

**PROGRESSIVE DEGREE PROGRAM
COURSE PLAN TEMPLATE**

USC SCHOOL	Viterbi School of Engineering
ACADEMIC DEPARTMENT	Aerospace and Mechanical Engineering
GRADUATE PROGRAM	Mechanical Engineering + Engineering Management
POST CODE	1577
TERM EFFECTIVE DATE	Spring 2021

PROGRAM DESCRIPTION

A brief description of the graduate program.

The Department of Aerospace and Mechanical Engineering in conjunction with the Daniel J. Epstein Department of Industrial and Systems Engineering offers programs leading to the degrees of Master of Science in Mechanical Engineering/Engineering Management and Master of Science in Aerospace Engineering/Engineering Management. These programs are designed for graduate aerospace and mechanical engineers whose career objectives lead to increasing technical management responsibilities.

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	Strength of Materials	Recommended	3
AME 301	Dynamics	Recommended	3
AME 309	Dynamics of Fluids	Recommended	4
AME 310	Engineering Thermodynamics I	Recommended	3
AME 331	Heat Transfer	Recommended	3
AME 305 or AME 408	Mechanical Design or Computer-Aided Design of Mechanical Systems	Recommended	3
AME 451	Linear Control Systems I	Recommended	3
Math 125	Calculus I, II, III	Required	

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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 (42 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
AME 525	Engineering Analysis	4
AME 500-lvl elective*	Graduate course offered by AME department	14
ISE 500	Statistics for Engineering Managers	3
ISE 515	Engineering Project Management	3
ISE 544	Leading and Managing Engineering Teams	3
ISE 561	Economic Analysis of Engineering Projects	3
Analytics Course – Choose One		3-4
DSCI 552	Machine Learning for Data Science	
ISE 529	Predictive Analytics	
ISE 530	Optimization Methods for Analytics	
ISE 562	Decision Analysis	
Technology Course – Choose One		3-4
CE 576	Invention & Technology Development	
ISE 545	Technology Development & Implementation	
ISE 585	Strategic Management of Technology	
	Choose One Course from One Track	3-4
Management Track		
CE 502	Construction Accounting, Finance & Strategy	
ISE 506	Lean Operations	
ISE 527	Quality Management for Engineers	
ISE 585	Strategic Management of Technology	

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MOR 557	Strategy & Organization Consulting	
Analytics Track		
DSCI 552	Machine Learning for Data Science	
ISE 529	Predictive Analytics	
ISE 530	Optimization Methods for Analytics	
ISE 533	Integrative Analytics	
ISE 562	Decision Analysis	
Innovation & Technology Commercialization Track		
BAEP 556	Technology Feasibility	
BAEP 557	Technology Commercialization	
CE 576	Invention & Technology Development	
ISE 545	Technology Development & Implementation	
ISE 585	Strategic Management of Technology	
Supply Chain & Operations Track		
DSO 581	Supply Chain Management	
DSO 583	Operations Consulting	
ISE 513	Inventory Systems	
ISE 514	Advanced Production Planning & Scheduling	
ISE 583	Enterprise Wide Information Systems	
Advisor Approved Elective – Choose one		3-4

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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.

12	TOTAL ELECTIVE UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE
0	TOTAL ELECTIVE UNITS REQUIRED FOR THE PROGRESSIVE GRADUATE DEGREE

TOTAL UNIT COUNTS AND REQUIRED GRADUATE UNITS

48	TOTAL UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE
6	TOTAL GRADUATE UNITS THAT MAY BE WAIVED (IF ANY)
42	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.

AME department advisor approves 18 units of coursework for Aerospace Engineering component and ISE department advisor approves 24 units for Engineering Management component. ISE courses cannot be double counted.

Kelly Goulis

Authorizing Dean's Name

April 7, 2021

Date Approved

Senior Associate Dean, Viterbi School of Engineering

Authorizing Dean's Title