The University of Jordan
School of Engineering

Department	Course Name	Course Number	Semester
Mechanical Engineering	Aircraft Performance	0994482	Fall

2025 Course Catalog Description

Aircraft performance in steady flight; Straight and level flight; Flight limitations; Drag; Power; Performance curves in terms of thrust and power; Gliding flight; Climbing flight; Range and endurance; Other methods of solution to performance problems; Aircraft performance in accelerated flight; Climbing flight; Take off; Landing; Turning flight; Introduction to helicopters; Helicopter performance; Thrust and torque theory; Rotor flow effects; Power required; Vertical climb.

Instructors

Name	E-mail	Section	Office Hours	Lecture Time

Text Books

	Text book 1	Text book 2
Title	Aircraft Performance and Design	
Author(s)	John D. Anderson	
Publisher, Year, Edition	9th Edition, McGraw-Hill	

References

Books	1. Introduction to Aircraft Performance, Selection and design, Hale, Francis J., 8th Edition, WILEY 2. Fundamentals of Airplane Flight Mechanics, David G. Hull, 8th Edition, Springer. 3. Fundamentals of Aerodynamics, John D. Anderson, Jr 9th Edition, McGraw-Hill.
Journals	
Internet links	

Prerequisites

Prerequisites by topic	
Prerequisites by course	Aerodynamics I 0994344
Co-requisites by course	
Prerequisite for	

Topics Covered

Week	Topics	Chapter in Text
1	Introduction to aerodynamics of flight	
4-2	Review of airplane aerodynamics and the drag polar	
6-5	Characteristics of propulsion	
7	Airplane equations of motion	
12-8	Airplane performance of steady flight	
16-13	Airplane performance of accelerated flight	

Mapping of Course Outcomes to ABET Student Outcomes	
SOs	**Course Outcomes**
1,3	Familiarize the students with aircraft flying atmosphere and it effect on the aircraft. Implement the basic analysis to evaluate the aircraft performance during takeoff, landing, and cruising. The ability to design and aircraft in a simple procedure.

Evaluation		
Assessment Tools	**Expected Due Date**	**Weight**
Project		35
Midterm Exam		15
Final Exam		50

Contribution of Course to Meet the Professional Components

This course is one of the first opportunities for engineering students to encounter the fundamental principles of design problem solving. It is an important prerequisite course for number of designs related-courses, which occur later in the programs of engineering students.

Relationship to Student Outcomes

SOs	1	2	3	4	5	6	7
Availability	X		X				

Relationship to Aeronautical Engineering Program Objectives (AEPOs)

AEPO1	AEPO2	AEPO3	AEPO4	AEPO5

ABET Student Outcomes (SOs)

1	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3	An ability to communicate effectively with a range of audiences
4	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5	An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Updated by ABET Committee, 2025