



Master of Engineering in Systems Engineering Preparatory, Core, and Elective Courses

The Master of Engineering in Systems Engineering degree will be awarded upon successful completion of the 36-credit curriculum below, and successful completion of the SARI Requirement. The courses are not listed in sequential order. **Note: The capstone course, SYSEN 594, is only offered during Fall semesters and is to be taken at or near the end of all coursework.**

The courses listed below are for students who started the Systems Engineering Program in SUMMER 2019 or EARLIER.

15-Credit Core Curriculum			
Course #	Course Titles	Semester	Grade
SYSEN 510	Engineering Analysis I		
SYSEN 520	Systems Engineering		
SYSEN 531 <i>OR</i> SYSEN 532	Probabilistic Modeling and Simulation <i>OR</i> Simulation in Systems Engineering – Discrete Time Systems		
SYSEN 533 <i>OR</i> SYSEN 534	Deterministic Modeling and Simulation <i>OR</i> Simulation in Systems Engr. – Continuous Time Systems		
SYSEN 550	Creativity and Problem Solving I		
18-Credit Elective Curriculum			
Course #	Course Titles	Semester	Grade
Required 3-Credit Capstone Course (to be taken near end of the program) *Capstone course is only offered in Fall Semesters. Choose one of the following:			
SYSEN 594	Masters Research Paper - A 3-credit professional paper <i>OR</i>		
SYSEN 594	Advanced Systems Engineering Studio - Under general direction of faculty, students work on a systems project individually or in teams.		
Required SARI Program (Scholarship and Research Integrity)			
	SARI (Scholarship and Research Integrity) Program	Semester Completed	

Course Descriptions/Prerequisites - Do not check course descriptions from the registration web page. Please check course descriptions at: <http://greatvalley.psu.edu/academics/masters-degrees/systems-engineering>.

Questions & Advising - Students should contact their assigned faculty advisors with any questions or for advice on elective selections. Students should email questions and requests for approved course substitutions to EngHelp@psu.edu.

All course work toward the master's degree program in Systems Engineering must be completed within eight years of admission to the program. Students must maintain a minimum grade point average of 3.0 (B) throughout the program.

Master of Engineering in Systems Engineering ~ Elective Courses

Students select six elective courses from the advising sheet.

Elective Courses	
Course #	Course Title
AE 862	Distributed Energy Planning and Management
DAAN 871	Data Visualization for Analytics
EA 871	Enterprise Architecture Fundamentals I
ENGMT 501	Engineering Management Science
ENGMT 510	Economics and Financial Studies for Engineers
ENGMT 511	Engineering for Energy and the Environment
ENGMT 530	Engineering Law
ENGMT 841	Application of Statistics in Quality and Continuous Improvement in Engineering
IE 532	Reliability Engineering
IE 575	Foundations of Predictive Analytics (<i>Prerequisite: STAT 500</i>)
IN SC 525	Applied Data Mining
STAT 500	Applied Statistics
STS 589	Ethics and Values in Science and Technology
SWENG 497	Special Topics: Agile Processes
SWENG 545	Data Mining
SWENG 582	Real-Time Software Design and Analysis
SWENG 584	Genetic Algorithms
SWENG 586	Requirements Engineering
SWENG 587	Software Systems Architecture
SYSEN 497	Special Topics: Wireless Positioning
SYSEN 505	Technical Project Management
SYSEN 507	Systems Thinking
SYSEN 522	Special Topics: Systems Integration, Verification, and Validation
SYSEN 530	Systems Optimization
SYSEN 536	Decision and Risk Analysis in Engineering
SYSEN 552	Creativity and Problem Solving II
SYSEN 554	Problem Solving Leadership
SYSEN 555	Invention and Creative Design (<i>Taking SYSEN 550 prior to SYSEN 555 is recommended but not required currently</i>)
SYSEN 597	Special Topics: Advanced Quality Control Techniques
SYSEN 597	Special Topics: Engineering Systems Modeling
SYSEN 597	Special Topics: Model Based Systems Engineering