

Spring 2025 Course List for Astani Master's Students

### **General Reminders**

- A minimum of a 3.0 GPA must be maintained to be in good academic standing and to be eligible to graduate
- Most courses are 2-unit or 4-units. Occasionally a 3-unit course exists as an elective option. Taking a 3unit class can result in a student needing to take more than the minimum number of units needed to graduate.
- At least two-thirds of your coursework must be at the 500-level or higher.

This is not a comprehensive list of requirements. Review the <u>USC Catalogue</u> for Official Degree Requirements

# Students working full-time should only enroll in <u>4 units</u>. Please reach out to your advisor on the <u>Advise USC</u> <u>platform</u> if you have any additional questions.

Please direct advisor questions to on the <u>Advise USC platform</u>. Due to the high number of requests at this time, it may take up to 3 business days to receive a response. Refrain from following up on an email as that will delay response time.

## MS Sustainable Engineering 28 Unit Minimum

Please enroll in the required courses unless you have completed them in a prior semester. If required courses have been completed, please enroll in the appropriate number of electives to reach the 8 units required to maintain full-time enrollment.

Please Enroll

• ENE 505: Energy and the Environment (4 units)

Energy and Power Systems Emphasis

- AME 513b: Fundamentals and Applications of Combustion (4 units)
- AME 577: Survey of Energy and Power for a Sustainable Future (4 units)
- EE 443: Introduction to Power Systems (4 units)
- EE 521: Power Systems Analysis and Design (4 units)
- EE 526: Renewable Energy in Power Systems (4 units)

#### Buildings and Infrastructure Emphasis

- CE 576: Invention and Technology Development (3 units)
- ENE 428: Air Pollution Fundamentals (4 units)
- ARCH 519: Sustainability in the Environment: Infrastructures, Urban Landscapes, and Buildings (3 units)
- SAE 515: Sustainable Infrastructure Systems (4 units)



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#### Fate of Pollutions Emphasis

- ENE 512: Environmental Fluid Mechanics (4 units)
- ENE 535: Applied Air Quality Control (4 units)
- GEOL 515: Introduction to Atmospheric Science (3 units)

If required courses have been completed, choose any approved electives below.

**Technical Electives** 

• CHE 455: Sustainable Materials (4 units)

#### Policy, Economics, Governance, and Innovation Electives

- ENE 502: Environmental and Regulatory Compliance (4 units)
- ISE 501: Innovative Conceptual Design for New Product Development (4 units)
- ISE 585: Strategic Management of Technology and Innovation (4 units)

#### Methods Focused Electives

- CE 505: Data Management for Civil and Environmental Engineering (2 units)
- CE 532: Data Analytics in Civil Engineering (2 units)
- CE 568: Fundamental Concepts of Computing and Programming in Civil and Environmental Engineering (2 units)
- ISE 529: Predictive Analytics (4 units)
- ISE 535: Data Mining (4 units)
- ISE 562: Decision Analysis (4 units)
- ISE 568: Machine Learning (4 units)
- MASC 515: Basics of Machine Learning for Materials (4 units)
- MASC 520: Mathematical Methods for Deep Learning (4 units)