Doctor of Philosophy
in Systems Engineering

Information Session
Wednesday, June 7, 2023

Classes Begin
August 2023

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Professor of Engineering Management and Systems Engineering

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Professor of Engineering Management and Systems Engineering
Information Session Agenda

✓ Overview of The George Washington University

✓ Doctor of Philosophy (Ph.D.) Program
  • Program Overview
  • Academic Requirements
  • Application Information

✓ Q & A Session
The George Washington University

- Chartered in 1821 by an Act of Congress
- 10 colleges and schools, including the School of Engineering & Applied Science
- More than 15,000 graduate students
- Alumni network of over 300,000 living alumni in over 130 countries
- Accredited by the Middle States Commission on Higher Education
- GW’s Online Graduate Engineering Masters Programs ranked #12 by US News
Our Online Engineering Programs

• We offer 6 Masters and 4 Doctoral degrees fully online. The online degrees are identical to their on-campus equivalents.

• Online classes meet synchronously via Zoom and are recorded for viewing throughout the semester

• Supported by Blackboard, GW’s web-based course management software

• Exams are taken through a secure testing platform
Doctor of Philosophy
Systems Engineering

The doctor of philosophy in systems engineering provides advanced knowledge on the theory and applications of systems engineering methods to efficiently design, implement, and manage large-scale systems throughout the life cycle. Graduates will demonstrate mastery of broad-based knowledge in systems engineering, and a specific area of relevant to their own research. They will develop and present an original study to the scholarly community that is based on research in primary sources and that makes a significant contribution to the field.
Program Overview

- Classroom Phase (24 credit hours)
  - 8 graduate-level, 3-credit-hour courses
  - Submission to present at an Engineering Professional Society Conference

- Research Phase (30 credit hours)
  - Research findings must be accepted for publication in an approved archival journal
  - Dissertation defense

- Program Starts: August 2023
- Target Graduation Date: May 2026
## Curriculum

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>EMSE 6420</td>
<td>Uncertainty Analysis in Cost Engineering</td>
<td>3 credits</td>
</tr>
<tr>
<td>EMSE 6760</td>
<td>Discrete Systems Simulation</td>
<td>3 credits</td>
</tr>
<tr>
<td>EMSE 6765</td>
<td>Data Analysis for Engineers and Scientists</td>
<td>3 credits</td>
</tr>
<tr>
<td>EMSE 6807</td>
<td>Advanced Systems Engineering</td>
<td>3 credits</td>
</tr>
<tr>
<td>EMSE 6817</td>
<td>Model Based Systems Engineering</td>
<td>3 credits</td>
</tr>
<tr>
<td>EMSE 6848</td>
<td>Systems of Systems</td>
<td>3 credits</td>
</tr>
<tr>
<td>EMSE 6850</td>
<td>Quantitative Models in Systems Engineering</td>
<td>3 credits</td>
</tr>
<tr>
<td>EMSE 8000</td>
<td>Research Formulation in Systems Engineering</td>
<td>3 credits</td>
</tr>
<tr>
<td>EMSE 8999</td>
<td>Dissertation Research</td>
<td>30 credits</td>
</tr>
</tbody>
</table>

Schedules, regulations and policies subject to change; course substitution in the curriculum is usual and should be expected.
# Calendar

<table>
<thead>
<tr>
<th>Semester</th>
<th>Session</th>
<th># Courses</th>
<th># Credit Hours</th>
<th>Session Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2023</td>
<td>First</td>
<td>2</td>
<td>6</td>
<td>August 12 — October 14, 2023</td>
</tr>
<tr>
<td></td>
<td>Second</td>
<td>2</td>
<td>6</td>
<td>October 28 — January 20, 2024</td>
</tr>
<tr>
<td>Spring 2024</td>
<td>First</td>
<td>2</td>
<td>6</td>
<td>February 3 — April 6, 2024</td>
</tr>
<tr>
<td></td>
<td>Second</td>
<td>2</td>
<td>6</td>
<td>April 20 – June 29, 2024</td>
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</table>

No classes on Thanksgiving, Christmas, New Year, and Memorial Day Weekends

- Each session consists of 10 class meetings on Saturdays:
  - Morning Class 9:00a-12:00p (Eastern)
  - Afternoon Class 1:00p-4:00p (Eastern)
Ph.D. Research Phase

- After completion of the classroom phase with a GPA of 3.4 or higher, and no grade below B-, students begin dissertation research.
- Research courses consist of a minimum half-hour individual meetings scheduled by your advisors.

Research course EMSE 8999 Dissertation Research Schedule

- Session I: Summer 2024, 3 credit hours
- Session II: Fall 2024, 6 credit hours
- Session III: Spring 2025, 6 credit hours
- Session IV: Summer 2025, 3 credit hours
- Session V: Fall 2025, 6 credit hours
- Session VI: Spring 2026, 6 credit hours

- More than 30 credit hours of EMSE 8999 may be approved, depending on the candidate’s progress; approved candidates will be registered for the standard number of credit hours per semester of extension (3 credits in Summer, 6 credits in Fall or Spring).

<table>
<thead>
<tr>
<th>Grade</th>
<th>GPA Pts</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>4</td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>3</td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
</tr>
</tbody>
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Candidates who do not successfully complete the requirements within five years (by August 2028) will be awarded a Professional Degree Program.
Admissions Requirements

- Minimum of bachelor’s and master’s degrees in engineering, computer science, mathematics, physics or a closely related field from accredited institutions
- A graduate level GPA of 3.5 or higher
- A minimum of two college-level calculus courses passed with grades of B- or better
- Capacity for original scholarship
Application Process

Online Application Form, available at:

https://seasonline.gwu.edu/apply/phd-se/

Official Academic Transcripts:

• Send Electronic Transcripts to seasdeng@gwu.edu

• Send Paper Transcripts to Online Engineering Programs Office
  The George Washington University
  170 Newport Center Drive, Suite 260
  Newport Beach, CA 92660

All submitted materials remain property of Online Engineering Programs. All Official Transcripts must be sent directly from the institution.
Application Deadline:

JUNE 30, 2023
Admitted Students

• Admission decisions are communicated via email.
• Admitted applicants must return a reply card and a non-refundable tuition deposit of $995 (applied to the first session’s tuition) in order to secure their slot in the cohort.
• Tuition is $1,625 per credit
Contact Information

Online Engineering Programs Office
Shahram Sarkani, Ph.D., P.E., Director
Thomas A. Mazzuchi, D.Sc., Co-Director

- **Admissions Team**
  - seasdeng@gwu.edu
  - Tel: 833-330-1454

- **Doctoral Administrative Team**
  - seasdoc@gwu.edu

- **Online Technical Support Team**
  - seasonline@gwu.edu
  - Tel: 202-422-2806
Answers to Frequently Asked Questions

• Ph.D. cohorts begin each Fall semester.

• Transfer credit is not allowed toward doctoral programs.

• Students should be expected to spend approximately 20 hours a week on coursework/research.
Any Questions?

To protect your privacy, questions regarding individuals’ specific application, degrees, background, or experience will not be answered during this Q&A session.
## Comparison of D.Eng. and Ph.D.

<table>
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<tr>
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<th><strong>Doctor of Engineering (D.Eng.)</strong></th>
<th><strong>Doctor of Philosophy (Ph.D.)</strong></th>
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| **Research Philosophy** | • Applied research  
• Solves a practical problem                                                                  | • Fundamental research  
• Contributes to literature in the field                                 |
| **Career Goal**       | • Technical Leadership  
• Industry Career Advancement  
• Teaching Oriented Faculty  | • Academic Career  
• Career in Industrial Research  
• Research Oriented Faculty                                                 |
| **Completion time**   | Scheduled Duration: 2 years                                                                      | Scheduled Duration: 3 years                                            |