

## Master of Engineering in Systems Engineering (MENG in SYSEN) Required and Elective Courses

The Master of Engineering in Systems Engineering degree will be awarded upon successful completion of the 36-credit program, and completion of [SARI](#).<sup>\*</sup> The courses are not listed in sequential order. All module course work is subject to change as new courses are developed or renumbered.

**The capstone course, SYSEN 594, is to be taken at or near the end of all coursework.**

***The courses below are for students who start the Master of Systems Engineering in FALL 2024 or LATER.***

**If you have any questions throughout your studies, please email [EngHelp@psu.edu](mailto:EngHelp@psu.edu).**

18-Credit Required Curriculum				
Course #	Course Titles	Campus	Semester	Grade
SYSEN 520	Systems Engineering	WC		
SYSEN 522	Systems Verification, Validation and Testing	WC		
SYSEN 532	Simulation in Systems Engineering: Discrete-Time Systems	WC		
SYSEN 534	Simulation in Systems Engineering: Continuous-Time Systems	WC		
SYSEN 880	Systems Architecture and Models	WC		
SWENG 886	Requirements Engineering ( <i>Formerly SWENG 586</i> )	Great Valley		
15-Credit Elective Curriculum				
Course #	Course Titles	Campus	Semester	Grade
3-Credit Required Capstone (to be taken near end of the program)				
<i>Email <a href="mailto:EngHelp@psu.edu">EngHelp@psu.edu</a> for availability</i>				
SYSEN 594	<b>Master's Research Paper</b> -A 3-credit Professional Paper <b>OR</b> <b>Advanced Systems Engineering Studio</b> - Under general direction of faculty, students work on a systems project individually or in teams	Great Valley		
SARI Requirement				
Scholarship and Research Integrity				
<a href="#">SARI</a>	Scholarship and Research Integrity Program			

**\*NOTE: Students must maintain a minimum grade point average of 3.0 (B) throughout the program. A 3.0 cumulative GPA is required to graduate. All course work toward the Master of Engineering in Systems Engineering degree must be completed within eight years of admission to the program.**

**Questions & Advising - Students should contact their assigned faculty advisors with any questions or for advice on course selection. Students considering taking online classes must get approval from their academic advisor before requesting enrollment through [EngHelp@psu.edu](mailto:EngHelp@psu.edu).**

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### Program Electives

#### 15-Credit Electives (*Choose 5 courses from the following*)

Data Analytics	
STAT 500	Applied Statistics
DAAN 871	Data Visualization for Analytics
IE 575	Foundations of Predictive Analytics ( <i>Prerequisite: STAT 500</i> )
DAAN 846	Network and Predictive Analytics for Socio-Technical Systems
DAAN 881	Data-Driven Decision Making ( <i>Prerequisite: STAT 500. DAAN 501 is NOT a prerequisite</i> )
Cyber Threat Analytics and Prevention	
INSC 831	Contemporary Information Systems Architecture
DAAN 846	Network and Predictive Analytics for Socio-Technical Systems
DAAN 871	Data Visualization for Analytics
Technical Management	
SYSEN 507	Systems Thinking ( <i>offered online only</i> )
SYSEN 805	Technical Project Management ( <i>Previously SYSEN 505</i> )
SYSEN 850	Creativity and Problem Solving 1 ( <i>Previously SYSEN 550. Offered online only</i> )
SYSEN 552	Creativity and Problem Solving II ( <i>Prerequisite: SYSEN 850. Offered online only</i> )
STS 589	Ethics and Values in Science and Technology ( <i>offered online only</i> )
SYSEN 555	Invention and Creative Design ( <i>Recommended: SYSEN 850 before taking SYSEN 555</i> )
Quantitative Decision-Making for Engineering Managers	
ENGMT 501	Engineering Management Science
ENGMT 510	Economics and Financial Studies for Engineers
SYSEN 536	Decision and Risk Analysis in Engineering
Quality Management Across Product Life Cycle	
STAT 500	Applied Statistics
ENGMT 520	Systems Optimization ( <i>Previously SYSEN 530. Offered online only</i> )
ENGMT 841	Application of Statistics in Quality and Continuous Improvement in Engineering
Foundations of Artificial Intelligence	
AI 801	Foundations of Artificial Intelligence
STAT 500	Applied Statistics
IE 575	Foundations of Predictive Analytics ( <i>Prerequisite: STAT 500</i> )
DAAN 862	Analytics Programming in Python