Aerospace and Mechanical Engineering

Biodynamical Systems
Locomotion of birds and fish, or robotic equivalents, alone, or in groups. Self assembly of complex systems. Mathematics of cancer and population dynamics.

Flashner, Jin, Kanso, Newton, Perez-Arancibia, Ronney, Sadhal, Spedding, Udwadia

Energy
Combustion efficiency, fundamentals of energy generation and storage. Molecular and nano-scale kinetics and reaction mechanisms. Pollutant formation, dispersal, and measurement.

Egolfopoulos, Ronney, Sadhal

Exploration Technology
Novel aircraft and ground vehicle designs, satellites, micro-air vehicles, intra-vascular transport. Explorations enabled by new technologies in propulsion, flexible, and nano-engineered materials.

Eliasson, Ghanem, Hodge, Kassner, Ronney, Shiflett, Yang
Traditional disciplinary strengths

Combustion and reacting flows, fluid mechanics, dynamical systems, nano-materials synthesis and characterization.

Numbers

19 Faculty + 5 Full-Time Lecturers
509 undergraduates (22% of VSoE), 450 graduate students (8% of VSoE)
   (both populations doubled in 5 years to 2011, now stabilizing)
~ $7.7M in external research funding in 2012

Student groups

AIAA student design projects
   National success (placed 3rd, 1st, 3rd, 1st, 3rd) in last 5 years
Design-build-fly
   National success (placed highly most years -- always fun; 1st place 2014)
Formula SAE (very strong upward trajectory)