Memorandum

To: The Faculty of the College of Engineering
From: The School of Aeronautics and Astronautics
Date: May 9, 2025
Re: Fast track EFD – AAE 35200 updating learning outcomes and course description

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Courses: **AAE 35200 Structural Analysis I**

Current AAE 35200 Course learning Outcomes:

At the end of this class, students should be able to:

1. Use analytical/empirical tools for determining the distribution of load (or displacement) in typical aerospace components.
2. Understand and implement the procedures for relating applied loads (or displacements) to component "failure."
3. Selection of materials to resist structural failure.
4. Exposure to other professional development topics are also be presented as time permits (e.g., technical communications, teamwork issues, economic considerations, engineering ethics, case histories, regulatory & certification topics, etc.).

Proposed AAE 35200 Course Learning Outcomes:

At the end of this class, students should be able to:

1. Predict the distribution of load (or displacement) in typical aerospace components using analytical and/or empirical tools.
2. Implement the procedures for relating applied loads (or displacements) to component "failure."
3. Select materials to resist structural failure.

Reasons: Presently, the fourth learning objective (exposure to other professional development topics are also be presented as time permits) is not being covered due to the need to cover all of the technical content in the class. Strictly speaking, the online catalogue specifies "as time permits," but conversations with instructors of AAE 35200 revealed that the course simply has too much content for this to ever realistically be included. The other three learning outcomes were reworded using Bloom's taxonomy action verbs.

Current AAE 35200 Course Description:

Properties of wing and fuselage sections. Beam-column moments. Torsion of thin-walled and skin-stringer multiple-cell sections. Nonsymmetrical bending of skin-stringer wing sections. Flexural shear in open and closed thin-walled and skin-stringer sections. Loads and stresses in the rib system. Cutouts and shear lag.

SCHOOL OF AERONAUTICS AND ASTRONAUTICS
Neil Armstrong Hall of Engineering
701 West Stadium Avenue, West Lafayette, IN, 47907-2045
Office: 765-494-5117

Modified beam theory for wing and fuselage design. Deflection by energy method. Introduction to composite structures.

Proposed AAE 35200 Course Description:

This course introduces aerospace engineering students to properties of wing and fuselage sections, basic concepts in elasticity, torsion of single and multi-cell thin-walled and skin stringer sections, bending and flexural shear in open and closed thin-walled and skin-stringer sections, flexural shear flow in thin-walled sections, and failure criteria for isotropic materials.

Reasons: A course review revealed the new description better described the course content.

William A. Crossley, Ph.D.
Uhrig & Vournas Head of Aeronautics and Astronautics
Professor of Aeronautics and Astronautics