



NAVAL
POSTGRADUATE
SCHOOL



WISC

*Systems Engineering Distance Learning
Education Summit*

8 June 2022

by

Dr. Wally Owen

Associate Chair for Distributed Programs & Outreach

Dr. Warren Vaneman

Dep Associate Chair for Marketing, Outreach & Engagement

Monterey, California

WWW.NPS.EDU



Welcome to the June Education Summit



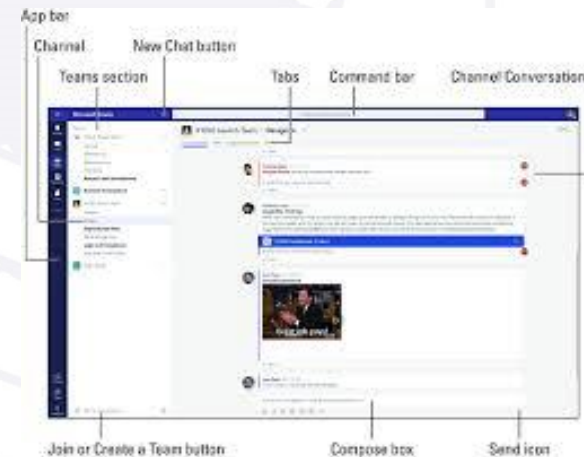
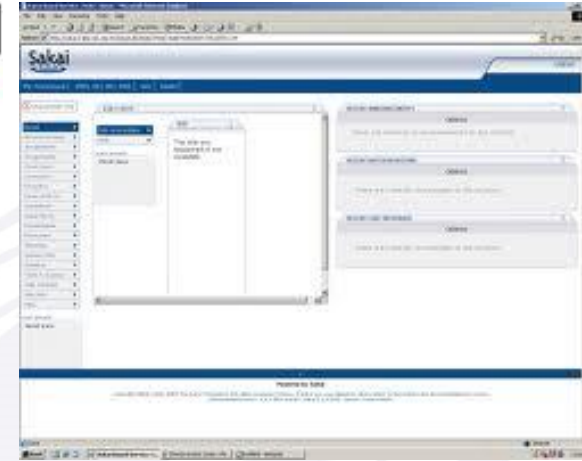
- NPS Systems Engineering Program Overview
 - Degree Programs
 - Stackable Certificates
- Fall AY 2023 Program Offerings.
- Looking ahead to the Winter 2023.



SE Distance Learning Programs

- For organizations with a strategic vision to provide world-class systems engineering, systems integration and systems engineering management services
- Recognized as a leader in field of distance learning (DL)
- Each DL course offer as one continuous (3) hour web-conferencing session one day per week (times/days vary)
- All web-conferencing sessions are recorded
- Typical certificate program offered as one course per quarter (4 total) consecutively over four quarters
- Typical degree program offered as two courses per quarter (16 total) over eight consecutive quarters or as four stackable certificates
- All SE and SEM programs accredited by WASC and MSSE degree also accredited by ABET

- Collaborative Learning Environment
 - Sakai web-based courseware
- Multiple Teaching Types for DL Education
 - Synchronous/Asynchronous Web Browser Based
 - *Zoom for Gov and/or MS Teams* used for teaching synchronously
 - Video, Voice, Chat, Desktop Sharing
 - *Sakai* used for teaching asynchronously
- SE Computer Lab Available Worldwide
- NPS Library Resources Available Worldwide
 - Books, Journals, Databases all on-line





Degree Program Overview

- **311** – Master’s Degree in Systems Engineering with various technical focus
- **711** - Systems Engineering Management- Systems Integrated Development Master's Degree
- **721** - Joint Executive Systems Engineering Management (SEM-PD21) Masters Degree Program
- **722** - Systems Engineering Management Master’s Degree with a focus of System Program Management

- **582** - PhD in Systems Engineering



Stackable Certificate Overview

- The SE Department has partitioned its DL program offerings into stackable certificates
- Stackable certificates enhances the value proposition:
 - Sponsors can fund only those academic certificates for which they have an immediate need
 - Students will be able to earn a MS degree by stacking together academic certificates
- Supports Navy advanced education strategic plan and the new Engineering & Technical Management (ETM) functional area competency framework
 - Offers a customization approach to provide systems engineering and systems engineering management advanced education options for workforce development
 - Provides a graduate degree path for students that have earned certificates from other departments or schools



Stackable Cert lead to Degree

- SE offers DL graduate certificates and degree programs that are tailorable to sponsors and their students
- Stackable certificates can meet master's degree curricula requirements leading to MSSE, MSES or MSSEM degrees
- Certificates are identified by tiers and are typically taken in sequence but may vary by certificate
- Each tier certificate can be tailored dependent on the ultimate curricula (311 or 711) and degree desired

Tier I SE Fund Cert 4 Courses	Tier II SE/SEM Core Cert 4 Courses	Tier III SE/SEM Domain Cert 4 Courses	Tier IV SE/SEM Cap Cert 4 Courses
--	---	--	--



SE Stackable Certificates



- 282 Systems Engineering (Fundamentals)
 - Commences every AQ

Fundamentals



- 131 Systems Capability & Design (SE Core)
 - Commences every AQ
- 171 Systems Integrated Development (SEM Core)
 - Commences Winter, Spring, Summer AQ

SE/SEM Core



- 130 SE Capstone
 - Commences every AQ
- 170 SEM Capstone
 - Summer 2023, Winter 2024, Summer 2024

SE Advanced



Domain Specialty

- 132 System of Systems Engineering
 - Fall AY 2023, Winter 2023, Fall AQ 2024
- 133 Model-based Systems Engineering
 - Winter 2023, Summer 2023, Spring 2024
- 134 Aviation Systems
 - Spring 2023
- 135 Systems Test & Evaluation
 - Spring 2024
- 136 Directed Energy Systems
- 137 System Safety Engineering
 - Summer 2024
- 138 Digital Engineering
 - Summer 2023
- 172 Systems Technology & Advancement
 - Summer 2023, Winter 2024 , Summer 2024
- 173 System Program Management (*in approval process*)
 - Winter 2023, Fall AY 2024
- 174 Systems Engineering and Integration for Naval Weapon Systems
 - Winter 2024
- 232 Lead Systems Integration
- 242 Reliability & Maintainability Engineering
 - Summer AQ 2024



311 Degree Curriculum – Fall AY 2023

Systems Engineering Non-Resident Master’s Degree, System of Systems Focus

Commencing Tuesday, 27 September 2022

Program Delivered via Distance Learning

Sponsor Code: Open Enrollment (311-2310)

Course Lineup

Qtr	Year/Qtr	Course Title	
1	AY23/Fall	SE3100 Fundamentals of Systems Engineering	OS3180 Probability & Statistics for SE
2	AY23/Winter	SI3400 Fundamentals of Engineering Project Mgmt	SE3250 Capability Engineering
3	AY23/Spring	SE3302 System Suitability	SE3011 Engineering Economics & Cost Estimation
4	AY23/Summer	SE4012 Mgmt of Advanced System Engineering	SE4150 Systems Architecting & Design
5	AY24/Fall	SE3411 SoS Program Def & Concept Development	SE4151 System Integration & Development
6	AY24/Winter	SE3910 System Evolution & Technology Assessment	SE3201 Engineering Systems Conceptualization
7	AY24/Spring	SE4930 Model-Based Systems Engineering	SE3202 Engineering Systems Design
8	AY24/Summer	SE4950 System of Systems Engineering	SE3203 Eng Systems Implementation & Operation

SE Certificate
Course

SE Core Course

SE Domain
Focus

SE Capstone
Project

Application Deadline: 5 July 2022



722 Degree Curriculum – Fall AY 2023

**Systems and Program Management Master's Degree Commencing Tuesday,
27 September 2022**

Program Delivered via Distance Learning

Sponsor Code: Open Enrollment (722-231P)

Qtr	Course Title	
1	SE3100 Fundamentals of Systems Engineering	OS311 Probability & Statistics for HSI
2	SI3400 Fundamentals of Engineering Project Mgmt	SE3050 Intro to Digital Engineering
3	SE3302 Systems Suitability	SE3011 Engineering Econ & Cost Est
4	SE4012 Mgmt of Advanced System Engineering	SE3351 Human Factors in Systems Design
5	SE3910 Systems Evolution & Technology Assessment	MN 3303 Contracting
6	SE4420 Modeling & Simulation in Acquisition	CY3201- Foundations of Cyberspace Operations
7	SE4520 System Manufacturing, Dev & Production	SE3211- SE Management Capstone I
8	SE4354 Verification and Validation	SE3212- SE Management Capstone II

SE Certificate Course

SE Core Course

SE Domain Focus

SE Capstone Project

Application Deadline: 5 July 2022



SEM-PD21 2022-2024 CLASS (COHORT 721-2310)

Naval Postgraduate School

ANNOUNCEMENT FOR APPLICATIONS
FOR SEPTEMBER 2022-2024 CLASS (COHORT 721-2310)

Joint Executive Systems Engineering Management (SEM)

An Executive Graduate Education Program for Defense
Offered in partnership with MIT's "Educational Consortium for
Product Development Leadership in the 21st Century" (PD21)

Application Deadline: 5 July 2022
On-Campus Orientation Commences: 12 September 2022



Systems Engineering Certificate with Advanced Systems Engineering Focus

Commencing Tuesday, 27 September 2022

Program Delivered via Distance Learning

Sponsor Code: Open Enrollment (282-2310)

Course Lineup		
Qtr	Year/Quarter	Course Title
1	AY23/Fall	SE3100 Fundamentals of Systems Engineering (3-2)
2	AY23/Winter	SI3400 Fundamentals of Engineering Project Management (3-2)
3	AY23/Spring	SE3302 System Suitability (3-2)
4	AY23/Summer	SE4012 Management of Advanced Systems Engineering (3-0)

Application Deadline: 5 July 2022



Systems Capability and Design Certificate Commencing Thursday, 29 September 2022

Program Delivered via Distance Learning

Sponsor Code: OPEN Enrollment (131-2310)

Course Lineup		
Qtr	Year/Quarter	Course Title
1	AY23/Fall	OS3180 Probability and Statistics for Systems Engineering (4-1)
2	AY23/Winter	SE3250 Capability Engineering (3-2)
3	AY23/Spring	SE3011 Engineering Economics and Cost Estimation (3-0)
4	AY23/Summer	SE4150 System Architecture and Design (3-2)

Application Deadline: 5 July 2022



Systems of Systems Engineering Certificate Commencing Tuesday, 27 September 2022

Program Delivered via Distance Learning

Sponsor Code: OPEN Enrollment (132-2310)

Course Lineup		
Qtr	Year/Quarter	Course Title
1	AY23/Fall	SE3411 SoS Program Definition & Concept Development (3-2)
2	AY23/Winter	SE3910 Systems Evolution & Technology Development (4-0)
3	AY23/Spring	SE4930 Model-Based Systems Engineering (3-2)
4	AY23/Summer	SE4950 Systems of Systems Engineering (4-0)

Prerequisite: SE certificate (282) or equivalent

Application Deadline: 5 July 2022



Systems Engineering Capstone Certificate Commencing Thursday, 29 September 2022

Program Delivered via Distance Learning

Sponsor Code: OPEN Enrollment (130-2310)

Course Lineup		
Qtr	Year/Quarter	Course Title
1	AY23/Fall	SE4151 Systems Development & Integration (3-2)
2	AY23/Winter	SE3201 Engineering Systems Conceptualization (2-4)
3	AY23/Spring	SE3202 Engineering Systems Design (2-4)
4	AY23/Summer	SE3203 Engineering Systems Implementation & Operations (2-4)

Application Deadline: 5 July 2022



- **Degree Programs**

- **311-2320** – Master's Degree in Systems Engineering with a focus on Systems Engineering Integration of Naval Weapon Systems or System Program Management
- **711-232P** - Systems Engineering Management Master's Degree with a focus of System Program Management

- **Certificate Programs**

- **282-2320** - Systems Engineering Certificate with Combat Systems Focus
- **131-2320** - Systems Capability and Design Certificate
- **171-232P** – Systems Integrated Development
- **132-2320** – Systems of Systems Engineering Certificate
- **133-2320** – Model-Based Systems Engineering
- **173-232P** – Systems Program Management Certificate
- **130-2310** - Systems Engineering Capstone Certificate

Winter Application Deadline: 26 September 2022

Winter Classes Commence during the Week of 2 January 2023



SE Distance Learning (DL) Tuition Pricing

Open enrollment rate: AY23 open enrollment tuition rate is \$2,750 per student per course w/o books. If NPS is expected to provide books then add \$250 fixed fee per course for the duration of program. Tuition rate applies to all SE certificate, master's degree and PhD programs. Tuition is required for any student enrolled in a course as of the first day of class.

Full sponsorship tiered fixed-price rate: Two tiered fixed-price options are offered to sponsors who make significant enrollment commitments. These options are offered as a result of reduced direct and variable costs associated with the commitments.

Cohort Pricing: The rate is \$2,200 per student per course w/o books. Organization commits to sponsor and fund an entire cohort of a minimum of 25 seats (not to exceed 30 per cohort) in a DL program and agrees to assume student attrition below the fixed-price floor of \$55K. It is recommended that commands start with more than 25 students to minimize impacts of student attrition. If student enrollment drops to 24 or below, the price remains fixed at \$55K per course for the cohort for duration of the program.

Partner Pricing: The rate is \$2,200 per student per course w/o books. Organization commits to sponsor and fund 50 or more seats across all DL programs. It is recommended that commands closely monitor the overall quarterly enrollment numbers to keep them at or above 50 seats. Should the student enrollment drop to 49 or below in any particular quarter, tuition will be fixed at the 50 seat rate. The command can then opt to revert back to open enrollment pricing or sponsor additional DL students in upcoming programs.

Short Courses: Various 1-3 day SE subject short courses are available not for graduate credit. The fixed price with book or handouts for 1-day is \$15K, 2-day is \$25K and 3-day is \$30K for up to 25 seats. **Special arrangements:** NPS prides itself on being responsive to the needs of the Department of Defense. Any organization requesting additional program features or other special arrangements should contact the Associate Chair DPO to negotiate pricing.



- Chair, SE Department: Oleg Yakimenko— oayakime@nps.edu
 - 831-656-2826
- Associate Chair DPO: Wally Owen - wowen@nps.edu
 - Distance Learning, Director of Programs and Business
 - 831-402-6086
- Dep Assoc Chair MOE: Warren Vaneman - wvaneman@nps.edu
 - Distance Learning, Program Manager
 - 571-364-5126
- Education Technician: Heather Hahn - hlhahn@nps.edu
 - Academic administrative support for students and sponsors
 - 831-915-9581
- GEAC Student Support: - GEACStudCoord@nps.edu
 - Program support for students
 - 831-656-3579

***What to Expect from Us:
Availability, Help,
Advice, Action***

NAVAL POSTGRADUATE SCHOOL
1 University Circle • Monterey, Calif. 93943
(831) 656-1068 • pao@nps.edu • www.nps.edu





Stackable Certificate 311 Design

Qtr	Yr/Qtr	Course Title	Course Title
1		Fundamentals of Systems Engineering	Probability and Statistics for SE
2		Fundamentals of Engineering Project Management	Capability Engineering
3		System Suitability	Engineering Economics and Cost Estimation
4		SE CERT Focus Course and/or Elective	Systems Architecting and Design
5		SE Domain Specialty Track	System Integration and Development
6		SE Domain Specialty Track	SE Capstone Project- I
7		SE Domain Specialty Track	SE Capstone Project- II
8		SE Domain Specialty Track	SE Capstone Project- III

282
 Systems Engineering Certificate
 Various Domain Speciality
 131
 System Capability And Design Certificate
 130
 Systems Engineering Capstone

Tier I SE Certificate	Tier II SE Core Certificate	Tier III SE Domain Certificate	Tier IV SE Capstone
--------------------------	--------------------------------	-----------------------------------	------------------------



Stackable Certificate 711 Design

Qtr	Yr/Qtr	Course Title	Course Title
1		Fundamentals of Systems Engineering	Intro to Digital Engineering with Model-Based System Engineering
2		Fundamentals of Engineering Project Management	Probability and Statistics for HSI
3		System Suitability	Engineering Economics and Cost Estimation
4		SE CERT Focus Course and/or Elective	Human Factors in Systems Design
5		SEM Domain Specialty Track	Risk Analysis & Management of Engineering Systems
6		SEM Domain Specialty Track	Modeling & Simulation in Acquisition
7		SEM Domain Specialty Track	SEM Capstone Project- I
8		SEM Domain Specialty Track	SEM Capstone Project- II

282
Systems Engineering Certificate

171
System Capability And Design Certificate

Various
Domain Speciality

170
SE Management Capstone

Tier I SE Certificate	Tier II SEM Core Certificate	Tier III SEM Domain Certificate	Tier IV SEM Capstone
--------------------------	---------------------------------	------------------------------------	-------------------------