

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)