

# SYSTEM MODELING AND ANALYSIS GRADUATE CREDIT CERTIFICATE PROGRAM

<b>Person-in-Charge</b>	Raghu Sangwan
<b>Program Code</b>	MENGSM
<b>Campus(es)</b>	Great Valley World Campus

The Graduate Certificate in System Modeling and Analysis is a program for students who aim to pursue a career as a System Analyst, Systems Test Engineer, or System Engineer where skills will include responsibilities including being responsible for designing, building, maintaining models for system analysis and optimization, building models for system verification and testing, or development and documentation of technical aspects of system in any life cycle phase (concept, design, implementation, operation, maintenance).

Courses taken in the certificate program may be applied toward a master's degree in Systems Engineering, subject to restrictions outlined in GCAC-309 Transfer Credit (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/gcac-309-transfer-credit/>). Certificate students who wish to have certificate courses applied towards a graduate degree must apply and be admitted to that degree program. Admission to the graduate degree program is a separate step and is not guaranteed.

**Effective Semester:** Spring 2024  
**Expiration Semester:** Spring 2029

## Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (<https://gradschool.psu.edu/graduate-admissions/how-to-apply/>). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (<https://gradschool.psu.edu/graduate-education-policies/>). International applicants may be required to satisfy an English proficiency requirement; see GCAC-305 Admission Requirements for International Students (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/gcac-305-admission-requirements-international-students/>) for more information.

1. The successful applicant is generally expected to have a minimum combined junior/senior grade-point average of 3.0 (B) on a 4.0 scale.
2. Courses taken in the certificate program may be applied toward Master of Systems Engineering degree, subject to restrictions outlined in GCAC-309 Transfer Credit (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-300/gcac-309-transfer-credit/>). Certificate students who wish to have certificate courses applied towards the Master of Systems Engineering must apply and be admitted to that degree program. Admission to the Master of Software Engineering graduate degree program is a separate step and is not guaranteed.

## Certificate Requirements

Requirements listed here are in addition to requirements listed in Graduate Council policy GCAC-212 Postbaccalaureate Credit Certificate Programs (<https://gradschool.psu.edu/graduate-education-policies/>).

[gcac/gcac-200/gcac-212-postbaccalaureate-credit-certificate-programs/](https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-212-postbaccalaureate-credit-certificate-programs/)).

Code	Title	Credits
<b>Required Courses</b>		
SYSEN 532	Simulation in Systems Engineering: Discrete-Time Systems	3
SYSEN 534	Simulation in Systems Engineering: Continuous-Time Systems	3
SYSEN 880	Systems Architecture and Models	3
<b>Total Credits</b>		<b>9</b>

All courses must be completed with a minimum grade of C or better and an overall GPA of 3.0.

## Courses

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

## Learning Outcomes

1. **APPLY/CREATE:** Use system simulation modeling for multi-level system analysis of complex systems and for identification of optimal solution alternatives
2. **APPLY/CREATE:** Apply model-based system engineering practices for design, architecting, and engineering of systems

## Contact

<b>Campus</b>	Great Valley
<b>Graduate Program Head</b>	Raghu Sangwan
<b>Director of Graduate Studies (DGS) or Professor-in-Charge (PIC)</b>	Raghu Sangwan
<b>Program Contact</b>	MICHELLE WHALEN 30 E. Swedesford Rd. Malvern PA 19355 mmw6441@psu.edu
<b>Campus</b>	World Campus
<b>Graduate Program Head</b>	Raghu Sangwan
<b>Director of Graduate Studies (DGS) or Professor-in-Charge (PIC)</b>	Nil Hande Ergin
<b>Program Contact</b>	MICHELLE WHALEN 30 E. Swedesford Rd. Malvern PA 19355 mmw6441@psu.edu