California State University Channel Islands

NEW COURSE PROPOSAL

Courses must be submitted by October 15, 2014, and finalized by the end of that fall semester for the next catalog production.

Use YELLOWED areas to enter data.

DATE (*Change if modified and redate file with current date)*) 11.20.2014, REV 1.20.15

PROGRAM AREA(S) ESRM

1. Course Information. *[Follow accepted catalog format.]*

Prefix(es) (Add additional prefixes if cross-listed) **and Course No. ESRM 370**

Title: FUNDAMENTALS OF REMOTELY PILOTED SYSTEMS Units: 4

Prerequisites: none

Corequisites: none

Consent of Instructor Required for Enrollment

Catalog Description (Do not use any symbols): Explores the basics of Unmanned Aerial Vehicles and Remotely Operated Vehicles from a range of perspectives including aero-/hydrodynamics, data collection, legal, cultural, basic programming, and public safety. Students will be exposed to control systems, various vehicle designs, and routine equipment maintenance.

Grading Scheme:

x A-F Grades

Credit/No Credit

Optional (Student Choice)

Repeatability:

Repeatable for a maximum of units

Total Completions Allowed 1

Multiple Enrollment in Same Semester

Course Level Information:

x Undergraduate

Post-Baccalaureate/Credential

Graduate

Mode of Instruction/Components (*Hours per Unit are defaulted*).

	Units	Hours per Unit	Default Section Size	Graded Component	CS & HEGIS # (Filled in by the Provost's Office)
Lecture	2	1	24		
Seminar		1			
Laboratory		3			
Activity	2	2	24		
Field Studies					
Indep Study					
Other Blank					

Leave the following hours per week areas blank. The hours per week will be filled out for you.

hours lecture per week

hours blank per week

2. Course Attributes:

General Education Categories: All courses with GE category notations (including deletions) must be submitted to the GE website: http://summit.csuci.edu/geapproval. Upon completion, the GE Committee will forward your documents to the Curriculum Committee for further processing.

A (English Language, Communication, Critical Thinking)

A-1 Oral Communication

A-2 English Writing

A-3 Critical Thinking

B (Mathematics, Sciences & Technology)

B-1 Physical Sciences

B-2 Life Sciences – Biology

B-3 Mathematics – Mathematics and Applications
B-4 Computers and Information Technology

C (Fine Arts, Literature, Languages & Cultures)
C-1 Art
C-2 Literature Courses
C-3a Language
C-3b Multicultural

D (Social Perspectives)

E (Human Psychological and Physiological Perspectives)

UDIGE/INTD Interdisciplinary

Meets University Writing Requirement (Graduation Writing Assessment Requirement)

Meets University Language Requirement

American Institutions, Title V Section 40404: Government US Constitution US History
Regarding Exec Order 405, for more information: http://senate.csuci.edu/comm/curriculum/resources.htm

Service Learning Course (Approval from the Center for Community Engagement must be received before you can request this course attribute).

Online Course (Answer YES if the course is ALWAYS delivered online).

x **Lab Fee Request –** Lab fee requests should be directed to the Student Fee Committee.

3. Justification and Requirements for the Course. (Make a brief statement to justify the need for the course)

A. Justification: Remotely Piloted Systems (RPS) are fast becoming a billion dollar industry, with new "off the shelf" technologies emerging weekly as of mid 2014. Currently, the FAA prohibits most training/operation of aerial systems when money is being exchanged, translating into zero opportunities for people seeking robust training to obtain it. CSUCI is the first CSU to have a policy on Unmanned Aerial Systems and is now considered a leader in the CSU systems with regards to RPS education. The ESRM program is actively engaged with these technologies in many locations around the world, but we lack a curricular component to this work. This course rectifies that gaps and will provide the first step for students unfamiliar with the legal, professional, and scientific operation of these systems. Most operations will be circumscribed and focus on near-ground/near-shore training efforts. All operations will conform to CI policies and procedures.

B. Degree Requirement:
Requirement for the Major/Minor
X Elective for the Major/Minor
X Free Elective

Note: Submit Program Modification if this course changes your program.

4. Student Learning Outcomes. List in numerical order. Please refer to the Curriculum Committee's "Learning Outcomes" guideline for measurable outcomes that reflect elements of Bloom's Taxonomy: *http://senate.csuci.edu/comm/curriculum/resources.htm*. The committee recommends 4 to 8 student learning outcomes, unless governed by an external agency (e.g., Nursing).

Upon completion of the course, the student will be able to:

1. Identify current legal and social constraints upon Remotely Piloted Systems use.
2. Safely lauch, manuver, and return a Remotely Piloted System.
3. Explain and demonstrate the use of more than one control system.
4. Articulate the value for Remotely Piloted Systems for Coastal Resource Management.

5. Course Content in Outline Form. *[Be as brief as possible, but use as much space as necessary]*

1. Physics and Movement
2. Aerial Systems Design
    a. Fixed Wing
    b. rotary blades
    c. lighter than air systems
3. Aquatic Systems Design
    a. modular
    b. unibody
4. Control Systems
    a. UHF/VHF
    b. WiFi
    tethered
5. Safe Operation

a. site assessment
b. hazard assessment
c. environmental threats
d. fire/imapcts
e. back-ups and designed reducdancy

6. Permitting
   a. Federal
   b. State
   c. Local
   d. Campus
7. Cultural Perceptions
   a. mass media
   b. hysterical narratives
   c. saintly “techno god” narratives
8. Case Studies
   a. military
   b. EMS
   c. Cal Fire
   d. agribusiness
   e. pipeline inspection
   f. film industry
   g. coastal science
   h. kinetic art installations
9. Flight Time
10. Experimental Data Collection
    a. collection planning
    b. notification of potentially impacted party
    c. collect data
    d. data retrieval
    e. data archive
    f. privacy scrubbing

Does this course content overlap with a course offered in your academic program? **Yes** **No** x
If YES, what course(s) and provide a justification of the overlap.

Does this course content overlap a course offered in another academic area? **Yes** **No** x
If YES, what course(s) and provide a justification of the overlap.

Overlapping courses require Chairs’ signatures.

6. Cross-listed Courses (*Please note each prefix in item No. 1) Beyond three disciplines consult with the Curriculum Committee.*

A. List Cross-listed Courses (Signature of Academic Chair(s) of the other academic area(s) is required).
List each cross-listed prefix for the course:

B. Program responsible for staffing:

7. References. *[Provide 3 - 5 references]*

Rudy, Thomas A. 2013. The Morality of Employing Remotely Piloted Weapon Systems

Fahlstrom, P. 2012. Introduction to UAV Systems

Christ, R.D. and R.L. Wernli. 2011. The ROV Manual: A User Guide for Observation Class Remotely Operated Vehicles.

8. Tenure Track Faculty Qualified to Teach This Course.

Dr. Sean Anderson

9. Requested Effective Date:
First semester offered: Spring 2016

10. New Resources Requested. Yes **No** x
If YES, list the resources needed.

A. Computer Needs (data processing, audio visual, broadcasting, other equipment, etc.)

B. Library Needs (streaming media, video hosting, databases, exhibit space, etc.)

C. Facility/Space/Transportation Needs
X (Continued block out times for us at Cam Park, something already granted to ESRM)

D. Lab Fee Requested **Yes** X **No** **(Lab fee requests should be directed to the Student Fee Committee)**

E. Other

11. Will this new course alter any degree, credential, certificate, or minor in your program? Yes **No** x
If, YES attach a program update or program modification form for all programs affected.
Priority deadline for New Minors and Programs: October 1, 2013 of preceding year.
Priority deadline for Course Proposals and Modifications: October 15, 2013, of preceding year.
Last day to submit forms to be considered during the current academic year: April 15th.

Sean Anderson	October 15, 2014
Proposer of Course (Type in name. Signatures will be collected after Curriculum approval)	Date

Approval Sheet

Program/Course:

If your course has a General Education Component or involves Center affiliation, the Center will also sign off during the approval process.

Multiple Chair fields are available for cross-listed courses.

The CI program review process includes a report from the respective department/program on its progress toward accessibility requirement compliance. By signing below, I acknowledge the importance of incorporating accessibility in course design.

Program Chair		
	Signature	Date
Program Chair		
	Signature	Date
Program Chair		
	Signature	Date
General Education Chair		
	Signature	Date
Center for International Affairs Director		
	Signature	Date
Center for Integrative Studies Director		
	Signature	Date
Center for Multicultural Engagement Director		
	Signature	Date
Center for Civic Engagement Director		
	Signature	Date
Curriculum Chair		
	Signature	Date
AVP		
	Signature	Date