PROGRESSIVE DEGREE PROGRAM
COURSE PLAN TEMPLATE

USC SCHOOL	Viterbi School of Engineering
ACADEMIC DEPARTMENT	Mork Family Department
GRADUATE PROGRAM	Materials Science
POST CODE	491
TERM EFFECTIVE DATE	Spring 2021

PROGRAM DESCRIPTION
A brief description of the graduate program.

Students with an interest in the characterization, selection and processing of engineering materials, and in materials problems related to engineering design may work toward a MS in Materials Science.

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 & Mechanical Engineering	Chemical Engineering

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
MASC 110L	Materials Science	Recommended	4
MASC 310	Materials Behavior and Processing	Recommended	4
MASC 350	Nanostructured Materials: Design, Synthesis, and Processing	Recommended	4
CHE 475	Physical Properties of Polymers	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
CHE 475	Physical Properties of Polymers	4
MASC 455	Computational Materials I: Introduction to Atomistic Simulation	4
MASC 456	Computational Materials II: Properties and Processing Simulations	4
MASC 483	Machine Learning	4
MASC 490	Directed Research	1-4

PROGRESSIVE DEGREE PROGRAM
COURSE PLAN TEMPLATE

CORE GRADUATE PROGRAM REQUIREMENTS (12 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
MASC/EE 471	Applied Quantum Mechanics for Engineers	4
MASC 501	Solid State	4
MASC 503	Thermodynamics of Materials	4
MASC 504	Diffusion and Phase Equilibria	4
MASC 505	Crystals and Anisotropy	3
MASC 520	Mathematical Methods for Deep Learning	4
MASC 551	Mechanical Behavior of Engineering Materials	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.

16	**TOTAL ELECTIVE UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE**
7	**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**
9	**TOTAL GRADUATE UNITS THAT MAY BE WAIVED (IF ANY)**
19	**MINIMUM NUMBER OF GRADUATE UNITS THAT MUST BE AT THE 500 LEVEL OR ABOVE**

PROGRESSIVE DEGREE PROGRAM
COURSE PLAN TEMPLATE

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.

Students are required to take 12 units from the core course list

Undergraduate courses used to reduce graduate units: Students can pick from UG course list but only 9 units can be applied to discount 28 unit total towards the PDP Materials Science degree.

Please refer to approved elective list from the MFD Student Affairs Office.

Kelly Goulis	7/8/2021
Authorizing Dean's Name	**Date Approved**

Senior Associate Dean, Viterbi School of Engineering

Authorizing Dean's Title