

**PROGRESSIVE DEGREE PROGRAM
COURSE PLAN TEMPLATE**

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| USC SCHOOL | Viterbi School of Engineering |
| ACADEMIC DEPARTMENT | Astronautical Engineering |
| GRADUATE PROGRAM | MS. Astronautical Engineering |
| POST CODE | 1271 |
| TERM EFFECTIVE DATE | Spring 2021 |

PROGRAM DESCRIPTION

A brief description of the graduate program.

The Master of Science in Astronautical Engineering program encompasses the dynamic and cutting-edge field of advanced space technology, with a unique focus on spacecraft engineering. It is exceptionally relevant today due to the growing importance of space to both national security and the economy. This program exposes students to the most current industry practices by offering specialized courses in the program taught by adjunct faculty who are leading specialists in the space industry.

COMMON BACHELOR DEGREE PROGRAM PATHWAYS

A list of common bachelor's degrees that undergraduate students pursue in advance of pursuing a progressive degree option with this graduate program. Some programs are restricted to certain majors while others are open to all students.

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| ASTE, AE, ME, EE, Math, Physics, & Engineering undergraduate are eligible. | These majors should have a Physics 151, Physics 152, Physics 152, Math 125, Math 126, Math 226, Math 245 in their background. |
| Non engineering majors with engineering experience on interest can become eligible if they take: Physics 151, Physics 152, Physics 152, Math 125, Math 126, Math 226, Math 245 in their background. | |

PREPARATORY UNDERGRADUATE COURSES

A list of courses at the undergraduate level that prepare students for the graduate program. Required coursework is listed first, followed by recommended courses. If not applicable, this section will be blank.

| Dept. Prefix - Course # | Course Title | Required or Recommended | Units |
|--------------------------------|--|--------------------------------|--------------|
| MATH 125g | Calculus I | Required | 4 |
| MATH 126g | Calculus II | Required | 4 |
| MATH 226g | Calculus III | Required | 4 |
| MATH 245 | Mathematics of Physics and Engineering I | Required | 4 |

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|------------|---|----------|---|
| PHYS 151Lg | Fundamentals of Physics I: Mechanics and Thermodynamics | Required | 4 |
| PHYS 152L | Fundamentals of Physics II: Electricity and Magnetism | Required | 4 |
| PHYS 153L | Fundamentals of Physics III: Optics and Modern Physics | Required | 4 |

UNDERGRADUATE COURSES USED TO REDUCE GRADUATE LEVEL UNITS

A list of undergraduate level courses that may be used to reduce the number of graduate level units required for the graduate program. If there are none, that is specified instead.

| Dept. Prefix - Course # | Course Title | Units |
|-------------------------|-----------------------|-------|
| ASTE 470 | Spacecraft propulsion | 3 |

CORE GRADUATE PROGRAM REQUIREMENTS (# units required)

A list of all required graduate courses for the graduate program. None of these courses may be used toward satisfying undergraduate degree requirements.

If special exceptions for any of these courses are made by the academic department, the course # is marked with an asterisk () and the exception is explained in the "Department Notes" section at the end of this course plan template.*

| Dept. Prefix - Course # | Course Title | Units |
|-------------------------|--|-------|
| ASTE 470 | Spacecraft Propulsion | 3 |
| ASTE 520 | Spacecraft System Design | 3 |
| ASTE 535 | Space Environments and Spacecraft Interactions | 3 |
| ASTE 580 | Orbital Mechanics I | 3 |
| ASTE 500 level elective | Any ASTE 500 level elective | 3 |
| ASTE 500 level elective | Any ASTE 500 level elective | 3 |
| ASTE 500 level elective | Any ASTE 500 level elective | 3 |

PRE-APPROVED ELECTIVE COURSEWORK

Elective coursework is approved at the discretion of the academic department. Note the following details about the total number and units required of elective coursework.

TOTAL ELECTIVE UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE

TOTAL ELECTIVE UNITS REQUIRED FOR THE PROGRESSIVE GRADUATE DEGREE

TOTAL UNIT COUNTS AND REQUIRED GRADUATE UNITS

TOTAL UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE

TOTAL GRADUATE UNITS THAT MAY BE WAIVED (IF ANY)

MINIMUM NUMBER OF GRADUATE UNITS THAT MUST BE AT THE 500 LEVEL OR ABOVE

NOTES FROM THE DEPARTMENT

This section highlights any unique considerations, exceptions, or requirements for the graduate program. If a program has specific restrictions (courses, majors, etc.), they are detailed below.

BS ASTE students who take ASTE 470 as undergrad credit get subject credit for PDP degree and PDP MS ASTE only requires 18 units as opposed to regular MS ASTE PDP requirement of 21 units.

BS ASTE students can waive ASTE 520 and take a ASTE 500 level elective to replace course and still meet unit requirement.

Tech electives get waived for MS ASTE PDP.

Authorizing Dean's Name

Date Approved

Authorizing Dean's Title