

**PROGRESSIVE DEGREE PROGRAM
COURSE PLAN TEMPLATE**

USC SCHOOL	Viterbi School of Engineering
ACADEMIC DEPARTMENT	Aerospace and Mechanical Engineering
GRADUATE PROGRAM	Aerospace and Mechanical Engineering (Artificial Intelligence and Machine Learning)
POST CODE	1998
TERM EFFECTIVE DATE	Fall 2024

PROGRAM DESCRIPTION

A brief description of the graduate program.

The Master of Science in Aerospace and Mechanical Engineering with emphasis in Artificial Intelligence (AI) and Machine Learning (ML) educates and trains students in the multidisciplinary principles and concepts of AI and ML, and how these principles can be applied to different areas of Aerospace and Mechanical Engineering including robotics, manufacturing, dynamics, control and computational modeling of complex systems. It fulfills the growing need for professionals in Aerospace and Mechanical Engineering who are experts in these areas and are adept at applying and developing AI/ML techniques.

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.

Aerospace Engineering B.S.	Biomedical Engineering B.S
Mechanical Engineering B.S.	Civil Engineering B.S.
Astronautical Engineering B.S.	Physics B.S.
Open to all students if they fulfill course deficiencies	

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
AME 204	Mechanics of Materials and Structures	Recommended	4
AME 301	Dynamics	Recommended	3
AME 309	Dynamics of Fluids	Recommended	4
AME 310	Engineering Thermodynamics I	Recommended	3
AME 431	Heat Transfer	Recommended	3
AME 305 or AME 408	Mechanical Design or Computer-Aided Engineering	Recommended	3
AME 451	Linear Control Systems I	Recommended	3

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MATH 125	Calculus I	Recommended	4
MATH 126	Calculus II	Recommended	4
MATH 226	Calculus III	Recommended	4
MATH 245	Mathematics of Physics and Engineering I	Recommended	4
PHYS 151	Mechanics and Thermodynamics	Recommended	4
PHYS 152	Electricity and Magnetism	Recommended	4
PHYS 153	Optics and Modern Physics	Recommended	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
	None	

CORE GRADUATE PROGRAM REQUIREMENTS (24 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
Applied Math Course	AME 525, AME 526, or AME 540	4
AI/ML Core	Choose 3 of the following: AME 505, AME 508, AME 547, AME 556	12
Viterbi Elective	CHE 520 or DSCI 552	4
Elective	Approved AME 400- or 500-level course	4

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.

8	TOTAL ELECTIVE UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE
4	TOTAL ELECTIVE UNITS REQUIRED FOR THE PROGRESSIVE GRADUATE DEGREE

TOTAL UNIT COUNTS AND REQUIRED GRADUATE UNITS

28	TOTAL UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE
4	TOTAL GRADUATE UNITS THAT MAY BE WAIVED (IF ANY)
19	MINIMUM NUMBER OF GRADUATE UNITS THAT MUST BE AT THE 500 LEVEL OR ABOVE

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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.



11/19/2024 | 10:07:39 PM PST

Authorizing Dean's Name

Date Approved

kelly Goulis Senior Associate Dean

Authorizing Dean's Title