ADVANCED MANUFACTURING FOR ENERGY SYSTEMS (AMES)

AMES 5101. Engineering Analysis. (3 Credits)
Advanced math topics including Laplace, Fourier and z-Transform methods, probability theory, ordinary differential equations and systems of ODEs, partial differential equations, vector calculus, elements of statistics, linear and non-linear optimization, matrix theory, and special functions like Bessel, Legendre, and gamma. This course is set up as modules. Students will be required to complete certain modules depending on their background and concentrations.
Enrollment Requirements: Open to graduate students only.
View Classes (https://catalog.uconn.edu/course-search/?details&code=AMES%205101)

AMES 5111. Computer Aided Engineering. (3 Credits)
Introduction to computational methods in design and analysis of materials, processes, and systems related to advanced manufacturing and energy systems. Topics covered include computational materials, process simulation, computational fluid dynamics, finite element analysis, and manufacturing process simulation.
Enrollment Requirements: Open to graduate students only.
View Classes (https://catalog.uconn.edu/course-search/?details&code=AMES%205111)

AMES 5121. Engineering Communication. (3 Credits)
Development of the advanced communication skills as well as the information management required of engineers and engineering managers in industry, government and business. Focus on the design and writing of technical reports, articles, proposals, and the memoranda that address the needs of diverse organizational and professional audiences; the preparation and delivery of organizational and technical oral and multimedia presentations and briefings; team building skills with an emphasis on communications; and knowledge management.
Enrollment Requirements: Open to graduate students only.
View Classes (https://catalog.uconn.edu/course-search/?details&code=AMES%205121)

AMES 5420. Introduction to Smart and Green Manufacturing. (3 Credits)
Introduction to foundational concepts and methods of smart manufacturing and green manufacturing. Discusses the impacts of smart technologies and initiatives such as Industry 4.0 in Europe, National Network of Manufacturing Innovation Institutes established in the U.S., and Made-in-China 2025 on manufacturing. Includes the architecture of smart manufacturing, sensing technology, internet-of-things, cloud manufacturing/manufacturing as a service, basic data analytics for diagnosis and prognosis in manufacturing. Covers fundamental issues in green manufacturing, such as the metrics, principles, and societal/business/policy impacts, as well as fundamental methods such as lifecycle assessment and sustainability assessment of manufacturing.
Enrollment Requirements: Open to graduate students only.
View Classes (https://catalog.uconn.edu/course-search/?details&code=AMES%205420)

AMES 5895. Special Topics in Advanced Manufacturing for Energy Systems. (1-4 Credits)
Classroom and/or laboratory courses in special topics as announced in advance for each semester. The field of study or investigation is to be approved by the Program Director before announcement of the course.
Enrollment Requirements: Instructor consent.
May be repeated for a total of 12 credits
View Classes (https://catalog.uconn.edu/course-search/?details&code=AMES%205895)