

**PROGRESSIVE DEGREE PROGRAM
COURSE PLAN TEMPLATE**

USC SCHOOL

Viterbi School of Engineering

ACADEMIC DEPARTMENT

Daniel J. Epstein Department of Industrial & Systems Engineering

GRADUATE PROGRAM

MS ISE (Industrial & Systems Engineering)

POST CODE

274

TERM EFFECTIVE DATE

Fall 2023

PROGRAM DESCRIPTION

A brief description of the graduate program.

The MSISE program is excellent preparation for industrial engineering program graduates who want to acquire substantial depth with respect to industrial engineering methods and the theory of the firm. This degree is also relevant if you are a graduate from another technical area and intend to leverage your existing skills toward the pursuit of responsibility for the profitability and growth of your organization.

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.

Industrial & Systems 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
ISE-225	Engineering Probability, Statistics	Required	
	Calculus I, Calculus II, Calculus III	Required	
ISE-460	Engineering Economy	Required	
	Linear Algebra	Required	

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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 (# 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
	Required courses	12
ISE-513	Inventory Systems	4
ISE-514	Advanced Planning & Scheduling	4
ISE-515	Engineering Project Management	4
	Select two courses from Group A, B or C	8
Group A		
ISE-530	Optimization Methods for Analytics	4
ISE-536	Linear Programming and Extensions	4
ISE-538	Performance Analysis Using Markov Models	4
ISE 539	Stochastic Elements of Simulation	4
ISE-580	Performance Analysis with Simulation	4
Group B		
ISE 506	Lean Operations	4
ISE-525	Design of Experiments	4
ISE-527	Quality Management for Engineers	4
ISE-583	Enterprise Wide Information Systems	4
Group C		
ISE-561	Economic Analysis for Engineering Projects	4
ISE-562	Decision Analysis	4
ISE-564	Performance Analysis	4
ISE-570	Human Factors in Engineering	4
	Minimum number of units required	20

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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.

<input type="text" value="4"/>	TOTAL ELECTIVE UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE
<input type="text" value="0"/>	TOTAL ELECTIVE UNITS REQUIRED FOR THE PROGRESSIVE GRADUATE DEGREE

TOTAL UNIT COUNTS AND REQUIRED GRADUATE UNITS

<input type="text" value="28"/>	TOTAL UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE
<input type="text" value="8"/>	TOTAL GRADUATE UNITS THAT MAY BE WAIVED (IF ANY)
<input type="text" value="20"/>	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.

Authorizing Dean's Name

Date Approved

Authorizing Dean's Title

**PROGRESSIVE DEGREE PROGRAM
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**Master's Degree – Industrial & Systems Engineering
Progressive Degree Option**

The MS in Industrial & Systems Engineering (MSISE) program is designed for engineers and related technical professionals aspiring to achieve the highest levels of responsibility and leadership in the workplace. As an MSISE student, you will be broadly educated in all aspects of technical enterprises.

The MSISE program is excellent preparation for industrial engineering program graduates who want to acquire substantial depth with respect to industrial engineering methods and the theory of the firm. This degree is also relevant if you are a graduate from another technical area and intend to leverage your existing skills toward the pursuit of responsibility for the profitability and growth of your organization.

Required Courses (12 units)

ISE 513 Inventory Systems Units: 4
ISE 514 Advanced Production Planning and Scheduling Units: 4
ISE 515 Engineering Project Management Units: 4

Select two courses from Group A, B or C (8 units)

Group A

ISE 530 Optimization Methods for Analytics Units: 4
ISE 536 Linear Programming and Extensions Units: 4
ISE 538 Performance Analysis Using Markov Models Units: 4
ISE 539 Stochastic Elements of Simulation Units: 4
ISE 580 Performance Analysis with Simulation Units: 4

Group B

ISE 506 Lean Operations Units: 4
ISE 525 Design of Experiments Units: 4
ISE 527 Quality Management for Engineers Units: 4
ISE 583 Enterprise Wide Information Systems Units: 4

Group C

ISE 561 Economic Analysis for Engineering Projects Units: 4
ISE 562 Decision Analysis Units: 4
ISE 564 Performance Analysis Units: 4
ISE 570 Human Factors in Engineering Units: 4

***Minimum Number of Units Required for the PDP degree: 20**