ME 57200: Aerodynamic Design
Course Syllabus (Spring 2024)

Instructor Information:

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Course Information:

Lecture Time: Tuesday, Thursday 9:30AM-10:45 AM
Lecture Classroom: Shepard S-308
Office Hours: Tuesday, Thursday 11:00AM-12:00 PM

Pre-requisite: ENGR 23000, ME 35600

Reference Book:

"Fundamentals of Aerodynamics", Author: ANDERSON, Publisher: McGraw-Hill Education, Edition: 6, Year Published: 2016
ISBN: 9781259129919

The topics covered in the course:

Fundamental principles and equations in Aerodynamics; Aerodynamic forces and moments, airfoil characteristics, lift, drag and moment coefficients; Elementary potential flows (simple vortex, uniform flow, and doublet); inviscid, incompressible flow; Incompressible flow over airfoil; Incompressible flow over finite wings; Thin airfoil theory; Finite wings, Lifting line theory; Compressible flow; Normal/oblique shocks & compression/expansion.

Course Policy:

Attendance: In this course, attendance is required. There will be in-class quizzes (no make up outside of class) and other important announcements only in class.

Homework and Quizzes: Homework must be submitted before the due time. Late homework is considered only if there is a legitimate reason for it being late, such as sickness. The instructor must be notified about the problem promptly. Otherwise, late homework receives a score of 0%. No exceptions. Quizzes will be given in class only, should be submitted in class.

Exams: The exams will cover the assigned material discussed in class. If a test is missed, a grade of zero will be recorded unless excused by proper authority because of illness or emergency. Notification of the dates of the mid-semester exams will be made at least one week prior to the exam date.

Excusable Absence: It is required for you to attend lectures and exams. Providing doctor's note to state the sickness is an example to justify the excusable absence.

Grading:

The final grade of the course will be calculated with the following weights:

- In-class Quizzes 10%
- Homework 20%
- Project 20%
- Midterm Exam 20%
- Final Exam 30%

Academic Integrity:

Academic honesty is critical for success in this course. You are expected to understand what plagiarism is.

- Plagiarism is submitting the work of others as your own. Violations may include copying homework solutions, lab reports from others with no evidence of independent thought and submitting the work of other students as your own. You must submit your own work.
- Penalties for repeated offenses may result in a failing grade for the entire course.

Students requesting accommodations based on a disability must be reported to The AccessAbility Center/Student Disability Services (AAC/SDS).
Exam Accommodation Portal: https://central.ccny.cuny.edu/index.php

ME 57200 Tentative Class Schedule

The contents of the syllabus may be altered by the instructor during the semester.

Week	Tuesday Lecture	Thursday lectures	Homework Due
Week #1 (01/25-01/26)		Course introduction, basic principles in aerodynamics	
Week #2 (01/29-02/02)	Fundamental principles and equations in aerodynamics	Review of vector relations	HW #1 Due
Week #3 (02/05-02/09)	Basic equations in aerodynamics	Basic equations in aerodynamics	HW #2 Due
Week #4 (02/12-02/16)	Inviscid incompressible flow	Elementary flows	HW #3 Due
Week #5 (02/19-02/23)	Elementary flows	Follow Monday Schedule, No Class	HW #4 Due
Week #6 (02/26-03/01)	Elementary flows	Incompressible flow over airfoils	HW #5 Due
Week #7 (03/04-03/08)	Kutta condition	Thin airfoil theory	
Week #8 (03/11-03/15)	Midterm Exam	Incompressible flow over finite wings	HW #6 Due
Week #9 (03/18-03/22)	Incompressible flow over finite wings	Basic equations in compressible flow	HW #7 Due
Week #10 (03/25-03/29)	Basic equations in compressible flow	Normal shock waves	HW #8 Due
Week #11 (04/01-04/05)	Normal shock waves	Oblique shock	HW #9 Due
Week #12 (04/08-04/12)	Oblique shock	Expansion waves	HW #10 Due
Week #13 (04/15-04/19)	Compressible flows	Compressible flows	HW #11 Due
Week #14 (04/22-04/26)	No Class	No Class	
Week #15 (04/29-05/03)	Supersonic flow	Viscous flows	HW #12 Due
Week #16 (05/06-05/10)	Applications	Applications	
Week #17 (05/13-05/17)	Project Presentation	No Class	Project Report Due
Week #18 (05/20-05/24)	Final Exam		