

**MS AEROSPACE ENGINEERING**  
**2007-09 Cal Poly Catalog**  
[Aerospace Engineering Department](#)  
**Engineering III Bldg. (40A), Room 134**  
**(805) 756-2562**

**General Characteristics.** The Master of Science program in Aerospace Engineering prepares the student for entry into a well-established field of aerospace engineering. Two versions of the master's program are available.

- **Research Specialization.** Emphasizes engineering science and research activity. Graduates have an increased capability for complex research, development, and innovative design, and are prepared for further study in engineering, leading to the Doctor of Engineering or Ph.D. The subject matter relative to flight simulation and controls, structures, propulsion, and aerothermal sciences has been integrated into course work. A thesis is required.
- **Space Systems Engineering Specialization.** Is a more focused version of the MS Aerospace Engineering with a smaller number of electives and a clear space systems and systems engineering emphasis. It is designed to accommodate students with undergraduate degrees in science or engineering disciplines other than aerospace engineering. Students in this specialization develop an understanding of all subsystems in a space vehicle (spacecraft or missile/launch vehicle) and how they are combined to form a complete space vehicle. The program also presents the basic principles of systems engineering and their application to space vehicle design.

**Prerequisites.** For admission as a classified graduate student, an applicant must hold a bachelor's degree in engineering or a closely related physical science with a minimum grade point average of 3.0 in the last 90 quarter units (60 semester units) attempted. Applicants are required to submit satisfactory scores for the General (Aptitude) Test of the Graduate Record Examination.

An applicant who meets these standards but lacks prerequisite coursework may be admitted as a conditionally classified student and must make up any deficiencies before advancement to classified graduate standing. Information pertaining to specific requirements for admission to graduate standing (classified or conditionally classified) may be obtained from the Graduate Coordinator, Department of Aerospace Engineering.

**Program of Study.** Graduate students must file a formal study plan with their advisor, department, college and graduate studies office by no later than the end of the quarter in which the 12th unit of approved courses is completed. The formal program of study must include a minimum of 45 units (at least 24 of which must be at the 500 level). A thesis or project is required as a culminating experience. Course work includes core electives in specific areas of interest to aerospace engineering as well as a number of advisor approved electives in the student's area of interest.

**Core Areas**

*Select from the following courses or advisor approved elective(s):*

- Stability and Control  
AERO 519, 550, 551, 552, 560
- Structures  
AERO 532, 534, 535
- Propulsion  
AERO 540, 541
- Aerodynamics/Fluid Dynamics  
AERO 520, 521, 522, 523, 525
- Engineering Fundamentals  
AERO 515
- Space Electronics and Electrical Systems  
EE 519, 526, 528, 533

**MS Aerospace Engineering, Specialization in RESEARCH**

<b>Core Area requirements</b> .....	16
<i>Select 4 of the following core areas:</i>	
Stability and Control (4)	
Structures (4)	
Propulsion (4)	
Aerodynamics/Fluid Dynamics (4)	
Engineering Fundamentals (4)	
<b>Mathematics courses</b> .....	8
MATH 501 Applied Mathematics I (4)	
Math or numerical methods elective (4)	
<b>Advisor approved electives</b> .....	12
<b>Culminating experience</b> .....	9
AERO 599 Thesis (Design Project) (2) (2) (5)	
	45

**M.S. Aerospace Engineering, Specialization in SPACE SYSTEMS ENGINEERING**

<b>Core Area requirements</b> .....	12
<i>Select 3 of the following core areas:</i>	
Stability and Control (4)	
Structures (4)	
Propulsion (4)	
Space Electronics and Electrical Systems (4)	
<b>Systems Engineering courses</b> .....	12
AERO 450 Intro Aerospace Systems Engr (4)	
AERO 510 Aerospace Systems Engr I (4)	
AERO 511 Aerospace Systems Engr II (4)	
<b>Space Systems courses</b> .....	12
AERO 446 Intro Space Systems (4)	
AERO 512 Aerospace Vehicle Software App (4)	
AERO 566 Adv Spacecraft Design (4) <i>or</i>	
AERO 567 Launch Vehicle & Missile Des (4)	
<b>Space Systems lab courses</b> .....	4
AERO 561 Vehicle Integration & Testing (2)	
AERO 562 Space Operations (2)	
<b>Culminating experience</b> .....	5
AERO 599 Thesis (Design Project) (5)	
	45