

**PROGRESSIVE DEGREE PROGRAM
COURSE PLAN TEMPLATE**

USC SCHOOL	Viterbi School of Engineering
ACADEMIC DEPARTMENT	Sonny Astani Department of Civil and Environmental Engineering
GRADUATE PROGRAM	Master of Science in Transportation System Management
POST CODE	1725
TERM EFFECTIVE DATE	Spring 2021

PROGRAM DESCRIPTION

A brief description of the graduate program.

<p>The program prepares students for professional employment in transportation planning agencies, firms, and nonprofit organizations. The program is designed as a terminal professional degree.</p> <p>The program core provides students with a broad basis for understanding transportation systems and needs. A required specialization provides particular depth in a focused aspect of transportation systems relating to a particular set of methods or problem domain.</p>
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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.

<p>Any BS or BA degree offered by the University of Southern California. The program is especially intended for students with undergraduate backgrounds in applied social science, science, technology, and some design fields such as architecture; but USC students from other undergraduate fields can be accommodated so long as they have a sufficiently analytical background and perspective. Students with undergraduate engineering degrees are admissible, but are normally advised to consider the MSCE degree instead the MSTSM degree.</p>

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
	One course in probability and/or statistics	Recommended	At least 3 units

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	

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CORE GRADUATE PROGRAM REQUIREMENTS (14-15 units required)

A list of all required graduate courses for the graduate program core. 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
SAE 515 or SAE 541, or SAE 549	Any one of: Sustainable Infrastructure Systems or Systems Engineering Theory and Practice or Systems Architecting	3
CE 502 or ISE 500	Either: Functions of the Constructor or Statistics for Engineering Managers	4 or 3
SSCI 581	Concepts for Spatial Thinking	4
CE 582, or CE 584 or CE 585 or CE 589	Any one of: Transportation System Security and Emergency Management or Intelligent Transportation Systems or Traffic Engineering and Control or Port Engineering: Planning and Operations	4

SPECIALIZATION IN DATA INFORMATICS (8 units required)

A list of all required graduate courses for the graduate program specialization option in data informatics. None of these courses may be used toward satisfying undergraduate degree requirements.

Dept. Prefix - Course #	Course Title	Units
INF 510	Principles of Programming for Informatics	4
INF 549	Introduction to Computational Thinking and Data Science	4

SPECIALIZATION IN GEOGRAPHIC INFORMATION SYSTEMS (8 units required)

A list of all required graduate courses for the graduate program specialization option in data informatics. None of these courses may be used toward satisfying undergraduate degree requirements.

Dept. Prefix - Course #	Course Title	Units
SSCI 582	Spatial Databases	4
SSCI 574 or SSCI 575 or SSCI 583 or SSCI 591	Any one of: Spatial Econometrics or Spatial Data Science or Spatial Analysis or SSCI 591: Web GIS	4

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SPECIALIZATION IN INFRASTRUCTURE SYSTEMS (7-8 units required)

A list of all required graduate courses for the graduate program specialization option in infrastructure systems. None of these courses may be used toward satisfying undergraduate degree requirements.

Dept. Prefix - Course #	Course Title	Units
CE 583	Design of Transportation Facilities	4
CE 582 or CE 584 or CE 585 or CE 586 or CE 588 or CE 589	Any one of: Transportation System Security and Emergency Management or Intelligent Transportation Systems or Traffic Engineering and Control or Modeling Transportation Network Supply and Demand or Railroad engineering or Port Engineering: Planning and Operations	4 or 4 or 3 or 4 or 3 or 4

SPECIALIZATION IN SYSTEMS ARCHITECTING (9 units required)

A list of all required graduate courses for the graduate program specialization option in data informatics. None of these courses may be used toward satisfying undergraduate degree requirements.

Dept. Prefix - Course #	Course Title	Units
SAE 560	Economic Considerations for Systems Engineering	3
SAE 515 or SAE 541 or SAE 547 or SAE 548 or SAE 548	Any two of: Sustainable Infrastructure Systems or Systems Engineering Theory and Practice or Model-Based Systems Architecting and Engineering or Systems/System-of-Systems Integration and Communication or Systems Architecting	6

SPECIALIZATION IN TRANSPORTATION PLANNING (8 units required)

A list of all required graduate courses for the graduate program specialization option in data informatics. None of these courses may be used toward satisfying undergraduate degree requirements.

Dept. Prefix - Course #	Course Title	Units
PPD/CE 633	Methods and Modeling Tools for Transportation Planning	4
PPD/CE 634	Institutional and Policy Issues in Transportation	4

PRE-APPROVED ELECTIVE COURSEWORK (SPECIALIZATION OPTIONS)

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.

11-12	TOTAL ELECTIVE UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE
7-9	TOTAL ELECTIVE UNITS REQUIRED FOR THE PROGRESSIVE GRADUATE DEGREE

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TOTAL UNIT COUNTS AND REQUIRED GRADUATE UNITS

32-35	TOTAL UNITS REQUIRED FOR THE TRADITIONAL GRADUATE DEGREE
10-11	TOTAL GRADUATE UNITS THAT MAY BE WAIVED (IF ANY)
22-24	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.

A 15-unit version of the core must be completed if a student elects the 7-unit version of specialization in infrastructure systems.

Some courses may satisfy either a core requirement of a specialization requirement. A single course may not be used to satisfy both requirements simultaneously.

Kelly Goulis

Authorizing Dean's Name

April 27, 2021

Date Approved

Senior Associate Dean, Viterbi School of Engineering

Authorizing Dean's Title