Florida Institute of Technology

ADDING A NEW COURSE TO THE CURRICULUM

This course is available for student registration only after the approval process has been completed.

SUBJECT AVS (e.g., CS) COURSE NO. 4202 (e.g., 1301) CREDIT HOURS 3 TERM TO BE ADDED TO THE FILE Fall 2010 (e.g., Fall 2010)

CLASS HOURS 45 LECTURE HOURS 45 LAB HOURS CONTACT HOURS (CEU ONLY)

DEPARTMENT Aviation Studies SCHEDULE TYPE Lecture (e.g., Computer Sciences) (e.g., Lecture, Lab or Special Topics/Project)

☒ COLLEGE OF AERONAUTICS – 23 ☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS – 25
☐ COLLEGE OF BUSINESS – 24 ☐ COLLEGE OF SCIENCE – 26
☐ COLLEGE OF ENGINEERING – 1 ☐ EXTENDED STUDIES DIVISION / NATHAN M. BISK COLLEGE OF BUSINESS – 90

COMPUTER TITLE Restricted to 25 characters, including spaces Unmanned Aerial Sys

CATALOG TITLE Unmanned Aerial Systems

CATALOG DESCRIPTION OF COURSE Restricted to 350 characters, including spaces

Introduces the applications and technologies of unmanned aerial systems (UAS). Includes the challenges of UAS integration into controlled airspace, crew qualifications and training, and safety. (Requirement: Senior standing.)

In addition, please attach a course syllabus and/or more detailed description.

REQUIREMENTS

☒ Prerequisite AVT 2001 OR ☐ Corequisite Course Number
Course Number

☒ Prerequisite AVT 2201
Course Number

☐ Prerequisite
Course Number

GRADUATES TO BE ISSUED

☒ A, B, C, D, F
☐ A, B, C, D, F, CEU
☐ CEU
☐ S, U
☐ P, F
☐ Other

ADDITIONAL RESTRICTION Senior standing

(e.g., Major, Class Level, Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

SUBJECT Alpha Prefix (e.g., CS) COURSE NO. (e.g., 1301)

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

Date

Date

Date

Date

Chair, Graduate Council

Chair, Undergraduate Curriculum Committee

CATALOG DIRECTOR

These changes/additions have been made for the University Catalog/policy management system and entered into the BANNER term named above.

Catalog Director

REGISTRAR’S USE ONLY

SCORSE SCADETL SCAPREQ

SCAREES Operator init. Date

150 West University Boulevard, Melbourne, FL 32901-6975 • (321) 674-8114 • Fax (321) 674-7827

ROB-036-459
College of Aeronautics

MASTER COURSE SYLLABUS

AVS 4202 Unmanned Aerial Systems (UAS)

Fall 2010

Catalog Course Description

**AVS 4202 Unmanned Aerial Systems** (3 credits). Introduces the applications and technologies of unmanned aerial systems (UAS). Includes the challenges of UAS integration into controlled airspace, crew qualifications and training, and safety. Prerequisites: AVT 2001 or AVT 2201, and Senior Standing.

Course Objectives

At the conclusion of this course, each student shall be able to:

1. Describe traditional and emerging roles, applications, and missions of unmanned aerial systems in civil and military environments.
2. Explain the doctrinal and regulatory frameworks within which UAS operate, to include general safety and applications in controlled airspace.
3. Describe technical issues and challenges regarding degrees of UAS autonomy.
4. Explain advantages and disadvantages of UAS employment in a range of civil and military applications.
5. Describe representative airframe and power plant technologies and their respective characteristics and qualities.
6. Describe representative mission guidance and payload control technologies, and their respective advantages and constraints.
7. Describe representative mission payload systems for major civil and military applications.
8. Describe operational and environmental threats to UAS mission accomplishment.
10. Describe generic UAS operator and manager training and qualifications.
11. Apply teamwork to plan and execute a simple UAS mission in a real or simulated scenario.

Lead Instructor

J. R. Lawrence, M.S., Adjunct Lecturer

Curriculum Coordinator
B. M. Barker, Ph.D., Associate Professor of Aviation Management

Texts and References


Student Materials Beyond Texts, References, and Common Student Materials

None.

<table>
<thead>
<tr>
<th>Topical Content</th>
<th>Classroom Hours</th>
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</thead>
<tbody>
<tr>
<td>Traditional and emerging roles and applications of unmanned aerial systems in civil and military environments.</td>
<td>4.0</td>
</tr>
<tr>
<td>Doctrinal and regulatory frameworks within which UAS operate, to specifically include general safety and applications in controlled airspace.</td>
<td>2.0</td>
</tr>
<tr>
<td>Use of UAS in a non-strategic role to produce accurate weather information for mission planning, management, and execution.</td>
<td>3.0</td>
</tr>
<tr>
<td>Technical issues and challenges regarding degrees of UAS autonomy.</td>
<td>3.0</td>
</tr>
<tr>
<td>Advantages and disadvantages of UAS employment in a range of civil and military applications.</td>
<td>3.0</td>
</tr>
<tr>
<td>Representative airframe and power plant technologies and their respective characteristics and qualities (Including lab visits).</td>
<td>6.0</td>
</tr>
<tr>
<td>Representative guidance and mission payload control technologies, and their respective advantages and constraints (Including lab visits).</td>
<td>6.0</td>
</tr>
<tr>
<td>Operational and environmental threats to UAS mission accomplishment.</td>
<td>3.0</td>
</tr>
<tr>
<td>UAS crew composition, responsibilities, and management for representative UAS.</td>
<td>3.0</td>
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<tr>
<td>Application of teamwork concepts to plan and execute a simple UAS mission in a real or simulated scenario.</td>
<td>4.0</td>
</tr>
<tr>
<td>Challenges to continued funding and development of Advanced Technology UAVs (ATUAVs) by DARPA and other agencies.</td>
<td>2.0</td>
</tr>
<tr>
<td>Team project presentations</td>
<td>4.0</td>
</tr>
<tr>
<td>Examinations</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>45</strong></td>
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</table>
Grading (typical)

Term exams: 40%
Project and technical report: 30%
Final exam: 30%

Teaching Media and Delivery Methods

Lecture and seminar using standard classroom aids.
CBT modules for simulation of UAS operations
Field lab visits for UAV demonstrations

Laboratory Use

MAE lab visit for UAV technology demonstrations

Team Training

Collaborative classroom presentations and team project