td>
<td>Guest Lecturer: Non-Technical Considerations – the Geo-political Implications of Make vs. Buy Decisions in Selecting Suppliers</td>
</tr>
<tr>
<td>07</td>
<td>11/01/07</td>
<td>GH: Chapters 3.1 &amp; 3.2 Value Engineering and Its Management</td>
</tr>
<tr>
<td></td>
<td>11/03/07</td>
<td>DM: Advncd., Technology Era (p. 261-284)</td>
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<td>Assignment: PC: Airplane Economics: Revenue Components &amp; Measurement(s) (pp. 220-244) – fleet planning dynamics / drivers of operating costs</td>
</tr>
<tr>
<td>08</td>
<td>11/08/07</td>
<td>DM: An Industry Under Stress (pp. 285-316)</td>
</tr>
<tr>
<td></td>
<td>11/10/07</td>
<td>PC: Investment Appraisal (pp. 245 – 257) Impact &amp; Residual Value</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assignment: GH: Chapters 3.3&amp;3.4 Value Engrg. Methods &amp; Org. of Mgmt.</td>
</tr>
<tr>
<td>09</td>
<td>11/15/07</td>
<td>GH: Chapter 4.1&amp; 4.2 Intro to QFD Methods and Its Management</td>
</tr>
<tr>
<td></td>
<td>11/17/07</td>
<td>PC: Investment Decision Making (pp. 256-266) Making Rt. Choices</td>
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<td>Assignment: The 80s and Beyond (pp. 317-343)</td>
</tr>
<tr>
<td>10</td>
<td>11/22/07</td>
<td>GH: Chapter 4.4 and 4.5 Design of Experiments and Analysis Issues</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Assignment: DM: Uncertainty After the Cold War (pp. 344-366) and PC: Fleet Planning – Art or Science? (pp. 267-269) Class discussion.</td>
</tr>
</tbody>
</table>
Course No. and Title: AVN 575, Development and Design of Aircraft Systems

Responsible Faculty: Thomas M. York, Prof.
Aviation Bldg. Rm 405; 292-3839

Office Hours: By Appointment

Course Description: Introduction to operations-based system design process and aircraft systems development evolution.

Course Objectives: Understanding and practice of aircraft development for the air transportation system including introduction of new technology, aircraft utilization, maintenance and lifetime issues, and integration of complex subsystems. The student will understand the integration of various demands to produce a fit-for purpose aircraft product.

Credit Hours: UG5

Class Meetings: T-R 2:30-5:20, Rm. 201 Aviation Bldg

Prerequisites: AVN 520, 570

Quarters Offered: WI (only)


Elements of Course Grade: 30% Midterm Report of Design Drivers; 20% Oral Presentation of Final Report; 50 % Final Report of Group Project.

Course Letter Grade Minima: A (94%), A-(91%), B+(88%), B (84%), B-(81%), C+(78%), C (74%), C-(71%), D+(68%), D (61%)

Notes:
1. Students are expected to be familiar with the Student Handbook provisions, including plagiarism and academic misconduct.
2. Students are expected to be aware of important dates published in the Master Schedule.
3. Students with physical or learning disabilities requiring alternative accommodations for completing course requirements (e.g. tests) should make appropriate arrangements by contacting Disability Services (150 Pomerene Hall, 2-3307) AND THE INSTRUCTOR at the BEGINNING of the Quarter.
<table>
<thead>
<tr>
<th>WK</th>
<th>DATE</th>
<th>Lecture</th>
<th>Project Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>1/4/07</td>
<td>Systems concepts &amp; AC systems definition</td>
<td>Project definition &amp; group org.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moir &amp; Seabridge (M&amp;S) Ch. 2</td>
<td></td>
</tr>
<tr>
<td>02</td>
<td>1/9/07</td>
<td>Phases of concept, Development &amp; design (M&amp;S), Ch. 3</td>
<td>Individual project assign. In group</td>
</tr>
<tr>
<td>03</td>
<td>1/16/07</td>
<td>Design drivers (M&amp;S), Ch. 4; Jenkinson, L.R., Simpkin, P., Rhodes, D. (JS&amp;R) Ch. 3</td>
<td>Overall config. &amp; systems</td>
</tr>
<tr>
<td>04</td>
<td>1/23/07</td>
<td>System architecture (M&amp;S), Ch. 5</td>
<td>Midterm Rept. Goals &amp; format</td>
</tr>
<tr>
<td>05</td>
<td>1/30/07</td>
<td>System integration (JS&amp;A), Ch. 5; (M&amp;S) Ch. 6</td>
<td>Cabin layout</td>
</tr>
<tr>
<td></td>
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<td><strong>MID-TERM REPORT DUE</strong></td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>2/6/07</td>
<td>Organization structure, communications, project rev. (M&amp;S), Ch. 8, (JS&amp;A) Ch. 15</td>
<td>Intro to spreadsheets</td>
</tr>
<tr>
<td>07</td>
<td>2/13/07</td>
<td>Project system integration (M&amp;S), Ch. 6</td>
<td>Cost estimates</td>
</tr>
<tr>
<td>08</td>
<td>2/20/07</td>
<td>Marketing &amp; airline product forces</td>
<td>Define overall project impact</td>
</tr>
<tr>
<td>09</td>
<td>2/27/07</td>
<td>Project report requirements (no reading assignment)</td>
<td>Prelim. review &amp; revisions</td>
</tr>
<tr>
<td>10</td>
<td>3/6/07</td>
<td>Final Project Reports</td>
<td>Oral presentations</td>
</tr>
</tbody>
</table>
Department of Aviation
The Ohio State University

COURSE SYLLABUS

Course No. and Title: AVN 590, Air Transport Practices and Design

Responsible Faculty: Prof. Nawal K. Taneja, Room 401, Aviation Building

Office Hours: By Appointment (292-2405 or 292-8980)

Course Description: This course will address and analyze the principal issues in structuring the air transport markets, devising the cost and revenue equation of air transport operations and performing analyses for network and fleet planning processes. The course will also examine financial issues related to the aviation infrastructure—airports and Air Traffic Management (ATM) systems.

Course Objectives: The course is designed to provide students with an opportunity to understand the: (a) importance and scope of the air transportation industry; (b) economic forces shaping the air transport industry and measures that can be taken in response to those forces; (c) the nature of products air transport companies provide, their characteristics, forms, and methods of delivery.

Credit Hours: U 5

Prereq: AVN 300, 550

Prerequisites:

Class Meeting: M-W, Aviation Building Room 201

Quarters Offered: WI


Evaluation Criteria: Two In-Class Exams and a Final (25%, 25%, 50%)

Course Letter Grade Minima: A (94%), A-(91%), B+(88%), B (84%), B- (81%), C+ (78%), C (74%), C- (71%), D+ (68%), D (61%)

Notes:

1. A student absent from an exam is responsible for arranging a makeup before the exam is returned. No makeups are permitted after the return of an exam. A valid and acceptable written excuse explaining the student's absence from an exam is required.
2. Attendance in lecture will be helpful in acquiring the knowledge required for successful course completion.
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<table>
<thead>
<tr>
<th>WK</th>
<th>DATE</th>
<th>Topics/Reading Assignments</th>
</tr>
</thead>
</table>
| 01 | 1/3/07   | 1. Economic Impact of Civil Aviation on the US Economy  
2. Managing Growth and Profitability Across Business Cycles |
| 02 | 1/8 & 10 | 1. Understanding the Impact of the ATM system on Airline Economics  
2. Airport Organizational Structures, Funding, and Economics  
3. Airports and Airlines: Analysis of a Symbiotic, Love-Hate Relationship |
| 03 | 1/15 & 17| 1. Metrics for Measuring Network Economics and Profitability  
2. Outsourcing in the Airline Industry: economic and Financial Fundamentals |
| 04 | 1/22 & 24| 1. Dynamic Fleet Management  
2. Developing Effective Route Networks |
| 05 | 1/29 & 31| 1. Regional jets and Turboprops: The Next generation  
2. Economics of Alliances and Feeder Services |
|    |          | First In-Class Exam |
| 06 | 2/6 & 8  | 1. The Development of the Airline Operations Control Center  
2. The Airline Operations Center Dilemma: Solving “Day-of-Operation” Disruptions with Greater Economic Efficiency |
| 07 | 2/13 & 15| 1. Flight Crew Scheduling  
2. Fundamentals of Airport Operations Staffing and Quality Assurance Measurement |
| 08 | 2/20 & 22| 1. Aircraft Maintenance and Engineering Operations  
2. Streamlining Aviation Maintenance Practices |
| 09 | 2/27 & 3/1| 1. Airline safety: The Effective Management of Risk  
2. Economics of Aviation Security |
| 10 | 3/6 & 8  | Course Summary  
Second In-Class Exam |
COURSE SYLLABUS

Course No. and Title: AVN 591, Flight Network Analysis and Optimization

Responsible Faculty: Chul Lee, Asst. Prof., Room 401, Aviation Building
E-mail: lee.955@osu.edu

Office Hours: By Appointment (292-2405 or 292-4556)

Course Description: This course provides a comprehensive introduction to the functional activities involved in planning and operating an airline and their integration with corporate strategies and policies. The complete airline planning process is explored, beginning with longer-term strategic decisions about fleet planning and route development, followed by medium-term schedule planning, fleet assignment, maintenance and operational considerations. The course will also examine a variety of network optimization models adopted by air transportation entities around the world.

Course Objectives: The course is designed to provide students with an opportunity to:
- Develop comprehension of the scientific method, including research methods, sources of information, the processes of collecting and analyzing data, techniques used for preparing and presenting reports.
- Acquire problem exploration and research skills and knowledge applied to identifying and solving problems, drawing conclusions, and making recommendations.

Credit Hours: 3  Class Meeting: M-W, Aviation Building Room 201

Prereq: AVN 300, 550  Quarters Offered: WI


Evaluation Criteria: Midterm Examination 35%
Final Examination 35%
Analytical Case Study & Presentation 27%
Unannounced quizzes 3%

Course Letter Grade Minima: A (94%), A- (91%), B+ (88%), B (84%),
B- (81%), C+ (78%), C (74%), C- (71%),
D+ (68%), D (61%)

An Analytical Case Study of no more than 10 pages must submitted during the last week of the quarter. See separate instructions on format and content. PowerPoint presentation is also expected.
Notes:
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<tr>
<th>WK</th>
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</tr>
</thead>
</table>
| 01 | 1/3/07 | Class introduction & Course organization  
Review of Air Transportation Analysis – Demand vs. Supply & Revenue vs. Costs |
| 02 | 1/8 & 10 | Introduction to Data Sources in Air Transportation |
| 03 | 1/15 & 17 | Introduction to Methods and Procedures for the Research Project in Air Transportation |
| 04 | 1/22 & 24 | Introduction to Data Analysis using Microsoft Office Applications |
| 05 | 1/29 & 31 | Midterm Examination and Review of Analytical Case Study |
| 06 | 2/6 & 8 | Introduction to Data Analysis Application in Air Transportation |
| 07 | 2/13 & 15 | Demand Forecasting Techniques in Air Transportation Systems |
| 08 | 2/20 & 22 | Modeling and Analysis of Air Transportation Network and Fleet Planning |
| 09 | 2/27 & 3/1 | Advanced Research Methods in Air Transportation |
| 10 | 3/6 & 8 | Review of Class Materials and Analytical Case Study Presentation |

Study should use one of the data sources (discussed in the class) to analyze the historical trend, forecast or examine current conditions. Use Excel or db software, such as Access.
COURSE SYLLABUS

Course No. and Title: AVN 597, Air Transportation Systems Design

Responsible Faculty: Thomas M. York, Prof.
Aviation Bldg. Rm 405; 292-3839

Office Hours: By Appointment

Course Description: Design focused on aircraft utilization in the civil aviation system

Course Objectives: Development of understanding of the various system elements of commercial aircraft vehicles and their integration. The design approach is to meet the demands of the commercial user. Emphasis is on the aircraft utility in the whole air transportation system

Credit Hours: UG5

Class Meetings: T, R 2:30-5:20, Rm. 201 Aviation Bldg

Prerequisites: AVN 575

Quarters Offered: SP (only)


Elements of Course Grade: 30% Midterm Report of Design Drivers; 20% Oral Presentation of Final Report; 50% Final Report of Group Project.

Course Letter Grade Minima: A (94%), A- (91%), B+ (88%), B (84%), B- (81%), C+ (78%), C (74%), C- (71%), D+ (68%), D (61%)

Notes:
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<th>Lecture</th>
<th>Project Activity</th>
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<tr>
<td>01</td>
<td>3/29/07</td>
<td>Aircraft systems design example</td>
<td>Project definition &amp; group org.</td>
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<td>Moir &amp; Seabridge (M&amp;S) Ch.10</td>
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<tr>
<td>02</td>
<td>4/5/07</td>
<td>Market considerations; aircraft cost estimations</td>
<td>Individual project assign. In group</td>
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<td>(JS&amp;R), Ch. 12</td>
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<tr>
<td>03</td>
<td>4/12/07</td>
<td>Aircraft performance calculations</td>
<td>Overall config. &amp; system design</td>
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<tr>
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<td>(JS&amp;R) Ch. 10</td>
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<tr>
<td>04</td>
<td>4/19/07</td>
<td>Aircraft powerplants</td>
<td>Midterm Rept.</td>
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<td>(M&amp;S), Ch. 9</td>
<td>Goals &amp; format</td>
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<td>05</td>
<td>4/26/07</td>
<td>Overall system configuration</td>
<td>MID-TERM REPORT DUE</td>
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<td>(JS&amp;R) Ch. 3</td>
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<td>06</td>
<td>5/3/07</td>
<td>Advanced Regional Jet Example</td>
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<td>(JS&amp;R) Ch. 16</td>
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<tr>
<td>07</td>
<td>5/10/07</td>
<td>Economic analysis</td>
<td>Cost estimates</td>
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<td>(M&amp;S), Ch.10</td>
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<tr>
<td>08</td>
<td>5/17/07</td>
<td>Aircraft utilization in air transport system</td>
<td>Operations issues</td>
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<td>Maintenance and lifetime considerations</td>
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<tr>
<td>09</td>
<td>5/24/07</td>
<td>Aircraft configuration modification issues</td>
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<td>10</td>
<td>5/31/07</td>
<td>Project oral presentations</td>
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</tr>
</tbody>
</table>
Course No. and Title: AVN 610, Intro to Computer Modeling and Simulation in Aviation

Responsible Faculty: Gerald P. Chubb, Assoc. Prof.
Aviation Bldg. Rm 304; 292-8256 and 777-9220 (h); cell: 309-3416

Office Hours: Mon.-Wed. 12-1 PM or by Appointment

Course Description: Introduction to discrete / continuous modeling and simulation to evaluate the performance of aviation systems

Course Objective: Develop hybrid simulation models of aviation systems and exercise them to determine system performance.

Credit Hours: UG3

Quarters Offered: WI

Class Meetings: M-W 10:30-11:48 Aviation Rm. 200

Prerequisites: ENG 183 & AVN 540 or Permission of the Instructor


Elements of Course Grade: 10% Class Participation; 20% Midterm Exam; 20% Oral Presentation; 20% Paper, and 30% Final Exam (comprehensive).

Course Letter Grade Minima: A (94%), A-(91%), B+(88%), B (84%), B-(81%), C+(78%), C (74%), C-(71%), D+(68%), D (61%)

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## Course Syllabus

**Course No.: AVN 610**  
**Winter Quarter 2007**

<table>
<thead>
<tr>
<th>WK</th>
<th>DATE</th>
<th>Topics/Assignments</th>
</tr>
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<tbody>
<tr>
<td>01</td>
<td>1/6 &amp; 1/8</td>
<td>L&amp;K Chapter 1: 1.1-1.4 (pp. 1-74) Basic Discrete Simulation of Single Server Queue and Colgren pp (TBD)*</td>
</tr>
<tr>
<td>02</td>
<td>1/13 &amp; 15</td>
<td>L&amp;K Chapters 1: 1.5-1.9 and 2.1-2.2 (pp. 75-140) Other Forms of Simulation and an Intro to Complex System Modeling and Colgren</td>
</tr>
<tr>
<td>03</td>
<td>1/20 &amp; 22</td>
<td>L&amp;K Chapter 2: 2.3-2.8 (pp. 141-233) Modeling Complex Systems and Colgren pp. (TBD)</td>
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<td><strong>NOTE:</strong> Monday is a Holiday – Martin Luther King</td>
</tr>
<tr>
<td>04</td>
<td>1/27 &amp; 29</td>
<td>L&amp;K Chapters 3 &amp; 4 (pp. 234-297) Simulation Software and Review of Basic Probability and Statistics and Colgren pp (TBD)</td>
</tr>
<tr>
<td>05</td>
<td>2/3 &amp; 5</td>
<td>L&amp;K Chapter 5 and 6: 6.1-6.5 (pp. 298-371) Building Valid and Credible Simulation Models and Estimating Input Probability Distributions and Colgren pp (TBD)</td>
</tr>
<tr>
<td>06</td>
<td>2/10</td>
<td><strong>MIDTERM</strong> (Wed.) covering lecture topics for weeks 1-5</td>
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<tr>
<td></td>
<td>2/12</td>
<td>L&amp;K Chapter 6: 6.5-6.11 and Chapter 7 (pp. 372-448) Input Parameter Estimation and Random Number Generation and Colgren pp (TBD)</td>
</tr>
<tr>
<td>07</td>
<td>2/17 &amp; 19</td>
<td>L&amp;K Chapter 8 (pp. 462-581) Generating Random Variates and Colgren pp (TBD)</td>
</tr>
<tr>
<td>08</td>
<td>2/24 &amp; 26</td>
<td>L&amp;K Chapter 9 &amp; 10 (pp. 522-611) Output Data Analysis and Comparison of Alternate System Designs / Configurations and Colgren pp (TBD)</td>
</tr>
<tr>
<td>09</td>
<td>3/3 &amp; 5</td>
<td>L&amp;K Chapters 11 &amp; 12 (pp. 612-696) Variance-Reduction Techniques and Experimental Design for Optimization and Colgren pp (TBD)</td>
</tr>
<tr>
<td>10</td>
<td>3/10 &amp; 12</td>
<td>L&amp;K Chapter 13 (pp. 696-736) Aviation System Simulation Examples and Colgren pp (TBD)</td>
</tr>
</tbody>
</table>

* Colgren’s textbook was due out Aug ’06 and is now scheduled for Jan ’07; therefore the reading assignments from L&K are what is specified for now.

**WRITTEN PROJECT PAPERS DUE WEDNESDAY 3/12**

The requirements for the Project Paper you are to write are described in the handout you will receive on the first day of class. If there are any questions about the assignment, be sure to ask them early. The homework assignments are designed to lead you toward your goal. Be sure that you define a topic of interest early so the homework will indeed not be wasted effort. The proposed title and a brief description of your project paper needs to be turned in not later than the second week of class. Recommendations will be made when this material is returned to you. Be specific in your focus.
COURSE SYLLABUS

Course No. & Title: Aviation 674, Airport Systems Planning, Design & Development

Responsible Faculty: Lecturer Doug Hammon, Airport Director
OSU Airport Administration Building, 292-5460, dhammon@osuairport.org

Office Hours: By appointment

Course Description: A comprehensive study of airport planning, design & development, the role of the airport and its components as part of the overall Air Transportation System, and the issues related to the planning, design, and development of the airport and its systems.

Course Objectives:
- To provide an understanding of the process for planning the various airport systems, including site studies, master plans, and environmental studies;
- To provide an understanding of the criteria used in designing airport systems, and to introduce the airport design process;
- To provide an understanding of the managerial, operational, financial, technical, environmental, and political issues related to airport planning & development; and
- To provide the practical knowledge necessary to enter the airport planning & design field.

Credit Hours: UG3 Class Meeting: Friday, 9:00 – 12:00

Prereqs: AVN 552 (recommended) Quarter(s) Offered: AU

Other references: AC 150/5300-13, FAR Pt. 77, FAA Airport Design computer program, etc
Outline available at www.aviation.ohio-state.edu/courses/online/av580

Elements of Course Grade: Final Exam (40%), Project (50%), Assignments (10%)

Notes:
1. A student absent from an exam is responsible for arranging a makeup. A valid and acceptable written excuse explaining absence from an exam is required.
2. Attendance in lecture will be helpful in acquiring the knowledge required for successful course completion.
3. Students are expected to be familiar with Student Handbook provisions, including plagiarism and academic misconduct: http://oaa.ohio-state.edu/coam/code.html
4. Students with physical or learning disabilities requiring alternative accommodations for completing course requirements (e.g. tests) should make appropriate arrangements by contacting Disability Services (150 Pomerene Hall, 2-3307) AND THE INSTRUCTOR at the BEGINNING of the Quarter.
5. Students are expected to be aware of important dates published in the Master Schedule of Classes and in the Course Handout: read it carefully!
Course Syllabus
Course Name: Airport Planning, Design & Development
Quarter: AU07

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9/23</td>
<td>Course Introduction; Introduction to Airports</td>
</tr>
<tr>
<td>2</td>
<td>9/30/07</td>
<td>Airport Plans &amp; Studies</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Class visitor – Airport Planner</td>
</tr>
<tr>
<td>3</td>
<td>10/07/07</td>
<td>Airfield Systems (Runways, Taxiways, Safety Areas)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Site Visit – OSU Airport Airfield; Class visitor – Airport Engineer</td>
</tr>
<tr>
<td>4</td>
<td>10/14/07</td>
<td>Mechanical Systems (Lighting, Signage, Communications, NAVAIDS)</td>
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<tr>
<td></td>
<td></td>
<td>Site Visit – OSU Airport Airfield; Class visitor – Electrical Contractor</td>
</tr>
<tr>
<td>5</td>
<td>10/21/07</td>
<td>Airport Services Support Systems (Terminals, Ramps, Hangars, Tie-downs, Fuel Facilities)</td>
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<tr>
<td></td>
<td></td>
<td>Site Visit – OSU Airport Terminal Area; Class visitor – Airport Architect</td>
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<td>6</td>
<td>10/28/08</td>
<td>Air Navigation System (ATC, Uncontrolled Airports); Weather Reporting Systems</td>
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<tr>
<td></td>
<td></td>
<td>Site Visit – OSU Airport ATCT</td>
</tr>
<tr>
<td>7</td>
<td>11/04/07</td>
<td>Airport Access/Ground Vehicle Support Systems; Airport Security Systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Class visitor – Transportation Security Administration</td>
</tr>
<tr>
<td>8</td>
<td>11/08/07</td>
<td>Airport Area Development (Airport Zoning, FAR Pt. 77)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Class visitor – Planner, City of Columbus/Mid-Ohio Region Planning Commission</td>
</tr>
<tr>
<td>9</td>
<td>11/18/07</td>
<td>Airport Layout Plan; Airport Capital Funding; Construction</td>
</tr>
<tr>
<td>10</td>
<td>11/23/07</td>
<td>Final exam, Projects Due</td>
</tr>
</tbody>
</table>

NOTE: Friday 11/11/07 is a National Holiday and Friday 11/25/07 is the day after Thanksgiving. So, for this academic year, these two Friday classes will have to be held on the preceding Wednesday, on the dates shown.
Attachment 5: Air Transportation Systems Innovation Concept Paper

(see following page)
Air Transportation Systems Innovation Concept Paper

Submitted by: Rene J. Holmes
NASA Langley

(Editor's Note: This Concept Paper was offered in response to UAA member requests to the submitter for a definition of "air transportation systems."

Definition: For purposes of this concept paper, Air Transportation Systems include the vehicles, airspace architectures and procedures, landing facilities, communication-navigation-surveillance systems, operations, pilots, training, and all related components that enable air mobility for people, goods, and services. Air transportation system innovation includes and accounts for both innovations within air transportation and between the air transportation and other systems with which air transportation must interact. These other systems include land transportation systems, environmental systems, energy (fuel) systems, and supply chain systems (research, design, regulation, manufacturing, maintenance, and others).

Innovation in Air Transportation Systems requires a new network of collaborators in several aviation disciplines and at the system-of-systems level. The endeavor includes innovating in vehicle concepts, airspace architectures, and enabling technologies for safe, secure, and environmentally compliant operational capabilities for 21st century mobility. A fundamental tenant of innovation in air transportation is to produce scalability in air mobility. That is, as mobility is enabled, the system performance expands to accept the growth, without slowing down. The air transportation system that would be capable of such scalable growth would require a common mental model, or topology, that linked together the layers in the system in ways that promote the least friction and waste between the elements of the topology.

Air transportation system innovation requires organizational capabilities to incubate the relationships, traditional and non-traditional, formal and informal, between the public and private sector organizations to develop and implement "system of systems" approaches to innovation in air transportation. An air transportation system innovation organization would link strategically with national interests in air transportation system innovation in NASA, the FAA, the Next Generation Air Transportation System (NGATS) Joint Planning and Development Office (JPDO), as well as with academic and DOD.

The synergies between advancements in vehicles, airspace, and aviation safety frame a mental future state that could serve as context for system innovation. The synergies are based on the new capabilities of aircraft concepts to sense, control, communicate, and navigate with increasing levels of vehicle autonomy. These new vehicle capabilities, in turn, allow for new concepts in airspace architectures and procedures that become possible based on the new aircraft capabilities. The new airspace capabilities, in turn, allow for new concepts in air vehicles and their operational capabilities. A future State can be envisioned as an architecture of vehicles, airspace, and safety and security capabilities capable of demand on adaptive behavior in response to future requirements. The architecture is envisioned to encompass on-demand as well as scheduled, distributed as well as centralized, and point-to-point as well as hub-and-spoke transportation service operations in all classes of vehicles: Subsonic, Supersonic, Personal, Runway independent, and Uncrewed.

While many of the tools, methods and concepts for transportation system innovation will find application in the current air transportation system infrastructure, the innovation focus is on alternative markets and system concepts. Such innovations would serve the markets that would be diverted from traditional transportation systems, as well as markets that would be induced through transport capabilities not present in current systems on the ground or in the air.

The principal design requirements for this program include the following:

- Pursuing breakthrough concepts in air transportation system innovation for public mobility, cargo, package, and aviation public service functions, based on the synergies between advancements in vehicles, airspace and safety
- Addressing all sectors of air vehicles: Subsonic, Supersonic, Personal, Runway independent, and Uncrewed
- Development of methods and tools for research in scalable architectures for air transportation system network topologies, at all layers of the topologies (Mobility layer; NAS layer; Transport (vehicle) layer; Operations layer; and Cyber layer)
- Translation and applications of modern network theory (scale-free topologies) for design of distributed as well as centralized systems
- Development of network based approaches to the understanding of air transportation system robustness, vulnerabilities, and healing in response to disruptions
- Airspace, vehicle, airport infrastructure and architecture technologies, including air traffic automation technologies for demand adaptive (scalable) airspace systems and automation technologies for vehicles and vehicle systems
- Transportation system engineering, including economics, safety, environment, and system performance
- Large-scale simulation and modeling of infrastructure topologies and airspace architectures
- Multi-modal concepts for vehicles and system architectures
- Transportation public policies, public administration, and legal issues affecting technology uptake in the market, through networked value webs
- Partnership/collaboration with Federal, state, NGO, and industry organizations.

COLLEGIATE AVIATION NEWS 21 SPRING 2006
Attachment 6

Abbreviated Faculty Curricula Vita
Aviation Department Faculty

Nawal Taneja, Professor
PhD Aeronautical Engineering, 1971, London University (England)
MBA, 1969, Massachusetts Institute of Technology
MS Aeronautical & Astronautical Engineering, 1967, MIT
BS Aeronautical Engineering, 1966, London University (England)
Graduate Faculty status: P

Stacy Weislogel, Professor
J.D. 1978, Capital University
MS Industrial Administration, 1963, Purdue University
BS Aeronautical & Astronautical Engineering, 1962, Ohio State University

Thomas M. York, Professor
PhD Aerospace Sciences, 1969, Princeton University
MS Aerospace Sciences, 1967, Princeton University
MS Aerospace Engineering, 1961, Pennsylvania State University
BS Aerospace Engineering, 1960, Pennsylvania State University
Graduate Faculty status: P

Gerald Gregorek, Professor (Aeronautical and Astronautical Engineering)
PhD Aeronautical & Astronautical Engineering, 1967, Ohio State University
MS Aeronautical & Astronautical Engineering, 1959, Ohio State University
BS Aeronautical & Astronautical Engineering, 1958, Ohio State University
Graduate Faculty status: P

Gerald P. Chubb, Associate Professor
PhD Industrial & Systems Engineering, 1981, Ohio State University
MA Experimental Psychology, 1963, Ohio State University
BS Experimental Psychology, 1962, Ohio State University
Graduate Faculty Status : M

Chul Lee, Assistant Professor
PhD Air Transportation Systems (One-of-a-Kind Program), 1999, Ohio State Univ.
MBA Aviation, 1995, Embry-Riddle Aeronautical University
BS Aerospace Engineering, 1992, Iowa State Univ.
Graduate Faculty Status: M

Robyn Litvay, Lecturer
MS Materials Science and Engineering, 1998, Oregon State University
BS Aeronautical Technology, 1987, Arizona State University

James Oppermann, Lecturer
MS Human Resources Org. Development, 1990, University of San Francisco
BA, 1971, St. Mary's College of California
Doug Hammon, Clinical Faculty
MS Civil Engineering, 1992, Ohio State University
MCRP (City & Regional Planning), 1992, Ohio State University
BS Aviation, 1989, Ohio State University

Charles Patterson, Academic Advisor
EdD, Higher & Adult Education, 1988, University of Missouri-Columbia
MEd Guidance & Counseling, 1978, Bowling Green State University
BS Special Education, 1975, Bowling Green State University
Attachment 7

Complete Faculty Curricula Vitae
CURRICULUM VITAE

Gerald P. Chubb

EDUCATION

Academic

1964-1981 PhD, Industrial and Systems Engineering, The Ohio State University, Columbus, OH. Dissertation Title: A Comparison of Anxiety and Frustration Impacts on Performance in Manned Systems.
1962-1963 Master of Arts, Experimental Psychology, The Ohio State University, Columbus, OH. Thesis Title: Driver's Ability to Control the Velocity of an Automobile as a Function of Initial Velocity and Extent of Change.
1959-1962 Bachelors of Science, Experimental Psychology, The Ohio State University, Columbus, OH.

Professional

1980 Executive Development Program, Office of Personnel Management, Kings Point, Long Island
1974 Medical Physiology Short Course, University of Michigan, Ann Arbor, MI.

TEACHING APPOINTMENTS

Academic

1996-Present Associate Professor, Department of Aerospace Engineering and Aviation / Dept. of Aviation, The Ohio State University, Columbus, OH.
1999-2000 Interim Director of Flight Education
1997-1998 Business Manager, FAA’s Airworthiness Assurance Center of Excellence
1990-1996 Assistant Professor, The Ohio State University, Department of Aviation / Department of Aviation and Aerospace Engineering, Columbus, OH.
1986-1989 Lecturer, Department of Bioengineering and Human Factors, College of Engineering, Wright State University, Fairborn, OH.
1981-1986 Lecturer, Department of Psychology, Wright State University, Fairborn, OH.
1978-1981 Lecturer, Department of Psychology, Wittenburg University, Springfield, OH.
1974-1978 Lecturer, Department of Business Management, University of Dayton, Dayton, OH.
1970-1974 Lecturer, Department of Psychology, University of Dayton, Dayton, OH.
1968-1970 Lecturer, Department of Information Science, University of Dayton, Dayton, OH.

Professional

RESEARCH ACTIVITY

Ohio State University


2001-2002 Comparison of GPS Approach and landing with Bendix-King 89B versus SmartDeck Avionics Display

2000-2001 Economic Impact of Small Aviation Transportation System (SATS) in Ohio, NASA Glenn Research Center, OH. (in conjunction with faculty in the Dept. of Agricultural, Developmental, and Environmental Economics)

1999-2000 Scoring Pilot Performance, AFRL/HEAT, MRS, AZ.

1997-1998 Business Manager, Airworthiness Assurance Center of Excellence, FAA, William J. Hughes Technical Center, Atlantic City, NJ.


1994-1995 User-Centered, Object-Oriented Expertise Approach to Advanced Air Combat Display Design, AFRL/HEC, Wright-Patterson AFB, OH.


Research in Industry


1986-1989 Workload Assessment, McDonnell-Douglas

1983-1986 Development of C-SAINT for Boeing under the Cockpit Automation Technology Program (CAT)
1984-1986 Development of Queuing Models for Workload Assessment under contract to Northrop
1982-1984 Modeling of Soviet Command and Control System for the National Aviation Intelligence Center (NAIC) and Human Factors Research Support to the Human Engineering Division, WPAFB.
1967-1967 C-141 Field Test of Presentation of Information for Maintenance and Operation

**Government Research**

1961-1963 Highway Research and Empirical Studies of Driving Behavior
1963-1965 Maintenance Maintainability Research on Troubleshooting Decision Trees
1965-1966 2D vs. 3D Displays for Remote Manipulation Tasks for Repair of Nuclear Powered Aircraft
1968-1969 Development of Human Engineering Systems Simulation Lab
1972-1975 Development of Systems Analysis of Integrated Networks of Tasks (SAINT), for Monte Carlo simulations of crew activities
1975-1980 Strategic Avionics Crewstation Design Evaluation Facility, studies of Emergency War Order Missions using Electronic Warfare Officers and Navigators / Radar Navigators (supporting Project Rivet Ace and the Offensive Avionics System (OAS) updates to the B-52 G/H)
1981-1982 Staff Analyst for Toxic Hazards and Biodynamics Divisions, and Biotechnology Representative to the F-22 Raptor System Program Office

**Papers / Research Presentations**


Chubb, Gerald P. and Chang Liu (2002), General Aviation Training: Integration of Advanced Cockpit Displays, Final Report, Embry Riddle Aeronautical University, (FAA CAMI Contract DTFA 02-01-C-09254), 7 June 2002


Chubb, Gerald P. Chubb (1994), Airway Science Simulation Laboratory, Final Report, FAOS 91-16, Federal Aviation Administration, Washington, DC.


**Book Chapters**


**HONORS, GRANTS, SPECIAL RECOGNITION**

**Grants**

Airway Science Grant for an Aviation Simulation Laboratory, FAA
Airworthiness Assurance Center of Excellence, FAA

**Honors**

Psy Chi, Psychology Honorary
Alpha Pi Mu, Industrial Engineering Honorary

**Awards**

Armstrong Laboratory Full-Time, Long-Term Training Selectee (OSU PhD Residency, 1973-1974)
Aerospace Medical Research Laboratory, Human Engineer of the Year, 1975.

**SERVICE**

**University Committees / Activities**

- Faculty Career Enhancement Committee
- Presidential Medalists Evaluator
- OSU Senator & Senate Alternate
- Legislative Affairs Committee
- Committee on Academic Freedom & Responsibility
- Faculty Council
- Honors and Scholars Program
- Glenn Institute

**College Committees / Activities**

- College Committee on Academic Affairs (C2A2)
- Chair, C2A2 Subcommittee A (2005-2006)
- Engineering Core Curriculum Committee
- Honors Committee (both for Engineering & for Arts & Sciences)
Curriculum Committee of the Colleges of the Arts and Sciences  
GEC Subcommittee B, Colleges of the Arts & Sciences  
Aviation Task Force  
Lecturer & Lab Instructor for ENG 181 - 183 (2000-2002)

**Departmental Service**

Aviation Section Planning Committee  
OSU Airport Master Plan Technical Advisory Committee  
Strategic Planning Committee  
Promotion and Tenure Committee  
Chair Search Committee  
Recruitment Committee  
Advisory Council Committee  
Graduate Studies Committee  
Aviation Undergraduate Studies Committee, Chair  
NetJets, Inc. Scholarship Committee  
Aviatrix Scholarship Committee  
Alpha Eta Rho, Faculty Advisor (1991-2005)

**Professional Affiliations**

Senior Member, American Institute of Aeronautics and Astronautics  
Governor, East Central Region, Alpha Eta Rho (AHP)  
Member, University Aviation Association (UAA)  
Member, Council on Aviation Accreditation (CAA)  
Member, Association of Aviation Psychologist  
Member, Central Ohio Psychological Association (COPA)  
Member, Southern Ohio Chapter, HF&ES

**Service in the Professions**

**Human Factors and Ergonomics Society**

President, Central Ohio Chapter, 1995-1996.  
Program Chair, Systems Development Technical Group, 1988 and 1990.  
Technical Session Organizer, 12th-15th and 17th-21st annual meetings  
Chairman, Professional Qualifications Committee, 1972-1977  
Southern Ohio Chapter: President --- 1976 and Secretary --- 1972

**Ohio Society of Professional Engineers, Greene County Chapter (1974-1982)**

Vice President, Region 7 --- 1980 and 1981  
State Representative --- 1981
President Greene County Chapter --- 1980
1st VP, Greene County Chapter --- 1979
Secretary, Greene County Chapter --- 1977 and 1978
Engineer for a Day Program Coordinator --- 1975 and 1976

University Aviation Association

OSU Institutional Representative (1993-2005)
Chair, Simulation Committee (2000-2003),
Member, Education and Publications Committees
Scholarship Committee: Evaluator – National Business Aviation Assoc. (NBAA)
   Scholarship, Airport Councils International – North America (ACI-NA)
   Scholarship, & SimuFlite Scholarship
Member, Board of Trustees (1998-2002)
Requested External Evaluations:
   Purdue University: J. Lampe, from Asst. to Assoc. Prof.
   Southern Illinois University at Carbondale (SIUC): aviation departmental strategic plan review and on-site visit (with Larry Gross, Purdue Univ.)
   Arizona State University: R. Karp, from Assoc. to full Prof.
   Purdue University: J. Thom, from Asst. to Assoc. Prof.
Invited Speaker, University Aviation Association, 11-14 September 2002, “International Students and Their Problems Getting Started”

American Institute of Aeronautics and Astronautics

Aviation Operations Technical Committee
AIAA SPEAS Award Evaluator
AOTC representative to the Journal of Aircraft, 2004-2005 (reviewer)
Organizer and Chair, “Human Factors in Aviation Session”, AIAA ATIO Conference, Chicago, 20 Sep. 2004
Product Support Technical Committee

Other / Community Service

Board Member, Professional Aviator Board of Certification (PABC), advising on collegiate aviation’s interests
Associate Board Member, Church Mobilization Representative, and Recruit Counselor for: Pioneer Bible Translators, Dallas, TX
Board Member, Tree of Life Christian Schools (1998-2003)
Chairman of the Board, Bible Institute for Christian Missions (1986-2001)

Recent Invited Presentations
PROFESSIONAL DEVELOPMENT

Pioneer Mission Institute (PMI) in Dallas, TX  - June 2004, 2005, & 2006
Continuing Education Unit (CEU) Short Courses for Psychologist License Renewal: 23 hours each biennium (variety of topics, to include 3 hrs. on professional ethics)
Private Pilots’ Certificate and Advanced Ground Instructor’s Certificate
American Management Courses while General Manager of ALPHSCIENCE
Numerous technical short courses while a Civil Servant at WPAFB.

Revised: 11/2006

CURRICULUM VITAE

Gerald Michael Gregorek

EDUCATION

Academic

1967   Ph.D., Ohio State University, Columbus, Ohio
       Fluid Mechanics
Ph.D. Dissertation: *Hypersonic, Low Reynolds Numbers Pressure and Heat Transfer Over Blunt Cones*

1959 Master of Science, Ohio State University, Columbus, Ohio
Aerodynamics

1958 Bachelor of Aeronautical Engineering (5-year degree *Cum Laude*) Ohio State University, Columbus, Ohio.

**TEACHING APPOINTMENTS**
Numerous courses taught in applied aerodynamics; incompressible, supersonic and hypersonic flows; aircraft design, performance, stability and control experimental methods

**Academic**

2005 – Present Professor, Department of Aerospace Engineering, Ohio State University, Regular appointment, 2/3 time

2005 – Present Professor, Department of Aviation, Ohio State University, Regular appointment, 1/3 time

1994 – Present Director, Aeronautical and Astronautical Research Laboratory, Ohio State University

1976 – 2005 Professor of Aeronautical and Astronautical Engineering, Ohio State University, Regular appointment, full time

1994 – 2001 Chairman and Professor, Aerospace Engineering, Applied Mechanics, and Aviation, Ohio State University, Regular appointment, full time

1993 – 1991 Chairman and Professor, Aeronautical and Astronautical Engineering Department, Ohio State University, Regular appointment, full time

1979 – 1993 Associate Director, Aeronautical and Astronautical Research Laboratory, Ohio State University

1976 – 1981 Director, NASA General Aviation Airfoil Design and Analysis Center, Ohio State University

1969 – 1975 Associate Professor, Aeronautical and Astronautical Engineering

Department of Aviation 86 College of Engineering
Ohio State University, Regular appointment, full time

1967  Research Supervisor, Aeronautical and Astronautical Research Laboratory, Ohio State University, Regular appointment, full time

1967 – 1969  Assistant Professor, Aeronautical and Astronautical Engineering, Ohio State University, Regular appointment, full time

1960 – 1967  Instructor, Aeronautical Engineering, Ohio State University, Regular appointment, full time

1958 - 1960  Research Associate, Aerodynamics Laboratory, Ohio State University

**Teaching Innovations**

2002  Developed, with N. Taneja, new course for aviation and aerospace engineering seniors, AVN694 – Economics of Jet Transport Design

1999  Developed junior “Integrated Design” course AAE 512 to provide early design experience related to classroom work

1992  Developed advance design course for AAE graduate students (AAE 616)

1986  Expanded senior design course to three course sequence (AAE 694, AAE 510, AAE 416): OSU Page 2 November 29, 1999 Fall Qtr aircraft design seminars, Winter Qtr aircraft design, and Spring Qtr advanced design; again replicating industry preliminary design teams

1980  Introduced small design projects into sophomore AAE 200 sequence, model rocket, model glider projects which take students from paper studies to rocket or glider flight

1975  Senior capstone design course (AAE 515) configured as preliminary design teams replicated as in industry

1974  Three course (AAE 200) series integrating a two-hour laboratory with three lecture periods to bring students close to theory at early stage

1969  First flight research course developed at OSU using training aircraft from Department of Aviation

**GRADUATE ADVISING**
80+ Masters of Science degrees graduated

10 Ph.D. degrees graduated

Currently advising 1 Masters and 1 Ph.D. candidates

RESEARCH EXPERIENCE

Facility Development

1993  Contributed to development of wind tunnel to study high altitude transonic airfoils

1974  Assisted in the development of two transonic wind tunnels. A low turbulence airfoil test facility for study of transonic laminar flow airfoils and a high Reynolds transonic facility to test airfoil flap and control systems

1970  Designed and operated a pilot Ludwig tube for high Reynolds number operations (2nd facility in US)

1965  Modified OSU hypersonic facility for low-density operation and for operation with different gases to simulate foreign atmospheres

1962  Assisted OSU and USAF staff in the design and operational use of Mach 20 hypersonic wind tunnel

1960  Brought 20-inch diameter Mach 14 hypersonic wind tunnel of USAF at Wright-Patterson AFB to operational status

1958  Designed components for air-heated continuous flow hypersonic wind tunnel (research associate)

Instrumentation

1958  Present, Designed assorted pressure heat transfer and force measuring instrumentation for wind tunnels and flight systems

1968  Developed a heat transfer measuring technique using phase-change paints. Used by investigators to obtain quantitative three- dimensional heat transfer data

1961  Developed a novel miniature total temperature profiles in hypersonic boundary layers
**Flight Test Programs**

1982 Designed two, three and four blade propellers for use on General Aviation aircraft with the objective of noise reduction at no cost in performance – conducted flight test with three propellers mounted on the Beech Sundowner.

1981 Managed the NASA sponsored flight evaluation of the laminar flow characteristics of the Bellanca Skyrocket airfoil – determined the laminar flow exceeded theory and established foundation for subsequent laminar flow airfoil design.

1978 Managed a NASA study using the Beech Sundowner with a modified leading edge that enabled a 7 knot decrease in stall speed.

1976 Managed the NASA sponsored flight evaluation of the Bellanca Skyrocket II to determine its basic drag characteristics – the lowest drag of any comparable propeller driven aircraft.

1975 Conceived and managed NASA sponsored program the “gloved” airfoil approach for flight testing a new airfoil on an existing general aviation aircraft. Beech Sundowner had a 13% GA-W2 airfoil built over the existing NACA 63415 airfoil and the aircraft flown to get actual overall flight performance and detailed measurements.

**Analysis And Design**

1981 Designed the first transonic natural laminar flow airfoil for use on the Italian Avanti, an advanced twin turbo prop business class aircraft.

1980 Designed the first airfoil tailored for use on wind energy machines for Sandia National Laboratories.

1978 Initiated the first numerical re-examination of the icing process on aircraft airfoils for NASA.

1976 - 1981 Designed airfoils for USAF and aerospace commercial firms such as Bell Helicopter Textron, Gulfstream American, and Rockwell International.

**RESEARCH PUBLICATIONS AND PRESENTATIONS** (list not inclusive, but representative)


Gregorek, G.M., Mallett, F., Chapter 36, Department of Aeronautical and Astronautical Engineering at the Ohio State University “Aerospace Engineering Education During the First Century of Flight”, published by AIAA July 2004.


Gregorek, G.M., Kellam, J.M., and Lee, J.D., “An Experimental Study of Model Ablation at a Mach Number of 5.6” Report to Dept. of Army Ordinance Corps on Contract No. DA33-019-0RD 2314 with OSU Research Foundation, 1959 (TRALOSU-I59-I)


**HONORS AND AWARDS**

1999 Fellow, American Institute of Aeronautics and Astronautics

1997 TopCAT Executive of the Year Award by the Columbus Industry and Technology Council

1993 Experimental Aircraft Association Meritorious Service Award

1991 International Astronautical Federation (IAF) Frank J. Malina Medal (US recipient – 5 medals awarded over life of award)

1989 USRA Distinguished Service Award (3 awards presented in 26 years)

1988 American Institute of Aeronautics and Astronautics National Faculty Advisor Award

1983 American Institute of Aeronautics and Astronautics National General Aviation Award
1982 American Institute of Aeronautics and Astronautics Section Activities Award
1980 Ohio State University Boyer Award for Meritorious Service
1974 Ohio State University Boyer Award for Meritorious Service
1973 Charles MacQuigg Award for Teaching Excellence
1972 American Institute of Aeronautics and Astronautics Technical Man of the Year, Columbus Section
1958 Convair Award for Graduate Study

Research award participation from 1959 – 1982 in excess of $15,000,000.00. Following is representative, but not all-inclusive.

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<th>Title</th>
<th>PI &amp; Team</th>
<th>Report Date</th>
<th>Total Award</th>
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<tr>
<td>Analysis Of A High-Lift Transonic Airfoil</td>
<td>Gregorek, Gerald M</td>
<td>25-Jun-85</td>
<td>$14,999</td>
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<tr>
<td>Analysis Of Two Advanced Transonic Airfoils</td>
<td>Gregorek, Gerald M</td>
<td>5-Nov-86</td>
<td>$13,501</td>
</tr>
<tr>
<td>US Army Heavy Lift Helicopter Airfoil Test</td>
<td>Gregorek, Gerald M; Freuler, Richard J; Lee, John D</td>
<td>27-Jul-05</td>
<td>$46,000</td>
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<td>Analysis Of Helicopter Rotor Airfoils</td>
<td>Gregorek, Gerald M., Lee, John D.</td>
<td>5-Mar-84</td>
<td>$35,000</td>
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<tr>
<td>Development Of Aeronautical Data For A Single Engine Business Jet Aircraft.</td>
<td>Gregorek, Gerald M., Lee, John D.</td>
<td>10-Sep-95</td>
<td>$144,000</td>
</tr>
<tr>
<td>Wright Patterson Wind Tunnel Consortium (CRADA).</td>
<td>Gregorek, Gerald M., Lee, John D.</td>
<td>11-Oct-00</td>
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<td>Construction Of Three Bas Designed Airfoil Models And Services For Tunnel Test Of These Airfoil Models</td>
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<td>AARP Rotor Blade Airfoils Wind Tunnel Test.</td>
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<td>Innovative Ventricular Assist System (IVAS).</td>
<td>Gregorek, Gerald M; Cornhill, John F; Nakamura, Shoichiro; Xu, Longya</td>
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<td>Innovative Ventricular Assist System (IVAS).</td>
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<td>An Experimental Investigation Of The Unsteady Aerodynamic Characteristics Of Wind Turbine Airfoils</td>
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<td>Provide Wind Tunnel Testing, Data Acquisition And Data Processing For The Aaed Canard/Control System Flutter Test</td>
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<td>Design And Fabricate A Remotely Piloted Miniature Aircraft For Instrumentation Evaluation In Flight</td>
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The Design Of A Hypersonic Research Vehicle Under The Universities Space Research Association

Gregorek, Gerald M 22-Sep-93 $17,350

Wind Tunnel Test For Wing Development On An Unmanned Air Vehicle.

Gregorek, Gerald M 11-Dec-00 $0

Wind Tunnel Test For Wing Development On An Unmanned Air Vehicle.

Gregorek, Gerald M 18-Apr-01 $12,600

SERVICE

University, College, And Department

1958 – Present Served on Honors and Awards Committee, Graduate Committee, Undergraduate Committee, Promotion and Tenure Committee, et al

1958 - Present Speaker, Innumerable high schools and universities nationally and internationally

1993-1994 Faculty Advisor: Human powered vehicle project (3rd place in International Sprint)


1988-1991 College Committee on Honors and Awards

1987-1990 Member, Ohio State University Senate

1983-1986 College Committee on Dismissals and Reinstatement

1961-1990 Faculty Advisor: Student Branch of American Institute of Aeronautics and Astronautics

International

1990-1994 Initiated joint aircraft design project with French students at Ecole Polytechnique Feminine. OSU students and French students communicate
electronically on a project involving aircraft design and present their combined efforts at an international meeting on design education.

1988 Organized first USSR/USA space modeling competition

1970 - Present Active in the International Astronautical Federation (IAF):
- Organized first International Student Paper competition in 1974; member of IAF Education Committee; Chairman of Student Youth Research Experiment Committee for rocketry and astronautical experiments


Military Service

United States Air Force
February 1951- November 1954
US Air Force Airman
Aircraft and Engine Mechanic, B-29 Flight Engineer and Instructor B-29 Cruise Control

Profession

Interest in applied and experimental aerodynamics from subsonic to hypersonic flight regimes; wind tunnel design and instrumentation; flight vehicle performance stability, control, and flight test; airfoil and aircraft design; aircraft icing; aerodynamics of ground vehicles; and wind energy systems applied in professional societies.

American Institute of Aeronautics and Astronautics (AIAA)

2000 – Present Pre-College Guidance Committee

1996 - 1998 Aircraft Operations Technical Committee

1989 - 1992 Aircraft Design Technical Committee

1989 - Present Academic Affairs Committee

1986 – 1988 Ground Test Technical Committee

1978 - Present Student Activities Committee
1979 - 1981  Flight Test Technical Committee
1976 - 1978  General Aviation Technical Committee
1970 - 1974  Chairman, AIAA Student Activities Committee

**Supersonic Wind Tunnel Association (SWTA)**

1986 – 1992

**American Society of Engineering Education (ASEE)**

1971– 1975  Executive Committee of Aerospace Division
1972 - 1973  Chairman-Aerospace Division

**International Astronautical Federation (IAF)**

1982- 1992  Student Activities Committee
1970-1973  Supervised Youth Rocketry Committee

**Industry**

1975- Present  Consultant to several firms including Battelle Memorial Institute, Sandia National Laboratories, Rockwell International, Snow Aviation International, Star Technology and Research, Orion America Technologies
1973  Member Technical Staff, Thrust Augmentation system for VF-12A
1972  Aviation Group, Rockwell North American
1957  Junior Engineer, North American Aviation, A3J Vigilante dynamics group
1956  Junior Engineer, Convair Ft. Worth, Texas, B-58 flutter and vibration
1967- Present  Expert witness on various aircraft accident investigations, e.g., the Air Florida Boeing 737 accident at Washington National Airport
CURRICULUM VITAE

Douglas E. Hammon

EDUCATION

Academic
1992  Master of Science: Civil Engineering, The Ohio State University
      Specialization: Transportation Engineering
1992  Master of City and Regional Planning, The Ohio State University
      Specialization: Transportation Planning
1989  Bachelor of Science: Aviation, The Ohio State University
      Specialization: Aeronautical Sciences

Professional Development
2001  American Association of Airport Executives: Advanced “Airport Safety & Operations Specialist” training
1998  American Association of Airport Executives: Basic “Airport Safety & Operations Specialist” training
1996  U.S Department of Transportation, Federal Highway Administration: Statewide Travel Demand Modeling
1995  Northwestern University Traffic Institute: Highway Capacity
1994  U.S. Department of Transportation, Federal Highway Administration: Travel Demand Management
1991  Ohio Transportation Technology Transfer Center: Geographic Information Systems in Transportation Planning

TEACHING APPOINTMENTS

Academic
1999-present  Lecturer, Department of Aviation, The Ohio State University
      Courses: Airport Management; Airport Systems Planning, Design & Development
Professional
2006-present Lead workshops for members of the Ohio Aviation Association
Audience: Airport Sponsors, Airport Managers, FBO’s, and Airport Consultants
Topics: Airport Administration, Finance, Operations, Services, Development, Outreach

2006 “Small Airport Security,” The Center for Terrorism Preparedness, University of Findlay

PROFESSIONAL EXPERIENCE
Aviation
1999-present Airport Director, The Ohio State University Airport, Columbus, Ohio
1997-1999 Airport Director, Butler County Regional Airport, Hamilton, Ohio
1991-1993 Aviation Planner, Ohio DOT Division of Aviation, Columbus, Ohio

Transportation
1993-1997 Transportation Planner/Engineer, Ohio-Kentucky-Indiana Regional Council of Governments, Cincinnati, Ohio
1991 Transportation Analyst, Ohio DOT Division of Transportation Modes, Columbus, Ohio

DOCUMENTATION
1996 *OKI Regional Council Mobility Management Program Manual-of-Practice*
1992 *Good Neighbors by Design: A Guide to Land Use Planning around Ohio Airports*

PROFESSIONAL AFFILIATIONS & LICENSES
American Association of Airport Executives
Ohio Aviation Association
   2007 1st Vice-President
   2006 2nd Vice-President, Chair – Education Committee
Mid-Ohio Regional Planning Commission Technical Advisory Committee
Columbus Chamber Small Business Council
Northwest Civic Association
Private Pilot
CURRICULUM VITAE

Chul K. Lee

EDUCATION

1999  Ph.D. in One-of-a-Kind Program in Air Transportation Systems
      The Ohio State University

1995  Master of Business Administration in Aviation
      Embry-Riddle Aeronautical University

1992  Bachelor of Science in Aerospace Engineering
      Iowa State University

TEACHING APPOINTMENTS

Academic

2005 – Present  Assistant Professor, Department of Aviation
                The Ohio State University

1999 – 1999  Research/Teaching Associate, Department of Aviation
            The Ohio State University

1996 – 1999  Graduate Research Associate, Department of Aviation
            The Ohio State University

1994 – 1995  Graduate Teaching Assistant, Department of Aviation Business
            The Ohio State University

Professional

2005  Guest Speaker
      Jeju Air, S. Korea

2004  Guest Lecturer, Department of Air Transportation
      Hankuk Aviation University, S. Korea

2004  Guest Speaker, Corporate Strategy
      Garuda Airlines, Indonesia

2003  Guest Lecturer, Department of Aerospace Engineering
      Ryerson University, Canada

2002  Guest Speaker, Corporate Strategy
      Korean Air, S. Korea
2002  Guest Speaker, Corporate Strategy
       Asiana Airlines, S. Korea

PROFESSIONAL EXPERIENCE

2000 – 2005  Senior Engineering Analyst
            Bombardier Aerospace, Canada

1999 – 2000  System Consultant
            Bombardier Aerospace, Canada

1990 – 1991  Liaison Engineer/Interpreter
            Republic of Korea Air Force, Seoul, Korea

1994 – 1995  Graduate Teaching Assistant, Department of Aviation Business
            The Ohio State University

RESEARCH/CREATIVE ACTIVITY

Sponsored Research

2006  Feasibility study of new regional international airline based in Incheon City, S. Korea
       Incheon City International Airport, S. Korea

2006  Analysis of the Role of 30-60 Seat Regional Jets and US Demand for 30-60 Seat Regional Jets
       Embraer Aerospace & Rolls-Royce

            Bombardier Aerospace, Canada

1994  Awarded the Link Foundation Fellowship in developing a "Computerized Airline Strategy Simulation" as a master's thesis

Papers/Presentations

2006  “Commercial Airliners’ Aircraft Deployment and Stage Length Trend Analysis in the USA, Europe and Asia”, Presented at The 3rd Air Transport Research Society Conference, Nagoya, Japan. The presentation has been accepted for publication in a refereed journal

2001  "Can Domestic Operations Be a Potential Profit Source for an Airline in
South Korea If the Right Size Aircraft Were Deployed?”, Presented at The 3rd Air Transport Research Group Conference, Jeju Island, South Korea

2005 Member of the Delta Mu Delta National Honor Society

PROFESSIONAL AFFILIATIONS

American Institute of Aeronautics and Astronautics

Air Transport Research Society

The Airline Group of the International Federation of Operational Research Societies

SERVICES

2005 Initiated and completed a cooperation agreement with Korean (Hankuk) Aviation University (Seoul Korea) which has Engineering disciplines such as Aerospace, Mechanical, Electrical and Computer along with other aviation-related majors (about 4,000 undergraduate & graduate students)
Curriculum Vitae

Robyn Olson Litvay

EDUCATION:

Academic

2007-2009 Ph.D. candidate, The Ohio State University, Columbus, OH  
Industrial and Systems Engineering, Operations Research.


1982-1983 Rotary Foreign Exchange Student to Cape Town, South Africa

Professional

1999 Boeing 737 New Generation Instructor Certification for simulator-based Transition and Differences training courses, Seattle, WA.

1990 Beechcraft Bonanza and Baron Instructor Certification for Lufthansa Airlines airline training program, Goodyear, AZ.

1990 FAA Airline Transport Pilot certification, Cockpit, Resource Management, Scottsdale, AZ

1989 FAA Multi-engine, Commercial, Instrument – Instructor Certification, Mesa, AZ.

1988 FAR 135 checked for air charter/taxi operations, Mesa, AZ.

1987 FAA Certificated Flight Instructor Certification, Mesa, AZ.

1986 FAA Commercial Pilot Certification, Mesa, AZ.

1985 FAA Instrument Pilot Certification, Phoenix, AZ.

1984 FAA Private Pilot Certification, Phoenix, AZ.
Robyn Olson Litvay

TEACHING APPOINTMENTS:

Academic

2004-present  Lecturer, Department of Aviation, The Ohio State University, Columbus, OH, full time.

1994-1998  Teaching/Research Assistant, Department of Mechanical Engineering, Oregon State University, Corvallis, OR, full time. Department of Materials Science and Engineering, University of Washington, Seattle, WA, full time.

Professional

1999-2003  Boeing 737 New Generation Instructor for simulator-based Transition and Differences training courses, Seattle, WA.

1990-1992  Beechcraft Bonanza and Baron Instructor for Lufthansa Airlines airline training program, Goodyear, AZ.

1987-1990  Instructed students through Private, Commercial, Instrument, CFI, CFII, Multi-engine, and ATP training courses using FAR 61 and 141 syllabi, Mesa, AZ and Scottsdale, AZ.

WORK EXPERIENCE:

2004-present  Lecturer, The Ohio State University, Department of Aviation, Columbus, OH

            Developed three and am currently teaching two, undergraduate level, aviation courses within the College of Engineering.
            Project Advisor for an Aviation Department sponsored, student, engineering project encompassing all disciplines of engineering.

2001  Pilot, Horizon Air, Portland, OR

            First Officer on the Dash 8-Q400, 70 passenger aircraft for FAR 121 scheduled flights.

1999-2003  Boeing 737 Flight Training Instructor, FlightSafety Boeing Training International (now Alteon), Seattle, WA

            Instructor for New Generation (models 600 through 900) 737s. Responsible for training pilots, including NetJets BBJ pilots, during Transition and Differences courses using fixed base and Level C simulators. Responsible for creating and updating a 737 airplane performance workbook distributed worldwide, and used for all 737 NG training courses. Responsible for developing computer based training software for transition training between the larger Boeing glass cockpit airplanes and the New Generation 737s.
Robyn Olson Litvay

1994-1998  **Graduate Research Assistant/Graduate Teaching Assistant**, University of Washington, Seattle, WA, Oregon State University Materials Science Laboratory, Corvallis, OR

Conducted dwell cycle and corrosion fatigue tests using the Instron 8521. Performed various research associated tasks. Performed teaching assistant duties for engineering undergraduate and graduate level courses including the teaching of laboratory sections and grading. OSU College of Engineering TA of the Year for 1997.

1990-1992  **Flight Instructor**, Airline Training Center, Goodyear, AZ

Ab initio program (through ATP standards) for Lufthansa, Air France, Iberia, and All Nippon Airlines with emphasis on line procedures and cockpit management.

1990  **Flight Instructor**, Cockpit Resource Management, Aero Mech, Scottsdale, AZ

Instructed pilots preparing for ATP check rides including cockpit management procedures. Instructed students enrolled in the Airline Preparation Program through Instrument, Commercial, CFI, CFII, and Multiengine FAR 61 and 141 syllabi.

1987-1990  **Charter Pilot/Flight Instructor**, SAS Executive Aviation, Mesa, AZ

Piloted FAR 135 charter flights. Instructed students through Private, Commercial, Instrument, CFI, CFII, FAR 61 and 141 syllabi.


Guided/pushed B-737s and B-757s in and out of the gate areas, loaded and unloaded the aircraft.

1984-1986  **Line Service Personnel**, Sawyer Aviation, Phoenix, AZ

Serviced, positioned, and fueled general aviation aircraft used for charter and instructional flight.

Test instructor for web-based training software.
Robyn Olson Litvay

HONORS, GRANTS, SPECIAL RECOGNITION:

1999    B-737NG Instructor Recognition and Award, FlightSafety Boeing, Seattle, WA
1997    Recipient of the OSU Graf Fellowship and Teaching Assistant of the Year Award, Oregon State University, Corvallis, OR.
1996    Recipient of the OSU Graf Fellowship, Oregon State University, Corvallis, OR.
1987    Scholastic All-American, Arizona State University, Tempe, AZ.
1987    Recipient Phoenix 99's Flight Scholarship, Arizona State University, Tempe, AZ.
1984-1987 Recipient of the Regents’ Four-year Tuition Scholarship, Arizona State University, Tempe, AZ.

PUBLICATIONS: (former name Robyn Olson Faber)


COMMITTEES AND DEPARTMENTAL SERVICE:

2006 College of Engineering Diversity Committee
2005-2006 Project Advisor for a Department of Aviation sponsored, student, engineering project.
2005-2006 Women in Engineering, Women in Aviation
2004-2006 Department of Aviation Diversity Affairs
2005-2006 Department of Aviation Student Recruitment Committee
CURRICULUM VITAE

Jim Oppermann
7570 Deer Creek Drive
Worthington, Ohio 43085
H  614 841 9184 W 614 688 8746

EDUCATION

1987 to 1990  Master of Arts, Human Resources and Organization Development
              University of San Francisco

1967 to 1971  Bachelor of Arts
              Saint Mary’s College of California

INDUSTRY EXPERIENCE:

2002 to Date  THE OHIO STATE UNIVERSITY AVIATION DEPARTMENT
              Lecturer in the Aviation Management Curriculum.
              Administrator of NetJets Scholarships.
              Coordinator of Internship and Employment opportunities across the Industry.
              Assist Student Recruitment.
              - Presentations to Interested Students and to Advisors of the Colleges we serve.
              - Designed new Brochures and Pamphlet.
              - Coordinated redesign of Department Website.
              Faculty Advisor AHP. Coed Aviation Fraternity.
              Assist AHP Spring Aviation Conference.

1991 to 2002  AMERICA WEST AIRLINES, Columbus Ohio
              Supervision, Administration, and Development of a Hub Operation and its Customer Service
              Personnel. Directly Responsible for Passenger Services. Indirectly responsible to Operations
              and Support Departments. Liaison to Mesa Airlines at introduction of Regional Jet services.
              Advisory Supervision to new Cities and to Cities needing assistance.

1980 to 1990  Employment Manager and Executive Recruiting in Financial Services.

1974 to 1980  CHARTERED BANK OF LONDON, San Francisco, Operations Officer

**SERVICE TO THE PROFESSION AND THE UNIVERSITY**

<table>
<thead>
<tr>
<th>Year</th>
<th>Position Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002 to Date</td>
<td>Member, University Aviation Association</td>
</tr>
<tr>
<td></td>
<td>Aviation Management Committee Member.</td>
</tr>
<tr>
<td></td>
<td>Scholarship Committee Member</td>
</tr>
<tr>
<td>2002 to Date</td>
<td>Program Staff International Airline Symposium</td>
</tr>
<tr>
<td>2003 to Date</td>
<td>Member, Honors Committee</td>
</tr>
<tr>
<td></td>
<td>College of Engineering</td>
</tr>
<tr>
<td>2003 to Date</td>
<td>Introduced and developed an Airline Online Simulation into the Aviation curriculum.</td>
</tr>
</tbody>
</table>
Charles R. Patterson  
1165 West First Avenue  
Columbus, Ohio 43212  
614-299-0288  
patterson.13@osu.edu

Professional Objective
A position utilizing my skills in student development, academic advising and career counseling

Education
Doctor of Education  
University of Missouri-Columbia 1988
Major: Higher and Adult Education

Master of Education  
Bowling Green State University 1978
Major: Guidance and Counseling

Bachelor of Science  
Bowling Green State University 1975
Major: Special Education

Experience
Academic Advisor: The Ohio State University. 2001-Present. Coordinate all academic and student services from admissions to graduation for the Department of Aviation.

Academic Advisor: The Ohio State University, 1988-2001. Advise undecided students, monitor academic progress, assist students with academic and career decisions.

Athletic Advising Coordinator: The Ohio State University, 1992-1998. Coordinated all academic advising and supervised athletic advising staff in University College.

Assistant Director of Undergraduate Education: University of Missouri, 1986-1988. Coordinate academic advising and assist with administration of undergraduate office.


College Teaching
University Survey: The Ohio State University. Taught course to orient students to the university policies and assist undecided students with career exploration and decision making.

Community Service
Board of Directors, Grandview Bobcat Club
Treasurer and coach, Grandview Baseball Athletic Association

References: Available upon request.
CURRICULUM VITAE

Nawal K. Taneja

EDUCATION

1971   Ph.D.  Air Transportation
       London University, England

1969   M.S.  Management Science
       Massachusetts Institute of Technology

1967   M.S.  Aeronautics and Astronautics
       Massachusetts Institute of Technology

1966   B.Sc.  Aeronautical Engineering
       London University, England

TEACHING APPOINTMENTS

1985 - Present  Professor, Department of Aviation
                  Ohio State University

1976 - 1979   Associate Professor, Aeronautical and Astronautical Engineering
                  Massachusetts Institute of Technology

1973 - 1976   Assistant Professor, Aeronautical and Astronautical Engineering
                  Massachusetts Institute of Technology

1970 – 1973   Lecturer, Aeronautical and Astronautical Engineering
                  Massachusetts Institute of Technology

PROFESSIONAL

1984 - 1985   President and CEO
                  All Star Airlines, Inc.

1980-1984    President
                  Flight Transportation Associates, Inc.
1969-1970  Senior Economic Analyst
Trans World Airlines, Inc.

PUBLICATIONS

Books

2005  FASTEN YOURSEATBELT: The Passenger is Flying the Plane
Ashgate Publishing Limited, UK

2004  Simpli-Flying: Optimizing the Airline Business Model
Ashgate, Publishing Limited, UK

2003  AIRLINE SURVIVAL KIT: Breaking Out of the Zero Profit Game
Ashgate, Publishing Limited, UK

2002  Driving Airline Business Strategies through Emerging technology
Ashgate, Publishing Limited, UK

1989  Introduction to Civil Aviation - Second Edition
Lexington Books, DC Heath and Company, USA

1987  The International Airline Industry: Trends, Issues and Challenges
Lexington Books, DC Heath and Company, USA
(Also translated into Japanese)

1986  Introduction to U.S. Civil Aviation
Lexington Books, DC Heath and Company, USA

1982  Airline Planning: Corporate, Financial and Marketing
Lexington Books, DC Heath and Company, USA

1981  Airlines in Transition
Lexington Books, DC Heath and Company, USA

1980  U.S. International Aviation Policy
Lexington Books, DC Heath and Company, USA

1979  The U.S. Airfreight Industry
Lexington Books, DC Heath and Company, USA

1978  Airline Traffic Forecasting: A Regression Analysis Approach
Lexington Books, DC Heath and Company, USA

1967  The Commercial Airline Industry: Managerial Practices and
Regulatory Policies
Lexington Books, DC Heath and Company, USA
Journal Articles


Technical Reports

1989   “Discussions and Conclusions,” Aviation Forecasting Methodology: A Special Workshop Report. Transportation Research Circular No. 348,
August 1989. (Co-author)

1975 The state-of-the-art in Air Transportation Demand and Systems Analysis FTL Report R75-7 (Cambridge, MA: MIT, 1975). (Co-author)


Sponsored Research

1989-1990 Port Columbus International Airport Analysis of a broad spectrum of aviation data sources and the development of a statistical aviation data bank to be used by the airport administration in developing cost effective marketing strategies.

1980-1984 Flight Transportation Associates, Inc. (As the president of a multidisciplinary aviation consulting firm) Conducted numerous research studies dealing with the technical, operational, economic, management and regulatory problems of air transportation.) Following are just four examples of industry sponsored research.

The Chairman of the Board and the President of Republic Airlines sponsored a multi-year interdisciplinary research project to implement a comprehensive decision support system to identify and evaluate alternative airline marketing strategies in the deregulated environment.

The U.S. Department of State sponsored a research project to analyze the U.S. international airline industry profitability, obstacles to free competition, and the special requirements of operations to non-market economy nations.
The Massport Authority commissioned a research report on a forecast of passengers, cargo activity, and aircraft operations to determine the adequacy of existing and the need for additional airport facilities.

The U.S. Department of State commissioned a study of the identification and resolution of critical management issues vital to the success of its overseas minicomputer program.

1979-1980  Port Authority of New York and New Jersey  Analysis of the effect of alternative night time noise restrictions or curfews on the flow of air freight out of the New York City region.

1975-1978  National Aeronautics and Space Administration  Integrated models of the aircraft manufacturing and airline industries, incorporating new technologies and the relevant cash flows.

Organizer of 13 OSU International Airline Symposia—12 were financially supported by corporations in aviation related businesses

2006  Serving the Discerning Customer: The New Realty
Lisbon, Portugal—hosted by TAP Air Portugal

2005  An Evolving Business Model: The Pendulum Swings from Product to Price and Settles on Value
Honolulu, Hawaii, USA—hosted by Continental Airlines

2004  New Business Realities for the 21st Century
Cochin, Kerala, India—hosted by Air India

2003  Changing Airlines in Pursuit of Value
Queenstown, New Zealand—hosted by Air New Zealand

2002  Controlling Change: A Multi-Industry Discussion
Lisbon, Portugal—hosted by TAP Air Portugal

2001  Managing for Value: A Multi-Industry Discussion
Lisbon, Portugal—hosted by TAP Air Portugal

2000  How Customers, Technologies and New Business Models will Interact in the New Millennium
Amman, Jordan—hosted by Royal Jordanian Airlines

1999  Business Leadership in the Age of Convergence
Vienna, Austria—hosted by Austrian Airlines
1998  Airline Leadership Strategies beyond the Year 2000  
Cape Town, Republic of South Africa—hosted by South African Airways

1996  Compelling Global Airline Strategies  
Los Cabos, Mexico—hosted by Aeromexico

1995  Airline Reengineering  
Columbus, Ohio, USA

1990  Marketing Perspectives for Airline of the Future  
Columbus, Ohio, USA

1988  Airline Yield Management Symposium and Workshop  
Columbus, Ohio, USA

Service

National and International

2006  Keynote address at the International Air Transport Association Conference on Loyalty Management, “Transformation of Airline Loyalty Programs.” Lisbon, Portugal

2004  Presentation before the Air Transportation of America on “Global Airline Industry: Transformational Forces and Potential Scenarios.” Washington, DC, USA

2004  Presentation before All Nippon Airways Management, “Vital Forces Necessitating Serious and Rigorous Changes in the Business Model of Traditional Airlines.” Tokyo, Japan

2003  Invited by the Secretary of Civil Aviation of India to make a presentation on challenges and opportunities facing the aviation industry in India

2002  Presentation before the STAR Alliance Sounding Board, “Managing Change in the Dysfunctional Airline industry.” Chicago, USA

2002-present  Serve on the Board of Advisors of Teradata (a division of NCR)

2000  Keynote address at the International Air Transport Association Conference on Passenger services, “Concepts and Directions in Passenger Service.” Vancouver, Canada

1991  Invited by the Directorate of Civil Aviation to discuss Airline and Airports developments in China, Beijing, China
1989-1990  US National Research Council—served as an expert to provide advice on alternative strategies that might be adopted by the U.S. federal government to meet long-term airport capacity needs

1989  US U.S. Federal Aviation Administration (FAA) and Transportation Research Board (TRB)—participated in (and wrote the conclusions of) a two-day special workshop sponsored by the FAA and organized by the TRB to examine techniques and practices used by the FAA and other aviation forecasters and to explore other methodological approaches

1988-1990  International Aviation Management Training Institute (established by the Canadian Government)—elected as a member of the Senior Advisory Council to guide the Institute in its activities relating to the development of educational programs for senior management and government executives from the aviation industry worldwide

1989  International Air Transport Association (based in Geneva)—participated (by invitation) in an IATA High Level Aviation Symposium held under the patronage of His Majesty King Hassan II of Morocco. The purpose of this symposium was to discuss the changing world air transport environment—searching for a proper balance. Marrakesh, Morocco

1987  International Air Transport Association (Geneva)—participated (by invitation) in a high level seminar organized by IATA and Royal Jordanian Airlines on the theme “Responding to the Market Needs in Different Parts of the World.” Aqaba, Jordan

1985  Invited by the Ministry of Civil Aviation, Australia to make a presentation on the U.S. airline deregulation experience and its relevance to the marketplace in Australia (August 1985)

1983  U.S. House and Senate—provided expert testimony during Hearings on the Impact of Deregulation on the Airline Industry

1983  International Air Transport Association (Geneva)—participated and delivered a research paper (by invitation) during a seminar organized by IATA and Lufthansa German Airlines. The purpose of this seminar was to determine if the U.S. domestic deregulation provides a suitable model for application abroad. Seeheim, Germany

1982  Invited by the Douglas Aircraft Company to present in Manila a seminar on the application of Microcomputers as decision-support systems in the airline industry
1979  U.S Congress, Office of Technology Assessment—served as a member of the Working Group on Advanced Air Cargo Airplanes

1978  U.S. Office of the Science Advisor—assisted with the development of U.S. Civil Aviation Policy

1975  Served as a member of the AIAA Working Group on the Impact of the Aviation Technology on U.S. Exports

1973  Served as the Chairman of the First Five-Day Workshop of the United Nations International Civil Aviation Organization on Air Traffic Forecasting Techniques. Montreal, Canada

State of Ohio

1986-87  Columbus Business Community—given the integral relationship between the growth in the local economy and the level of airline service available to and from the region, the Columbus business leaders requested a comprehensive analysis of commercial airline service at Port Columbus and the identification of service improvement strategies.

University

Served on
Department of Aviation Committees such as Faculty Search
College of Engineering Committees such as International Affairs and Minority Affairs and University Mentoring Program
Graduate Faculty Representative on Candidacy and Final Oral Examinations
CURRICULUM VITAE

Thomas M. York
Professor of Aviation

EDUCATION

Academic:

1965 – 1968  Princeton University
Ph. D. Aerospace Sciences  January 1969
M.A  Aerospace Sciences  June 1967

1964 – 1965  University of Maryland

1960 -1961  The Pennsylvania State University
M.S.  Aerospace Engineering  August 1961

1956 – 1960  The Pennsylvania State University
B.S.  Aerospace Engineering  June 1960

TEACHING APPOINTMENTS

2005 – Present  Professor, Department of Aviation
The Ohio State University

1987 – 2005  Professor, Aeronautical and Astronautical Engineering
The Ohio State University
Chair, Dept of Aero. & Astro. , 1987 - 1991

1979 – 1987  Professor, Department of Aerospace Engineering
The Pennsylvania State Univ.

1973 – 1979  Associate Prof., Dept of Aerospace Eng.
The Pennsylvania State University

1969 – 1973  Assistant Prof., Department of Aerospace Eng.
The Pennsylvania State University

1961 – 1965  Assistant Professor, Engineering Department
United States Naval Academy
PROFESSIONAL APPOINTMENTS

2001 – 2002  Visiting Research Professor  
Applied Research Laboratory  
The Pennsylvania State University

1994 – 1998  Ass’t. to Director, Office of Policy and Planning  
Ass’t Sec’y. of Energy Research (Science)  
U. S. Dept of Energy HQ, Wash., DC

1981 – 1982  Research Program Coordinator  
Office of Fusion Energy Sciences  
U. S. Dept of Energy HQ, Wash. DC

1978  Visiting Professor  
Princeton University, Princeton, NJ

1977  Visiting Scientist  
Los Alamos National Laboratory  
Los Alamos NM

1970 – 2005  Consultant to:  
Los Alamos National Laboratory  
Livermore National Laboratory  
NASA Glenn Research Center  
Air Force Research Laboratory  
White Sands Missile Range (Army)

RESEARCH/ACADEMIC ACTIVITY

Publications


Publications (continued)


Publications (continued)


Publications (continued)


Graduate Theses Supervised

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Degree</th>
<th>Granted</th>
</tr>
</thead>
<tbody>
<tr>
<td>K.F. McKenna</td>
<td>An Investigation of the Transient Plasma Flow from a Self-Field Pinch Discharge</td>
<td>Ph.D. Aero.</td>
<td>1973</td>
</tr>
<tr>
<td>G.R. Allen</td>
<td>The Use of a Fresnel Zone Plate Imaging System as an X-ray Diagnostic for the Dense Plasma Focus Device</td>
<td>M.S. Nuc.</td>
<td>1975</td>
</tr>
<tr>
<td>L.B. Kaplan</td>
<td>Laboratory Simulation of Rocket-Borne D-Region Blunt Probe Flows</td>
<td>M.S. Aero.</td>
<td>1977</td>
</tr>
<tr>
<td>R.S. Freeman</td>
<td>Studies of Eng Loss from a Theta Pinch Using a Twyman-Green Interferometer</td>
<td>M.S. Nuc.</td>
<td>1977</td>
</tr>
<tr>
<td>V.P. Veglia</td>
<td>The Design of Magnetic Mirrors for a Linear Theta Pinch</td>
<td>M.S. Nuc.</td>
<td>1979</td>
</tr>
</tbody>
</table>
Graduate Theses Supervised (continued)

<table>
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<tr>
<th>Name</th>
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<tbody>
<tr>
<td>R.G. Brasfield</td>
<td>Evaluation of the Performance of Blunt Electrostatic Ionosphere Probes in a Scaled Laboratory Experiment</td>
<td>M.S. Aero.</td>
<td>1979</td>
</tr>
<tr>
<td>J.E. Heidrich</td>
<td>An Experimental Study of the Transient Loss of Plasma form a Theta Pinch Having an Initially Reversed Magnetic Field</td>
<td>Ph.D. Physics</td>
<td>1980</td>
</tr>
<tr>
<td>J.C. Dooling</td>
<td>The Evaluation of Electron Line Densities in an Arc Discharge Using a Fabry-Perot Interferometer</td>
<td>M.S. E.E.</td>
<td>1983</td>
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<tr>
<td>F. Aghamir</td>
<td>Plasma Heating, Compression and Lifetime Studies in a Field-Reversed Theta Pinch</td>
<td>M.S. E.E.</td>
<td>1983</td>
</tr>
<tr>
<td>C.Y. Gung</td>
<td>Comparison of Middle Atmosphere Electron and Ion Densities Developed from Probe Data and Predicted by Chemical Models</td>
<td>M.S. Nuc. Eng.</td>
<td>1983</td>
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<tr>
<td>D. Azevedo</td>
<td>Measurements of Plasma Properties with Electrotation Probes in Flowing Plasmas</td>
<td>M.S. Aero.</td>
<td>1985</td>
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<tr>
<td>Name</td>
<td>Title</td>
<td>Degree</td>
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<tr>
<td>F.B Mead</td>
<td>Compact Toroid Formation and Lifetime Studies with High Fill Pressure</td>
<td>Ph.D. Aero.</td>
<td>1986</td>
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<tr>
<td>T. Kenney</td>
<td>Acceleration Mechanisms in MPD Thrusters</td>
<td>M.S. Aero.</td>
<td>1987</td>
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<tr>
<td>P. Mikellides</td>
<td>Computational Model of Flow in Magnetic Nozzle</td>
<td>M.S. AAE</td>
<td>1989</td>
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<tr>
<td>C. Zakrzewski</td>
<td>Performance of 1/4 Scale MPD Thruster</td>
<td>M.S. AAE</td>
<td>1990</td>
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<tr>
<td>G. Soulas</td>
<td>Experimental Study of Plasma Flow in a Magnetic Nozzle</td>
<td>M.S. AAE</td>
<td>1991</td>
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<tr>
<td>K. Li</td>
<td>Multi Beam Interferometer Study of Plasma Acceleration in Magnetic Nozzles</td>
<td>M.S. AAE</td>
<td>1992</td>
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<tr>
<td>H. Kamhawi</td>
<td>Experimental Study of 1/4-Scale MPD Thruster with Variable Magnetic Nozzles</td>
<td>M.S. AAE</td>
<td>1993</td>
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<tr>
<td>R. Perreo</td>
<td>Shock Wave Induced Chemistry Effects on Rocket Probes</td>
<td>M.S AAE</td>
<td>1994</td>
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<tr>
<td>T. Umeki</td>
<td>Energy Deposition in Pulsed Plasma Thrusters</td>
<td>Ph. D.</td>
<td>2000</td>
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<tr>
<td>H. Kamhawi</td>
<td>Inductively Powered Coaxial Plasma Thrusters</td>
<td>Ph. D.</td>
<td>2000</td>
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<tr>
<td>C. Scharlemann</td>
<td>Optimized Pulsed Plasma Thrusters</td>
<td>Ph. D.</td>
<td>2004</td>
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<tr>
<td>D. Marriott</td>
<td>Experimental Study of Fusion Plasma Flow Through Magnetic Nozzles</td>
<td>Ph. D.</td>
<td>2004</td>
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</tbody>
</table>
PROFESSIONAL ACTIVITY

Accomplishments during appointment at U.S. Dept. of Energy, 1994 - 1998:

• Exec. Office of the President (U.S.), Office of Science and Tech. Policy (OSTP)
  Presidential Review Directive (Committee) on "Government-University Partnership”, Working Group Member

  Report issued:

• DOE Program Manager for the National Academy of Sciences
  "Government-University-Industry Research Roundtable (GUIRR).”

  DOE Program Manager for the National Academy of Sciences study on.
  "Graduate Science and Education in the United States.”

• Coordinator for the Reorganization of Technical Reviews/Management for the (18) DOE National Laboratories.

Other related duties 1994 - 1998

1. DOE  Technical Review Oversight Pilot (for DOE National Laboratories)
   - Committee Member

2. DOE  Business Management Oversight Pilot (for DOE Nat Labs.)
   - Committee Member and Liaison

3. DOE  Environment, Safety & Health Oversight Pilot (for DOE Nat. abs.)
   - Liaison

4. DOE  Secretary of Energy Advisory Board (SEAB), Laboratory .Operations Board (LOB)
   "Strategic Laboratory Mission Plan”
   Science and Technology Coordinator

5. DOE  National Academy of Sci./Eng./Inst. Of Med.-GE4 (Global Education for European Engineers and Entrep.) GE4 International Board, Member

6. DOE  Office of Chemical Sciences
   Program Coordinator and Ass’t. Sec’y Liaison
   a) Program Coordinator: Combustion
Other related duties 1994 – 1998 (Cont.)

DOE  Office of Chemical Sciences  
Program Coordinator and Ass’t. Sec’y Liaison (Cont.)

b) Advanced Gas Turbine Systems Research Program  
   Program Review, FETC, Morgantown, WVA  
   Combustion Workshop, LBNL, Berkeley, CA

c) Combustion Coordinating Group, Secretary  
   (organize activity across all DoE offices)

d) Partnership for Academic-Industrial Research Program,  
   Coordinator for combustion proposals.

7. DOE  Argonne National Laboratory  
   Chemistry Department Review  
   - Committee Member-

8. DOE  Technical Reviews and Policy Deliberations, for example:  
   R&D Council  
   Advisory Committees  
   Office of Naval Research (DoD in general)  
   National Science Foundation  
   NASA

Research Grants

Research Grants and Contracts:

<table>
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<tr>
<th>Dates</th>
<th>Title</th>
<th>Sponsor</th>
<th>Amount</th>
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<tr>
<td>11/1/99 - 2005</td>
<td>Breakthrough to Optimized Pulsed Plasma Thrusters</td>
<td>AFOSR</td>
<td>$120,000.</td>
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<td>7/1/94 - 6/30/98</td>
<td>IPA Appointment to Office of Planning and Analysis, Ass’t. Sec’y for Energy Research, U.S. Dept. of Energy</td>
<td>DOE</td>
<td>$520,000</td>
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<td>2/1/89 - 8/30/93</td>
<td>IR and FIR Laser Diagnostics for Plasma Thrusters using CW CO2 Radiation</td>
<td>AFOSR</td>
<td>$80,000</td>
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<td>12/8/87 - 12/1/91</td>
<td>The Effects of Magnetic Nozzle Configuration on Plasma Thrusters</td>
<td>NASA-Lewis</td>
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<td>12/1/88 - 6/30/90</td>
<td>Laser Diagnostics of Plasma Thrusters</td>
<td>AFOSR</td>
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<td>1/86 - 2/87</td>
<td>Multi-Pulse Diagnostic Laser</td>
<td>DOE</td>
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Department of Aviation 139  College of Engineering
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<td>12/84 - 6/86</td>
<td>Plasma Conv. &amp; Wall Interactions</td>
<td>DOE</td>
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<td>6/85 - 12/85</td>
<td>Multi-Pulse Glass Laser</td>
<td>LANL</td>
<td>$23,000</td>
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<td>12/82 - 12/84</td>
<td>Plasma Convection and Wall Interactions</td>
<td>DOE</td>
<td>$320,000</td>
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<td>1/84 - 9/84</td>
<td>MPD Thruster Performance</td>
<td>Air Force RPL</td>
<td>$12,863</td>
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<td>11/83 - 12/84</td>
<td>High Power Laser Propulsion Experiments</td>
<td>AFOSR</td>
<td>$130,000/2</td>
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<td>6/83 - 6/84</td>
<td>Nd-Glass Laser System (Equipment and Expt. Res.)</td>
<td>ONR(AFOSR)</td>
<td>$140,000</td>
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<td>10/1/81 - 11/30/82</td>
<td>Plasma Convection and Wall Interactions</td>
<td>DOE</td>
<td>$134,000</td>
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<td>6/1/81 - 11/30/82</td>
<td>Analysis of Rocket Borne Probes for Study of Middle Atmosphere Composition and Electrodynamics</td>
<td>NSF</td>
<td>$ 76,000</td>
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<td>10/1/80</td>
<td>Plasma Convection and Wall Interactions in Magnetic Confinement Systems</td>
<td>DOE</td>
<td>$87,350</td>
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<td>6/1/80 - 11/30/81</td>
<td>Analysis of Rocket Borne Probes for Study of Middle Atmosphere Composition and Electrodynamics</td>
<td>NSF</td>
<td>$76,000</td>
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<td>10/1/79 - 9/30/80</td>
<td>A Study of Flow and Loss Processes at the End of a Linear Theta Pinch</td>
<td>DOE</td>
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<td>6/1/79 - 9/30/79</td>
<td>A Study of Flow and Loss Processes at the End of a Linear Theta Pinch</td>
<td>DOE</td>
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<td>6/1/78 - 5/31/79</td>
<td>Study of Flow and Loss Processes at the End of a Linear Theta Pinch</td>
<td>DOE</td>
<td>112,950</td>
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<td>2/77 - 6/79</td>
<td>Studies of Rocket Borne Probes Used in Measurements of the Middle Atmosphere</td>
<td>NSF</td>
<td>102,100</td>
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<td>6/1/77 - 5/31/78</td>
<td>A Study of Flow and Loss Processes at the End of a Linear Theta Pinch</td>
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<td>6/1/76 - 5/31/77</td>
<td>A Study of Flow and Loss Processes at the End of a Linear Theta Pinch</td>
<td>DOE</td>
<td>128,000</td>
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</table>
Recognition and Honors:
The following at The Pennsylvania State University:

1985  Premier Teacher, College of Engineering
1983  Outstanding Teacher, College of Engineering
1979  Outstanding University Professor
1974  Outstanding Advisor, College of Engineering

University Service:

Pennsylvania State University:

Committee Work on College, Department, and University Levels

1. 1969-75  Aerospace Engineering Department Curriculum Committee
2. 1971-72  Chairman, Aerospace Engineering Department Curriculum Committee
3. 1969-77  Aerospace Engineering Department Committee on Academic Dishonesty
4. 1971-73  College of Engineering Academic Committee
5. 1972-73  Secretary, College of Engineering Academic Committee
6. 1971-73  College of Engr. Ad Hoc Committee on Common Two Year Program
7. 1971-73  Chairman, Inter-College Committee on Mathematics Courses
8. 1972  College of Engr. Ad Hoc Committee on Technological Concepts
9. 1975-76  Aerospace Engineering Department Graduate Curriculum Committee
10. 1974-75  Electrical Engineering Department Review Committee
11. 1974-76  College of Engineering Academic Dishonesty Committee
12. 1975-76  Engineering Laboratory and Orientation Steering Committee
13. 1974-76  University Developmental Year Program for Disadvantaged Students
14. 1974-77  Chairman, Graduate School Committee on Thesis Policy and Procedures
15. 1975-77 Graduate School Committee on Program Review and Evaluation
16. 1979-80 Engineering College Curriculum Task Force on Instructional Innovation
17. 1979-80 Chairman, Engineering College Committee on Peer Evaluation of Faculty
18. 1980,81 University Workshops on Instruction Development
19. 1980-81 Graduate School Subcommittee on Courses and Programs
20. 1980-81 University Committee for Selection of Evan Pugh Professorships
21. 1980-81 Graduate Council - Course and Program of Study Committee
22. 1982-83 Promotion and Tenure Committee (College and Department),
    Graduate Council
    Academic Standards Committee
    New and Revised Programs
Committee Work on College, Department, and University Levels (continued)
23. 1983-84 Graduate Curriculum Committee
    Aersp. 405 Experimental Course Committee
    Long-Range Planning Committee
    Promotion and Tenure Committee
    Equipment Proposal Evaluation Committee
    Graduate Council
    Academic Standards Committee, Chairman
    New and Revised Course and Program Committee
    Fellowship Awards Committee
24. 1984-85 College Strategic Planning Committee
    Graduate Council
    Chairman - New and Revised Programs and Courses - Grad. Council
    Member - Academic Standards - Grad. Council
    Member - Fellowships and Awards - Grad. Council
    Member - Ad Hoc Committee on Grades - Grad. Council
    Member - Committee on Committees - Grad. Council
    Chairman - Research Equipment Proposal Evaluation Comm. (Engr.)
25. 1985-86 College Strategic Planning Committee
    Grad. Council
    Member - Committee on Committees - Grad. Council
    Member - Fellowships and Awards Committee - Grad. Council
    Member - Conflict of Interest & Ethics Committee - Grad. Council
    Faculty Senate
Member - Academic Programs and Planning Committee
Dept. Rep. - DYP Advisor

26. 1986-87 University Scholars Selection Committee (University)
Faculty Senate
Parking Task Force (University)
Intercollege Research Program Review Committee (University)
Promotion & Tenure Committee (University)
Search Committee - Dean of Engineering
Chairman Undergraduate Course Committee (Department)
Chairman Awards Committee (Department)
Promotion and Tenure Committee (Department)

7/1/87 Assumed position as Chair AAE at Ohio State University

The Ohio State University:
Department Chair, Aeronautical and Astronautical Engineering 1987 – 1991
University Senate 1991 – 1994

- Chair (1991-92) University Committee to Investigate the Presidential Cancellation of the Columbus Telescope Project. (This international project to build the world’s largest telescope was precipitously cancelled with National repercussions.) This highly politicized committee successfully resolved all issues.

Senate Committee on Academic Affairs 1992 – 1994
Chair, Steering Committee of the University Senate 1993 – 1994

- Chair of University Senate Steering, by my executive action, formed and organized the University Oversight Committee for Restructuring (OCR). (This Committee successfully facilitated the reorganization of the university administrative structure.) 1993 – 1994

Member, Women and Minorities Senate Committee. 1993 - 1994
Member, Senate Fiscal Committee 1998 - 2000
Member, University Executive Review Committee 2000 – 2001
Nominee (unsuccessful) for Secretary of the Faculty 2000