JOINT EXECUTIVE
SEM-PD21 2024-2026 CLASS (COHORT 721-251)

Naval Postgraduate School

ANNOUNCEMENT FOR APPLICATIONS
FOR SEPTEMBER 2024-2026 CLASS (COHORT 721-251)

Joint Executive
Systems Engineering and 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)

A Distance Learning Program with Unique Joint Focus
Joint Services, Joint Engineering & Management, Joint Government & Industry

A LIMITED NUMBER OF OPEN SEATS AVAILABLE

OPEN TO QUALIFIED UNIFORMED OFFICERS, SENIOR ENLISTED,
FEDERAL CIVILIANS AND DEFENSE CONTRACTOR CIVILIANS.

PROGRAM HIGHLIGHTS AND TESTIMONIALS

The Joint Executive SEM-PD21 program is certified by Secretary of the Navy to Congress allowing contractor civilian participation:

> "Our progress in privatizing acquisition has resulted in the migration of many activities once performed by Navy uniformed or civilian personnel to the private sector. It makes sense for Navy personnel and defense industry civilians to participate shoulder to shoulder in graduate studies focusing on improving Navy research, development, and acquisition cost, schedule, and performance. Such a program will greatly enhance the educational experience of both sets of students and will strengthen partnerships between the private and public sectors which is a critical element in our efforts to transform the Navy and Marine Corps acquisition and procurement process." (Letter to Chairman, Committee on Armed Services, March 9, 2001)

Recognized in Business 2.0, (December, 2001) as one of the top, "Straight-to-the-Point Executive Education Courses."

Letter to the President of MIT by the Honorable Mr. Hultin, Undersecretary of the Navy, (May 17, 2000):

> "SEM-PD21 is aligned with our efforts to transform the Navy and Marine Corps acquisition and procurement process. This initiative fits nicely with our broader campaign entitled Revolution in Business Affairs (RBA), a strategic change initiative aimed at dramatically improving the way we acquire, deliver, maintain, deploy and operate the business side of our national defense institution. We fully expect that the graduates of SEM-PD21 will soon become significant leaders and change agents in our Revolution in Business Affairs and help reduce the acquisition life cycles and development times for new defense systems by a factor of two or more."

Alumni Testimonials

“The PD21 Program is laser focused on the practical aspects of Systems Engineering and Product Development. I have been able to apply so much of what I learned in PD21 directly to my project, and hand down the lessons learned to the rest of our engineering team.” – John Gwin, NAVSEA

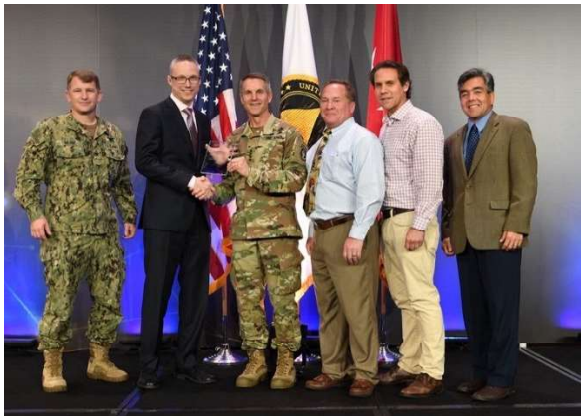
“PD21 is much more than curriculum. To this day, I continue to apply the technical and managerial skills acquired through the program. The blending of project management and systems engineering disciplines, delivered through PD21, was both a personal and professional game-changing experience. During these times of unprecedented complexity, I believe the program is foundational for developing leaders who can deliver 21st century warfighting capability.” – Tom Irwin, Ph.D., Joint Staff J7

“The PD21 program provided me with an amazing executive-level education focused on the systems engineering skills and acumen needed to support both business and technical work. The courses are challenging but relevant and greatly expanded my portfolio of experience. There is no question that I am able to perform at a significantly higher level thanks to the PD21 program’s focus on academic excellence.” – Bill Carlson, NUWC Keyport

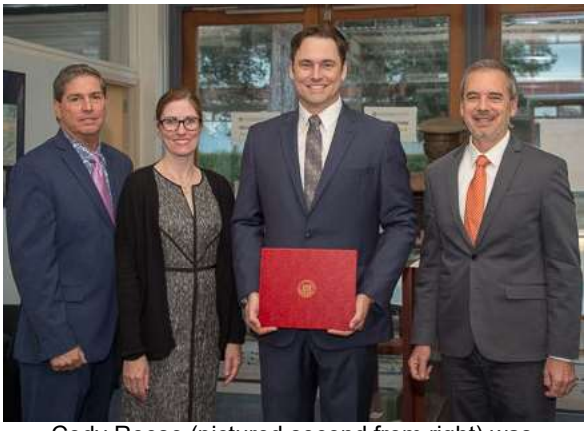
“The PD21 program was the perfect way to refresh my engineering undergrad as I transitioned to the private sector. It was a well-rounded and applicable program that balanced both government and private industry processes.” – Spencer Hunt

"The PD21 program gave me the educational credentials I needed to advance my career as a Navy Flag Officer’s Science Advisor. More importantly, the program challenged me to apply critical thinking in terms of systems engineering management and apply that thinking holistically towards successful and timely implementation of Science and Technology efforts that provide direct impact to the operational warfighter." – Joanne Pilcher, Naval Information Forces

"The PD21 program is extraordinary. Not only did it enhance my technical competency in systems engineering, but it also enhanced my management and leadership competencies, facilitated Navy-wide connections and relationships, and changed the way I think about problems in general. Given the choice, I would jump at the opportunity to do it again." – Cody Reese, NAVFAC



John Gwin’s (pictured third from right) PD21 thesis inspired a technical risk analysis that ultimately earned PMS-340 the 2019 USSOCOM “MAVERICK” award, which recognizes “those who challenge existing ways of doing business to help foster improvements.”



Cody Reese (pictured second from right) was selected by his fellow classmates to receive the Wayne E. Meyer Award for Excellence in Systems Engineering in September 2018, and has recently been admitted to NPS’s Systems Engineering PhD distance learning program.

SEM-PD21 2024-2026 CLASS (Cohort 721-251): September 16, 2024-September 25, 2026

ENTRY REQUIREMENTS: The program is open to uniformed officers (03 and above), federal civilians (GS11 and above) and equivalent defense contractor civilians. Senior enlisted (E-7 and above) are eligible on a space available basis. To participate in the Joint Executive SEM-PD21 program, candidates must have the following credentials:

- Candidates for the program must have a baccalaureate degree with a minimum undergraduate GPA of 2.6, and at least one college level mathematics course. An undergraduate degree in engineering or a related scientific or technical field is advantageous for students pursuing the MSSEM degree option from this program.
- At least five years of experience directly related to product/systems development, systems engineering or systems acquisition. This experience must reflect continued growth and professional development. For candidates that hold a master's degree, the experience requirement can be reduced to three years;
- Sponsored by your service, command or company with senior leadership endorsement.

PROGRAM INFORMATION

NPS and the PD21 consortium believe that this joint engineering & management degree is the best, unified curriculum available in systems engineering and end-to-end product development leadership education. It also ideally aligns with DOD leadership vision for defense transformation and acquisition excellence. The program curriculum features a course lineup based on current systems engineering and acquisition management concepts, practices, and lessons learned. All students who successfully complete the two-year distance-learning course of study receive:

- ✓ **Degree:** Master of Science in Systems Engineering Management (MSSEM) (select the 171 or 131 elective track) or Master of Science in Systems and Defense Management (MSSDM) (select any other offered elective track).
- ✓ **MIT Certificate:** Certificate of Recognition from MIT.
- ✓ **Additional NPS Certificate:** Varies by elective track.
- ✓ **DAU:** Back to Basics (BtB) review in progress (currently offering fulfillment of DAU training requirements for PM Practitioner as an elective track).

ELECTIVE TRACKS: Sponsors and students selecting the MSSDM degree option have great flexibility in designing their elective structure. There are numerous domain specialty tracks (4 courses each) that are available to each student as an elective track which, when taken with the SEM-PD21 core/fundamental courses, earn participating students an additional certificate such as:

- ✓ **Systems Engineering Management (171)**
- ✓ **Advanced Acquisition Studies (218) (DAU BtB- PM Practitioner)**
- ✓ **Human Systems Integration (262)**
- ✓ **MBSE Design & Development (133)**
- ✓ **Space Systems (273)**
- ✓ **Systems Analysis (281)**
- ✓ **Defense Management Foundations (192)**
- ✓ **Capability & Mission Engineering (131)** (requires a calculus-based probability & statistics course)
- ✓ **Others- as available**

SCHEDULE

- September 16 through 27, 2024: Program kick-off and orientation at Naval Postgraduate School, Monterey, California. Orientation includes program indoctrination, Silicon Valley Industry trip, start of two core courses and participation in graduation events.
- After the kickoff, students return to their organization locations and take courses over the Internet synchronously using Zoom for Government (ZfG) and/or MS Teams web-conferencing academic tools and/or asynchronously using SAKAI, the NPS ONLINE course management system. Students take two core courses per quarter offered in two 3.0 hour synchronous sessions per week on **Fridays (0730-1030 and 1100-1400) Pacific Time** for the first year then take two remaining core courses on Fridays (0730-1030) Pacific Time in each of Fall and Winter quarters of year two. Students pick a four-course elective track and conduct independent thesis research in year two. The days/times for elective track courses vary and some of the tracks are delivered asynchronously affording students an alternative delivery method if chosen. Program administrative sessions are periodically offered on Fridays from (1400-1500) Pacific Time with advance notice provided to students.
- Students are expected to attend the two-week program kickoff on campus, participate in two (2) one-week industry trips during the two-year course of study (typically in June during the break between Spring and Summer quarters) and one-week on campus graduation week in September at the completion of the program. Students are also required to participate in a quarterly Systems Engineering (SE) seminar (SE3810) that hosts a thesis writing workshop and provides guest speaker lectures either live by web-conferencing or recorded by video streaming. The lectures are also open to all participating student commands and companies. The SE seminar is graded on a Pass/Fail basis.

TUITION

For the 2024-2026 class there are 25 total seats available. Tuition must be collected before commencement of each quarter (see tuition letter for due dates and additional details). *(Note: Qualified active-duty Navy and Marine Corps officers are eligible for NPS mission funding (tuition free) but the student or their command are responsible to purchase books and pay for all travel related expenses).*

Note: The total ownership price per seat is $60,000 for military, federal government civilian employees and Defense contractor civilian employees, payable according to the payment schedule provided in the SEM-PD21 tuition letter (or as negotiated with the SEM-PD21 program office). Tiered pricing is offered to an organization or company sponsoring 5 or more students (call Dr. Wally Owen, SEM-PD21 Program Director for more details). This total ownership price includes all tuition, textbooks, course support materials and equipment (software, handouts, case studies, etc.), travel, transportation and per diem for all campus/training with industry visits including graduation and a PC camera and microphone headset. Students must have high-speed Internet to participate in sessions and to access SAKAI course management system.

APPLICATION DEADLINES

July 8, 2024: Candidates must complete the NPS admissions online application by this deadline date (contact your local representative for any additional internal deadlines).

Apply at https://nps.edu/PD21 by selecting "**Apply Now.**" Select **New Users** or **Returning Users**, and once logged into the NPS online application, candidates should fill out all requested information for the **721 Curriculum**- Joint Executive SEM-PD21 program commencing **Academic Year 2025**, **Quarter 1**.

Applicants must ensure all official transcripts are ordered and sent directly to the NPS admissions office (either by mail or e-transfer).

Sponsoring commands/organizations/companies must also have a support agreement in place with NPS (MOA for Navy commands and DD1144 for non-Navy organizations). Check with program director if unsure of existing agreements or to initiate an agreement.

Late applications will be reviewed on a case-by-case basis dependent upon seat availability but no later than August 15, 2024.

Maximum enrollment per cohort is 25 students. *(Note: Qualified active-duty Navy and Marine Corps officers may be eligible for NPS mission funding but the student or their command are responsible to purchase books and pay for all travel related expenses).*

FOR MORE INFORMATION AND APPLICATION PROCEDURES

Visit https://nps.edu/PD21 and/or contact any of us below:

Dr. Wally Owen, DPA
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SEM-PD21 Program Director
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or

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Tel: (831) 656-6032
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or

CAPT Jeff Dunlap, USN (ret)
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SEM-PD21 Academic Associate
Tel: (619) 370-6647
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March 20, 2024

From: Chairman, Department of Systems Engineering
Subj: Naval Postgraduate School: **SEM-PD21** September 2024-2026 Class **(Cohort 721-251O)**
Ref: (a) DOD 7000.14R (Financial Management Regulation) Volume 11A

1. Tuition for **Open enrollment** students entering the two-year **SEM-PD21** program in September 2024 is $60,000 a seat for military, federal government civilians and Defense contractor civilian employees, payable in installments as listed below or as negotiated by the **SEM-PD21** program office.

The **SEM-PD21** program offers tiered pricing to organizations that sponsor 5 or more students (contact Dr. Wally Owen for details). Price includes all tuition, textbooks, additional class support materials (software, handouts, case studies, miscellaneous equipment, etc.), transportation and per diem (up to 5 weeks) for all NPS campus and training with industry trip visits. Students must have high speed Internet access to participate in the program. Courses are delivered synchronously using Zoom for Government (ZfG) and/or MS Teams web-conferencing tools. ***(Note: Qualified active duty Navy and Marine Corps officers may be eligible for NPS mission funding but the student or their command is responsible to purchase books and pay for all travel associated with the program).***

721-251O Payment Schedule:	Gov/Mil/Ktr	Due Dates
First Academic Year (AY25):	$34.0K	
Sept 2-wk campus kick-off/FALL AY25 (2 courses):	$14.5K	01Aug24
WTR AY25 (2 courses):	$6.5K	01Nov24
SPRG AY25 (2 courses): 1-wk industry trip in June	$6.5K	01Feb25
SUM AY25 (2 courses):	$6.5K	01May25
Second Academic Year (AY26):	$26.0K	
FALLAY26 (2 courses):	$6.5K	01Aug25
WTR AY26 (2 courses):	$6.5K	01Nov25
SPRG AY26 (2 courses): 1-wk industry trip in June	$6.5K	01Feb26
Sept 1-wk campus graduation/SUM AY26 (2 courses):	$6.5K	01May26

2. Funding documents issued to the Naval Postgraduate School should be addressed to President, Code 21, Naval Postgraduate School, Monterey, CA 93943 and must be in accordance with reference (a). Funding documents should be emailed to tuition@nps.edu. For Navy customers in ERP, please contact Funds@nps.edu before sending. The funding documents should reference the invoice # and include program title **SEM-PD21 Program (Cohort 721-251O).** List the technical contact as Dr. Walter E. Owen, (831) 402-6086, wowen@nps.edu, the financial contact as Airyn O'Brien, (831) 656-1177, funds@nps.edu and the business financial manager as Ms. Yves Cameron (831) 656-3950, NECBFM@nps.edu.. Expiration and Period of Performance dates for winter through summer quarters must end on 30 September and be issued as Economy Act Order. Fall quarter begins in September but also crosses fiscal years, so documents should be issued as a Project Order when funds are expiring at the end of September. Otherwise, when using non-expiring funds or a multi-year appropriation, send as Economy Act. The period of performance for fall quarter must end on 31 December.

3. A fully executed support agreement (7600A) or for DoD contractors (a MOA) is required before a student can be officially enrolled in an NPS program. Contact sponsorededucation@nps.edu for further information.

4. In accordance with the Anti-Deficiency Act, tuition is due before the first day of each quarter, and it must be paid using current-year funding of the fiscal year in which the academic quarter begins. If tuition is not received by this time, a bursar hold will be placed on each student account, preventing the student from participating in class until tuition has been paid. Lack of payment will result in disenrollment.

5. The tuition price per course is established each fiscal year by NPS and is based on a distance learning cost model. To the maximum extent possible prices will remain consistent. Prices will not change within any particular fiscal year but may change from year to year. If you have questions about pricing and payment information, please call Dr. Wally Owen, **SEM-PD21** Program Director, (831) 402-6086.

Joint Executive Systems Engineering and Management (SEM-PD21) Program

Cohort 721-251 Curriculum Lineup

September 2024 - September 2026

Core courses meet Fridays 0730-1030 and 1100-1400 Pacific
SE seminars meet Fridays 1400-1500 Pacific

Unlike the core courses, **elective courses** may not be scheduled on Fridays.
See example tracks on next page. Asynchronous tracks *are available in the case your Year 2 schedule cannot accommodate courses offered on a non-Friday weekday.*

YEAR 1	
Kickoff at NPS: 16-27 September 2024*	
QTR 1 Fall AY25 *30 Sep - 19 Dec 2024*	**Core Courses** MN3108: Leadership in Product Development (3-2) OS3111: Probability and Statistics for HSI and MOVES (4-0) SE3810: Systems Engineering Seminar (0-2)
QTR 2 Winter AY25 *6 Jan - 27 Mar 2025*	**Core Courses** SI4021: Systems Engineering for Product Development (3-2) MN3117: Organizational Processes (4-0) SE3810: Systems Engineering Seminar (0-2)
QTR 3 Spring AY25 *31 Mar - 18 Jun 2025*	**Core Courses** SI4022: Systems Architecture for Product Development (4-0) MN3392: Systems and Project Management (4-0) SE3810: Systems Engineering Seminar (0-2) **One-week Industry visit at end of quarter**
QTR 4 Summer AY25 *7 Jul - 25 Sep 2025*	**Core Courses** SE3302: Systems Suitability (3-2) MN3309: Software Acquisition Management for Defense Systems (3-2) SE3810: Systems Engineering Seminar (0-2)

YEAR 2	
QTR 5 Fall AY26 *29 Sep - 18 Dec 2025*	**Core Course + Elective Course** SE4353: Risk Analysis and Management for Engineering Systems (3-2) Elective Course SE3810: Systems Engineering Seminar (0-2)
QTR 6 Winter AY26 *5 Jan - 26 Mar 2026*	**Core Course + Elective Course** MN4379: Operations Management (4-0) Elective Course SE3810: Systems Engineering Seminar (0-2)
QTR 7 Spring AY26 *30 Mar - 17 Jun 2026*	**Core Course + Elective Course** SE0811: Thesis in Systems Engineering (0-8) Elective Course SE3810: Systems Engineering Seminar (0-2) **One-week Industry visit at end of quarter**
QTR 8 Summer AY26 *6 July - 24 Sep 2026*	**Core Course + Elective Course** SE0811: Thesis in Systems Engineering (0-8) Elective Course SE3810: Systems Engineering Seminar (0-2)
	Graduation Week at NPS: Graduation is on Friday, 25 September 2026

* Separate Agenda provided for 2-week kickoff at NPS: Course introductions, meet faculty & graduating students, Silicon Valley trip, attend thesis briefings and graduation.

All students who successfully complete the program receive:

1) MS Degree in Systems Engineering Management (select 171 or 131 elective track)
   or MS Degree in Systems and Defense Management (select any other available track)
2) Certificate from the selected elective track
3) Certificate of Recognition from MIT

Joint Executive Systems Engineering and Management (SEM-PD21) Program

Cohort 721-251 Curriculum Lineup

September 2024 - September 2026

EXAMPLE ELECTIVE TRACKS (Year 2, Quarters 5-8)

Tracks may be added or removed based on availability. Course sequences may change.
Not all tracks are scheduled on Fridays. Students select tracks once the schedule is known (end of QTR 3).

Systems Engineering Management (171)

SE3011: Engineering Economics and Cost Estimation (3-0)
SE4420: Modeling and Simulation in Acquisition II (3-2)
SE4354: System Verification and Validation (3-2)
SE4520: System Manufacturing Development and Production (3-2)

Human Systems Integration Certificate (262) **

OA3411: Introduction to Human Systems Integration (3-0)
OA3412: Human Systems Integration in the DoD Acquisition Lifecycle (3-0)
OA3413: Human Systems Integration Tools, Tradeoffs, and Processes (3-1)
OA4414: Human Systems Integration Case Studies and Applications (4-0)

Space Systems Online Certificate (273) **

SS3011: Space Technology and Applications (3-0)
SS3613: Military Satellite Communications (3-1)
PH3502: Physics of Space and Airborne Sensor Systems (3-1)
PH2514: Introduction to Space Environment (4-0)

Systems Analysis (281) **

OS2080: Probability and Statistics I (3-0)
OS3380: Combat Systems Simulation (3-1)
OS3680: Naval Tactical Analysis (4-0)
OS4680: Naval Systems Analysis (4-0)

Defense Management Foundations (192)

MN3301: Acquisition of Defense Systems (4-0)
MN3309: Software Acquisition Management for Defense Systems (3-2)
MN3118: Negotiation and Consensus Building (4-0)
MN3172: Resourcing National Security: Policy and Process (3-0)

Advanced Acquisition Studies (218) (DAU equivalency with PM Practitioner)

MN3301: Acquisition of Defense Systems (4-0)
MN3309: Software Acquisition Management for Defense Systems (3-2)
MN4470: Strategic Planning and Policy for the Acquisition Logistics Manager (4-0)
MN4307: Defense Acquisition Program Management Case Studies (4-0)

MBSE Design and Development (133)

SE4150: Systems Architecting and Design (3-2)
SE4151: Systems Integration and Development (3-2)
SE4930: Model-Based Systems Engineering (3-2)
SE4950: System of Systems Engineering (3-2)

Capability and Mission Engineering (131)

(requires a calculus-based probability and statistics course)
SE3050: Introduction to Digital Engineering with Model-Based Systems Engineering (3-2)
SE3011: Engineering Economics and Cost Estimation (3-0)
SE3250: Capability Engineering (3-2)
SE4354: System Verification and Validation (3-2)

Courses in grey are satisfied in the core.

** Tracks that are marked with a double asterisk are asynchronous (may be worked on student's own time any on any day of the week).

Joint Executive Systems Engineering and Management (SEM) Master's Program

Naval Postgraduate School

An Executive Graduate Education Program for Active Duty Military, Civilians, and Defense Contractors

Offered in partnership with MIT's "Educational Consortium for Product Development Leadership in the 21st Century" (PD21)

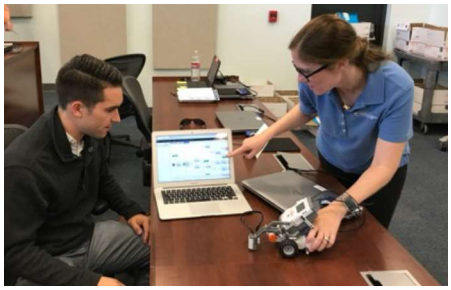
WHAT: A distance learning program with unique Joint focus: Joint services, Joint engineering & management, Joint government & industry. Features an executive hybrid format: in-person kickoff and graduation in Monterey, Friday* core courses joined from your home or office, individual thesis research, and industry trips to commercial and government facilities.

WHO: Open to qualified uniformed officers, senior enlisted, federal civilians and defense contractor civilians with an undergraduate degree in engineering or related field (2.6 GPA or higher), and 5 years of experience. Details and exception criteria on website linked below.

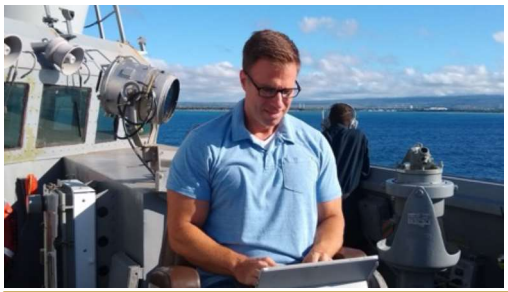
WHEN: Student cohorts start and finish the two-year program each September.

WHERE: Mostly from your office or home using web conferencing tools. A two-week program kickoff/orientation is held on the NPS campus in Monterey, CA. Students come back together for a one-week industry trip in the June timeframe each year. Students return to campus for thesis presentations and graduation at program completion.

WHY: Gain practical knowledge you will use every day, advance your career, meet colleagues from across DOD and solve relevant problems together, leverage experienced faculty in solving those problems, and bring fresh perspectives and latest systems engineering research to your organization.



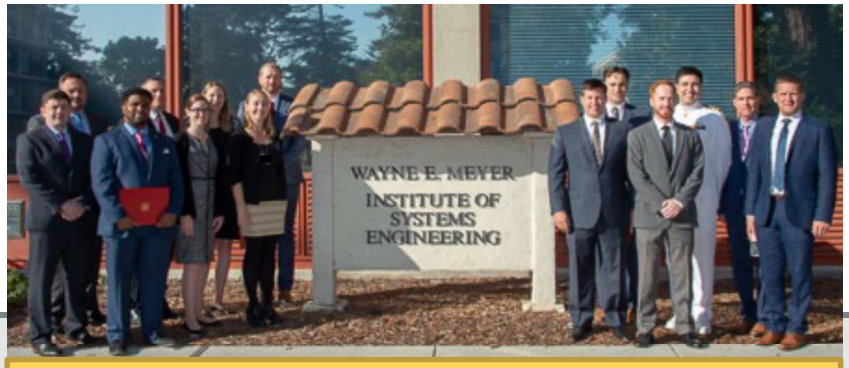
Program orientation on campus



Remote learning from work or home (most of the program)

Two industry trips

- ✓ **Master's Degree** in *Systems Engineering Management* or *Systems and Defense Management*
- ✓ **Certificate** in an area of individual interest (varies by elective track)



Thesis presentations and graduation ceremony on campus

- ✓ **DAU PM Practitioner exam preparation** with *Advanced Acquisition Studies* elective track selection

*Many elective courses are offered on other days of the week. Students can choose an elective track in year 2 that fits their schedule.

For more information and application procedures, visit https://nps.edu/PD21

Questions? Contact
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