ADVANCED SYSTEMS ENGINEERING (GRADUATE CERTIFICATE)

The Pratt and Whitney Institute for Advanced Systems Engineering offers a 12-credit fully online certificate program to train engineers in urgently needed cyberphysical systems (CPS) related disciplines that are pivotal to innovation and product enhancement in the globally competitive economy. The certificate program builds competency in analytical systems engineering related to system modeling, uncertainty analysis, and robust design of physical, embedded, and control systems. The program teaches requirements development and analysis, systems architecting, model-based system engineering methods, physics-based modeling and analysis, machine learning, data science, decision-making, optimization, verification and validation of engineered systems.

Required Courses

Course	Title	Credits
Introductory Course		
SE 5000	Introduction to Systems Engineering	3
or SE 5001	Model-Based Systems Engineering	
Required Electives		
Nine credits chosen in consultation with the student's major advisor from:		9
SE 5101	Foundations of Physical Systems Modeling	
SE 5201	Embedded/Networked Systems Modeling Abstractions	
SE 5102	Uncertainty Analysis, Robust Design, and Optimization	
SE 5202	Foundations of Control	
SE 5302		
SE 5402	Architecture of Internet of Things	
SE 5702	Data Science for Materials and Manufacturing	
SE 5095	Special Topics	
SE 5502	Capstone Projects for Systems Engineering	
SE 5602	Machine Learning for Physical Sciences and Systems	

Students may take both SE 5000 and SE 5001 and one course will count as a required elective.

This certificate is offered by the College of Engineering (https://engineering.uconn.edu/).