PROGRESSIVE DEGREE PROGRAM
COURSE PLAN TEMPLATE

USC SCHOOL	Viterbi School of Engineering
ACADEMIC DEPARTMENT	Aerospace and Mechanical Engineering
GRADUATE PROGRAM	Mechanical Engineering (Energy Conversion)
POST CODE	1430
TERM EFFECTIVE DATE	Spring 2021

PROGRAM DESCRIPTION
A brief description of the graduate program.

The Master of Science in Mechanical Engineering (Energy Conversion) prepares students to apply fundamental thermodynamic principles to modern energy systems, with an emphasis on efficiency and environmental stewardship. The program prepares students to practice engineering at an advanced level with a specialization within mechanical engineering and to recognize the benefit of solving problems using expertise from other engineering disciplines. Students improve their skills in setting up and solving problems by using contemporary tools and leveraging interaction with peers.

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	Recommended	4
Math 126	Calculus II	Recommended	4

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Math 226	Calculus IIII	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
AME 525	Engineering Analysis	4
AME 513a	Fundamentals and Applications of Combustion	4
AME 577	Survey of Energy and Power for a Sustainable Future	3
AME 578	Modern Alternative Energy Conversion Devices	3
Approved energy conversion elective courses*	See approved list	10

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.

5-6	**TOTAL ELECTIVE UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE**
10	**TOTAL ELECTIVE UNITS REQUIRED FOR THE PROGRESSIVE GRADUATE DEGREE**

TOTAL UNIT COUNTS AND REQUIRED GRADUATE UNITS

27	**TOTAL UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE**
3	**TOTAL GRADUATE UNITS THAT MAY BE WAIVED (IF ANY)**
18	**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.

Energy conversion elective courses are chosen from list here: https://ame.usc.edu/academics/m-s-in-mechanical-engineering-energy-conversion/

Kelly Goulis	April 7, 2021
Authorizing Dean's Name	**Date Approved**

Senior Associate Dean, Viterbi School of Engineering

Authorizing Dean's Title