THE GEORGE WASHINGTON UNIVERSITY
WASHINGTON, DC

Doctor of Engineering
Doctor of Philosophy

Classes Begin August 2019

Shahram Sarkani, Ph.D., P.E.
Professor of Engineering Management & Systems Engineering
Academic Director & Faculty Advisor, SEAS/EMSE Online & Off-Campus Programs
April 25th, 2019
Information Session Agenda

✓ Overview of George Washington University

✓ D.Eng. and Ph.D. Programs
  • Program Overview
  • Grading and Scholarship Requirements
  • Application Information

✓ Q & A Session
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 275,000 in 134 countries
- Accredited by the Middle States Commission on Higher Education
Our Online Programs

→ Instructors, course content, and degree conferred are identical to the main campus programs
→ Class meet by synchronous distance learning technology (WebEx)
→ Supported by Blackboard, GW’s web-based course management software
→ Exams are taken through a secure testing platform, RPNow
→ Classes are recorded for during the session for future review if needed
→ Required textbooks and software are provided at no additional charge and sent to students before the start of each course
Doctor of Engineering
D.Eng. Field of Study
Engineering Management

• Bridges the gap between engineering and management. EM enables engineers to work most effectively in the business environment. A degree in EM provides a technical-based alternative to traditional business programs. Candidates specialize in such areas as management of technology, product and process, quality, organizational management, operations management, program management, marketing and finance.
**Doctor of Engineering**

- 45 credit hours (minimum)
- Classroom Phase
  - 10 graduate-level, 3-credit-hour courses
- Research Phase
  - Minimum 15 credit hours of praxis development
  - Praxis defense
- Program Begins
  - August 2019
- Planned Program Completion
  - August 2021
D.Eng. Classroom Phase

- 2 courses per session
- Each session is 10 weeks long
- Classes meet Saturdays
  - Morning Class from 9:00a-12:00p (Eastern)
  - Afternoon Class from 1:00p-4:00p (Eastern)

<table>
<thead>
<tr>
<th>Session</th>
<th># Courses</th>
<th># Credits</th>
<th>Approximate Timeframe</th>
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<tbody>
<tr>
<td>Fall-1 2019</td>
<td>2</td>
<td>6</td>
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<td>6</td>
<td>March 21 – May 23</td>
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<tr>
<td>Summer 2020</td>
<td>2</td>
<td>6</td>
<td>May 30 – August 8</td>
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D.Eng. Classroom Phase
Proposed Curriculum

- EMSE 6025  Entrepreneurship and Technology
- EMSE 6115  Uncertainty Analysis for Engineers
- EMSE 6760  Discrete Systems Simulation
- EMSE 6765  Data Analysis for Engineers and Scientists
- EMSE 6790  Logistics Planning
- EMSE 6850  Quantitative Models in Systems Engineering
- EMSE 6992  Special Topic: Machine Learning
- EMSE 8030  Risk Management Process for the Engineering Manager
- EMSE 8099  Survey of Research Formulation for Engineering Management
- EMSE 8100  The Praxis Proposal

Schedules, regulations and policies subject to change; course substitution in the curriculum is usual and should be expected.
D.Eng. Research Phase

• After completion of the classroom phase with a GPA of 3.2 or higher, and no grade below B-, students begin praxis research.
  • During this stage, students will develop and defend praxis
  • Praxis defenses are scheduled for the end of the final semester of research
  • Minimum half-hour individual research meetings on Saturdays each month, typically scheduled 8:30a-3:00p

• Research course EMSE 8199 Praxis Research
  • Session I: Fall 2020, 6 credit hours
  • Session II: Spring 2021, 6 credit hours
  • Session III: Summer 2021, 3 credit hours
  • A single semester extension through Fall 2021 (6 credit hours) may be granted.
    • Students approved for an extension semester who do not successfully defend their praxis after a second attempt in Fall 2021 will have the option to have their work transferred a Professional degree (Degree of Engineer).
Praxis Research Areas

Sample Praxis Titles from Previously Published D.Eng. Praxis Papers

• A Technology Maturity Assessment of Sustainment-Dominated Systems under the Influence of Obsolescence
• Planning for the Influence of Emerging Disruptive Technologies on IT Systems
• A Generalized Approach to Measure and Predict Innovation Maturity Progression Aligned to Business Objectives
• Identifying and Overcoming Barriers to Cloud Adoption within the Government Space
Doctor of Philosophy
Ph.D. Field of Study
Systems Engineering

- Defined by INCOSE as “interdisciplinary approach and means to enable the realization of successful systems. Systems Engineering integrates all the disciplines and specialty groups into a team effort forming a structured development process that proceeds from concept to production to operation. Systems Engineering considers both the business and the technical needs of all customers with the goal of providing a quality product that meets the user needs.”
Doctor of Philosophy

• 54 credit hours (minimum)
• Classroom Phase
  • 8 graduate-level, 3-credit-hour courses
• Research Phase
  • At least 30 credit hours of dissertation research
  • Research Milestones
    • Qualifying Exam
    • Journal Article Publication
    • Dissertation defense
• Program Begins
  • August 2019
• Average completion time approximately 3-4 years
# Ph.D. Classroom Phase

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- 2 courses per session
- Each session is 10 weeks long
- Classes meet Saturdays
  - Morning Class from 9:00a-12:00p (Eastern)
  - Afternoon Class from 1:00p-4:00p (Eastern)
Ph.D. Classroom Phase Proposed Curriculum

- EMSE 6115  Uncertainty Analysis for Engineers
- EMSE 6760  Discrete Systems Simulation
- EMSE 6765  Data Analysis for Engineers and Scientists
- EMSE 6790  Logistics Planning
- EMSE 6807  Advanced Systems Engineering
- EMSE 6817  Model-Based Systems Engineering
- EMSE 6992  Special Topic: Machine Learning
- EMSE 8000  Research Formulation in Engineering Management and Systems Engineering

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

• Minimum half-hour individual research meetings typically scheduled weeknight evenings

• Research Course – EMSE 8999 Dissertation Research
  • 6 credit hours each Fall and Spring semester, 3 credit hours in Summer
  • Minimum 30 credit hours of EMSE 8999 required

• Students who do not successfully complete the requirements within five years (by December 2024) will have the option to have their work transferred a Professional degree (Degree of Engineer).
Dissertation Research Areas

Sample Titles from Previously Published Ph.D. Journal Articles


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<th>Field of Study</th>
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<th>Doctor of Philosophy (Ph.D.)</th>
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<td>Engineering Management</td>
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<td>Systems Engineering</td>
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<tr>
<td>Credit Hours</td>
<td>45 credit hours minimum</td>
<td>54 credit hours minimum</td>
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<tr>
<td>Completion time</td>
<td>Approximately 2 years (Maximum 2.5 years)</td>
<td>Minimum of 3 years (Maximum 5 years)</td>
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| Degree Requirements    | • Min 3.2 GPA in classroom phase | • Min 3.4 GPA in classroom phase |
|                       | • Praxis development and defense | • Qualifying Exam             |
|                       |                               | • Journal article publication |
|                       |                               | • Dissertation development and defense |

| Type of Research       | • Applied research            | • Fundamental research        |
|                       | • Solves a practical problem  | • Contributes to basic understanding of field |

| Minimum Admission Requirements (holistic approach to application file) | • Bachelor’s and master’s degrees in engineering, applied science, mathematics, computer science, business administration, information technology or related field from accredited institutions |
|                                                                      | • 3.2 GPA in graduate study |
|                                                                      | • 2 college-level calculus courses, ≥ B- |
|                                                                      | • 5 years relevant professional experience |

| Minimum Admission Requirements (holistic approach to application file) | • Bachelor’s and master’s degrees in engineering, applied science, mathematics, computer science, physics or a related technical field from accredited institutions |
|                                                                      | • 3.5 GPA in graduate study |
|                                                                      | • 2 college-level calculus courses, ≥ B- |
|                                                                      | • Demonstrated capacity for original scholarship |

Admission to EMSE-OOCP doctoral programs is competitive. Meeting the minimum requirements does not guarantee admission.
Doctoral Programs
Tuition & Fees

2019-2020 Academic Year:

$1,450 per credit

- $35 registration fee each semester
- Required textbooks and software are provided at no additional charge
Application Information
GW Application Process

Completed Application Packet includes:

- Online Application Form
- Current Resume
- Statement of Purpose (250 words or less)
- Official Academic Transcripts

Online application available at emse.offcampus.gwu.edu/apply-today

All submitted materials remain property of EMSEOOC.
GW Application Process

Academic Transcripts
Transcripts should be sent to seasdoc@gwu.edu (if sent electronically), or via mail to:

EMSE Online and Off-Campus Programs Office
The George Washington University
1 Old Oyster Point Rd., Ste 220
Newport News, VA 23602

*Transcripts must be sent directly from the institution.*
GW Application Process

Applications will be accepted until the cohorts are full.

• Applicants can only apply for either the D.Eng. or Ph.D. program. Dual applications will not be processed.

• Admission decisions are made on a rolling basis and communicated via email.

• Admitted applicants must complete and return a reply card and tuition deposit by the deadline provided in admission letter. Tuition deposit is applied to first semester tuition.
GW Contact Information

SEAS EMSE Online & Off-Campus Programs Office

- **Shahram Sarkani, Ph.D., P.E., Director & Academic Advisor**
  - sarkani@gwu.edu
- **Sara Noack, Assistant Director**
  - cohort@gwu.edu
  - Tel: 1-888-694-9627
  - Fax: 1-888-969-4851
- **Mayra De Laurentiis, Doctoral Programs Associate**
  - seasdoc@gwu.edu
  - Tel: 1-833-330-1454
- **Mark Griffith, Distance Learning Technologist**
  - seasonline@gwu.edu
  - Tel: 202-422-2806
Answers to Frequently Asked Questions

Questions regarding individuals’ specific application, degrees, background, or experience will not be answered during the Q&A session.

• D.Eng. cohorts typically begin each Spring and Fall semester.
• Ph.D. cohorts typically begin once a year.
• Typically, around 25 students are admitted to each cohort.
• Transfer credit is not allowed toward doctoral programs.
• Students should be expected to spend approximately 20 hours a week on coursework/research.
Any Questions?

Questions regarding individuals’ specific application, degrees, background, or experience will not be answered during the Q&A session.