

# Course List by Area for MS students

## AERODYNAMICS

AAE 511, 512, 514, 517, 518, 519, 520, 521, 556, 590 (Plasma and Electric Discharges), 590 (Molecular Gas Dynamics), 590 (Nonequilibrium Hypersonic Flows), 613, 624, 626, AAE 690/ME 697 (Numerical Methods for High-Speed Flows)

ME 509, 510, 513, 517, 526, 533, 597 (Fluid Dynamic Stability), 597 (Applied Engineering Acoustics), 608, 610, 611, 613, 614

## AEROSPACE SYSTEMS

**METHODS COURSES (requires at least two for major area, at least one for minor area):**

AAE 550, 551, 560, 561, 568\*, 590 (System Safety and Reliability), 590 (Surrogate Methods), 590 (Aerospace Human Factors), 668\*

**CONTEXT COURSES:**

AAE 585, 590\*\* (Space Flight Operations), 590\*\* (Spacecraft Environment Interaction)

ME 553, 571, 597 (Decision-Making for Engineering Systems Design)

SYS 500, 510, 530

\* For students not also majoring/minoring in Autonomy and Control

\*\* For students not also majoring/minoring in Astrodynamics and Space Applications

## ASTRODYNAMICS AND SPACE APPLICATIONS

AAE 507, 508, 523, 532, 575, 590 (Spacecraft Attitude Dynamics), 590 (Space Flight Operations), 590 (Space Traffic Management), 590 (Applied Control in Astronautics), 590 (Satellite Constellation and Formation), 590 (Spacecraft Environment Interactions), 590 (Attitude Determination and Control), 607, 632, 675, 690 (Orbital Perturbations)

## AUTONOMY & CONTROL

AAE 507, 508, 561, 564, 567, 568, 590 (Multi-Agent Systems and Control), 590 (Aerospace Engineering Probability & Estimation), 590 (Estimation, Control and Optimization Laboratory), 590 (Modern Avionics), 590\* (Applied Control in Astronautics), 590\* (Attitude Determination and Control), 607, 666, 668

ECE 580, 600, 602, 675, 680, 686, 695 (Struc & Dyn Large-Scale Ntwks)

ME 560, 562, 563, 564, 565, 575, 578, 579, 580, 584, 664, 675, 677, 680, 689, 697Y (Intelligent Systems)

\* For students not also majoring/minoring in Astrodynamics and Space Applications

## PROPULSION

AAE 512, 521, 534, 535, 537, 538, 539, 590 (Aerospace Propulsion), 590 (Computational Combustion), 590 (Molecular Gas Dynamics), 590 (Physics of Non-ideal Fluids for Propulsion Applications), 590 (Rocket Propulsion), 690 (Liquid Propellant Chemistry & Applications), 690 (Advanced Turbulent Combustion Modeling)

ME 500, 501, 505, 506, 525, 526, 533, 538, 597 (Combustion of Energetic Materials), 608

NE 563

## STRUCTURES

AAE 545, 546, 548, 550, 552, 553, 554, 555, 556, 558, 590 (Manufacturing of Advanced Composites), 590 (Experimental Characterization of Advanced Composite Materials), AAE 590 (Data Science in Mechanics of Materials), 648, 654, 690 (Multiscale Structural Mechanics)

ME 559, 563, 569, 597 (Nonlinear Finite Elemnt Mthds), 612

Updated 10/2022

## Engineering Leadership Courses (for students in Professional MS program)

*More courses are to be decided and under development. If you find courses you believe are professional-oriented that you would like to use toward the 9-credit hour requirement, contact the AAE Graduate Office.*

MGMT 60000 - Accounting for Managers

MGMT 61000 - Financial Marketing

MGMT 62000 - Marketing Management

MGMT 65000 - Strategic Management

MGMT 66000 - Operations Management

MGMT 54600 - Decision Support and Expert Systems

MGMT 56200 - Project Management

MGMT 57100 - Data Mining

MGMT 670 - Business Analytics

CS 50011 - Introduction to Systems for Information Security

CS 50100 - Computing For Science and Engineering

CS 52600 - Information Security

CS 53600 - Data Communication and Computer Networks

### Additional course notes:

**Math:** Any non-seminar graduate-level course from Math or Statistics; ME 581, 539; PHYS 600, 601; CHE 630, 632; AAE 590 (Aerospace Engineering Probability & Estimation)

**Technical Electives:** Any non-seminar, graduate-level course in Engineering (excluding ENE), Science, or additional Math/STAT; AAE 597 (independent study)

For a list of these courses available via **distance learning**, please visit

<https://engineering.purdue.edu/online/courses>