

Aerodynamics and Propulsion

Department of Mechanical Engineering



This specialty is available to U.S. Citizens Only!

The Aerospace Specialty at Kettering University provides students with a unique experience in areas of Propulsion (Solid or Liquid) and Aerodynamics.

Set a Course for Adventure

Kettering's newest specialty gives students the opportunity to soar! The Aerospace Specialty at Kettering University provides students with a unique experience in areas of Aerodynamics and Propulsion (Solid or Liquid).

The field of aerospace has been investigated for millennia, but modern aerospace began with the first powered flight at Kitty Hawk on December 16, 1903, by the Wright brothers. From there, aerospace has grown to be one of the most exciting, diverse, and fast paced fields of today.

From the hot-air balloons of 18th century to the first manned mission to the moon on Apollo 11 to the new and exciting aircraft being developed by

companies like Boeing, Airbus, and Bombardier, aerospace has come a long way in a little over a century.

Kettering University embraces the spirit of adventure and innovation vital to the aerospace field, Kettering has expertise in using tools that are currently the workhorse in industry or government for designing propulsion systems and for aerodynamic studies. These tools include, but are not limited to JANNAF (Joint Army NASA Navy Air Force) standard methodologies such as TDK, SPP, VIPER, and LTCP computer programs. The students learn how to generate meaningful results by using simulation tools that are widely used.

The Kettering Difference: We Get To The Good Stuff Now

We know who you are. You're interested in Aerospace and new technologies. You're curious and enthusiastic and want to hit the ground running.

You want to do something exciting, like predicting supersonic flow field parameters, shock locations, and forces on the bodies. At other colleges you might have to wait two or three

years before you actually get your hands on state-of-the-art lab equipment. Not at Kettering.

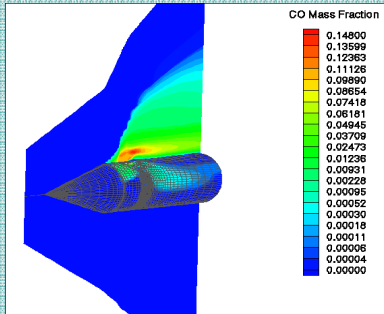
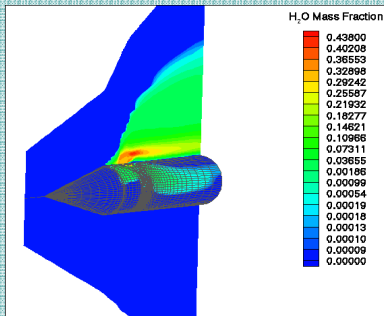
And through your co-op position, you'll also get to apply what you're learning right away, and earn real money at the same time. You'll also be gaining valuable experience in your field, so when graduation comes, you'll be more than ready to hit the ground running.

What Courses Will I Take?

Regardless of the chosen concentration, every student pursuing an M.E. degree at Kettering takes 39 courses and a thesis. Four of the 39 courses define a

concentration. A representative program for an Aerospace Technology student follows on the back page of this flyer.

Kettering University



CO and H₂O Mass Fraction on the XY Symmetry Plane and the Body

Freshman I Term

CHEM-135/136	Principles of Chemistry & Lab
COMM-101	Written & Oral Communication I
MATH-101	Calculus I
MECH-100	Engineering Graphical Communication ³
ORTN-101	Orientation

Freshman II Term

HUMN-201	Introduction to Humanities
IME-100	Interdisciplinary Design & Manufacturing ³
MATH-102	Calculus II
PHYS-114/115	Newtonian Mechanics & Lab

Sophomore I Term

ECON-201	Economic Principles
MATH-203	Multivariate Calculus
MECH-210	Mechanics I
PHYS-224/225	Electricity and Magnetism & Lab

Sophomore II Term

CHEM-145/146	Industrial Organic Chemistry & Lab
EE-212 &	Applied Electrical Circuits Lecture
MATH-204	Differential Equations & Laplace Transforms
MECH-231L	Signals for Mechanical Systems Lab
MECH-212	Mechanics II

Junior I Term

IME-301	Engineering Materials
MATH-305	Numerical Methods and Matrices
MECH-310	Mechanics III
MECH-311	Intro. to Mechanical System Design
SSCI-201	Introduction to the Social Sciences

Junior II Term

COMM-301	Written & Oral Communication II
MATH-408	Probability & Statistics
MECH-300	Computer Aided Engineering ⁴
MECH-312	Mechanical Components I
MECH-320	Thermodynamics

Senior I Term

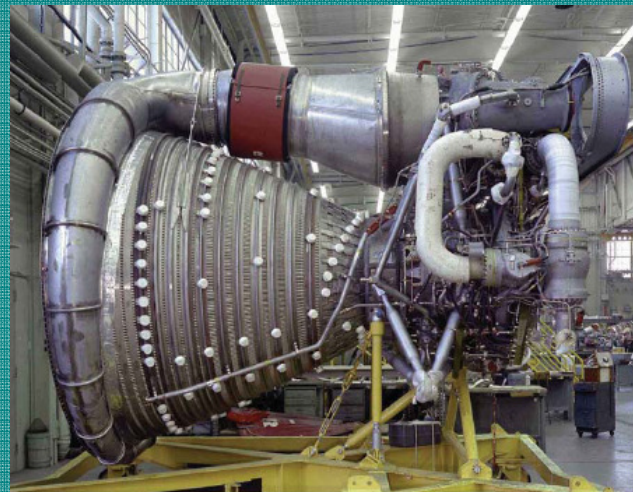
MECH-322	Fluid Mechanics
MECH-330	Dynamic Systems I
MECH-420	Heat Transfer
	Advanced Humanities Elective

Senior II Term

MECH-562	Gas Dynamics/Compressible Flow
MECH-430	Dynamic Systems II
MECH-564	Aerodynamics and Wing Theory
	Advanced Social Science Elective

Senior III Term

LS-489	Senior Seminar
MECH-422	Energy Systems Lab
MECH-523	Applied CFD
MECH-521	Energy & Environmental Sys Design
	Specialty Related Elective ^{5,8}



The elective course should be any one of the following courses:

CHEM-561

Physical Chemistry of Energy Conversion

MECH-522

Engineering Analysis

MECH-622

Computational Heat and Mass Transfer

MECH-641

Combustion and Emissions

³Approximately one-half of the students take MECH-100 FR-I and IME-100 FR-II, the other one-half take IME-100 FR-I and MECH-100 FR-II.

⁴Approximately one-half of the students take ME CH-300 JR-II and MECH-311 JR-I, the other one-half take MECH-311 JR-II and MECH-300 SR-I.

⁵Students select a Specialty Related Elective with approval of their M.E. Specialty Advisor.

⁸Elective courses may vary in lecture and/or laboratory credits and terms from those shown.