

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 03/10/16 10:27 am

Viewing: **AER E 526X : Advanced Topics in Aerospace Structural Design**

Last edit: 03/10/16 11:15 am

Last edited by: paulca

Changes proposed by: vdayal

### In Workflow

1. Registrar pre-check
2. AER E Curr Chair
3. AER E Chair
4. Engineering Coordinator
5. Grad Coordinator
6. Registrar
7. Scheduling

Department Aerospace Engineering (AER E)  
 Catalog Year 2015-2016  
 First Expected Offering Term Fall  
 Instructor Vinay Dayal  
 Title Advanced Topics in Aerospace Structural Design  
 Transcript Title

Major Teaching Department AER E Cross Listed Courses

Dual Listed Course AER E 426X

Dual List Approval Document

### Credit Hour Details

Credit Type

Credit Hours

Fixed

2

Grading Method

A-F

Instruction Type

Instruction Type	Contact Hours per Week
Lecture	2
Laboratory	2

Repeatable?

No

### Semesters Offered

Fall Yes Alternate, offered odd-numbered years

Spring

Summer

Prerequisites `Strength of Materials

Description Advanced topics in the design and analysis of aerospace structures. Topics related to the material selection, composite materials, strength and durability, riveted, bolted, and adhesive joining, and manufacturability, will be discussed. Large flexible space structures and non-linear aspects of structural design will be discussed. Group project will be assigned.

Graduation  
Restrictions

Meets U.S. Diversity Requirement

No

Meets International Perspectives Requirement

No

Syllabus & Supporting Documentation [Request for Dual Listing AerE 426 and AerE 526x.docx](#)  
[Syllabus 526x.docx](#)

Reason for proposal (programmatic justification, need for course, intended use, etc.) Design of space structures, especially large space structures is becoming important. Space industry is looking for employees with experience in large space structures. Aerospace Engineering Department has no course offering in space structures and this course will fill this important area.

Course outcomes/objective After taking this course the students will be able to:

1. Select proper material for various aircraft and space craft structures
2. They will be able to predict long term behavior of structures
3. They will be able to design large flexible structures
4. They will be able to analyze non-linear behavior of structures
5. They will be able to integrate manufacturing aspects in their design.

Course content/major topics to be addressed (attach syllabus if required by your college/department)

Assessment Plans: Mechanism for assessing student mastery of course outcomes/objectives

1. Weekly assignments will be given
2. One end of the lectures part of the course test will be given
3. An extensive large group design project will be assigned.
4. Emphasis will be for the students to search for data and properties from various sources and come up with their structural design.

Relationship of this course to existing courses in other departments and programs (supporting, overlap, etc.) No other course of this type exists anywhere in the University.....however, Dr. Shen was contacted per suggestion from ECCC member and the result of the consultation is shown in the next section below

Results of  
consultation with  
relevant departments  
and programs

From: Shen, Jiehua J [CCE E]  
Sent: Thursday, March 10, 2016 10:51 AM  
To: Dayal, Vinay [AER E] <vdayal@iastate.edu>  
Subject: RE: Proposed new Aerospace design course

Hello Vinay,

I have gone through the course contents. I don't see any duplications between this course and the design courses in structural engineering focus area in CE. It should be an interesting course. I thought that such an important course would have long been a core course in Aerospace area.

Best wishes,

Jay

Course reviewer  
comments

**paulca (03/07/16 9:36 am):** Rollback: From: Rehmann, Chris R [CCE E] Sent: Friday, March 4, 2016 5:22 PM To: Sturges, Leroy D [AER E] <sturges@iastate.edu>; Castleberry, Paul S [ENGSS] <paulca@iastate.edu>; eccc [ENGSS] <eccc@iastate.edu> Cc: Dayal, Vinay [AER E] <vdayal@iastate.edu> Subject: RE: AER E 526X/426X submitted to ECCC on 030416 The section "Relationship of this course..." says, "No other course of this type exists anywhere in the University", but several courses in civil engineering involved advanced topics in structural design (e.g., CE 533, 534, 535, 536, 545, 546, 547, 548). I suspect there's little overlap in terms of the applications covered by these courses and the proposed course, but I recommend (a) changing the title to "Advanced Topics in the Design of Aerospace Structures"—or something similar—and (b) verifying with a faculty member in structural engineering, such as Jay Shen (jshen@iastate.edu), that there is no overlap. Chris

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Key: 520