

AA 461 COURSE DETAILS

TITLE:	Air Breathing Propulsion
CREDITS:	3
FORMAT & SCHEDULE:	Lecture, 3 hours / week
FACULTY CONTACT:	Mitsuru Kuosaka

COURSE DESCRIPTION (Catalog Short Form, 50 words Max):

Examines gas turbine engine design methodology. Covers aerodynamics or gas dynamics of air breathing engine components: inlets, compressors, turbines, and nozzles. Studies the on-design and off-design performance of gas turbine engines. Includes combustion, emissions, noise, and advanced air breathing propulsion systems.

COURSE OVERVIEW & LEARNING OBJECTIVES:

Course Objectives:

1. Students will understand the aerothermodynamics of air breathing engines.
2. Students will understand the fundamentals of compressor aerodynamics and performance.
3. Students will understand the fundamentals of turbine aerodynamics and performance.
4. Students will understand the fundamentals of the on-design and off-design performance of turbine engines and engine components.
5. Students will understand the fundamentals of inlet and exhaust nozzle performance.
6. Students will understand the basics of gas turbine emissions and noise.

COURSE REQUIREMENTS

PREREQUISITES: A A 360

REQUIRED TEXTBOOK: NONE

COURSE SCHEDULE

Topics

Compressors

Turbines

Inlets

Engine acoustics

Exhaust nozzle

Combustors

Chemical kinetics

Emission