Naval Postgraduate School
Cyber Academic Group
Graduation Checklist for CSO Degree (326)
6208P Subspecialty Code
Version 2020.1

Name/Rank/Service: _____

Month/Year Enrolled: _____ Projected Graduation Date: _____

CSO Track: Operational   Computational   Electrical Engineering   Engineering Science

General Notes:
　　-Students are responsible for meeting the requirements and timelines of this checklist.
　　-Consult the NPS Python Course Catalog for course prerequisites and offerings.
　　-Use checkboxes for courses already completed and "planned QTR" for future coursework.

1. Thesis/Capstone: *Proposal must be approved* **by end the 4ᵗʰ academic quarter**, *prior to taking any XX0810 thesis research blocks.*

　　Title: _____

　　　　　 _____

　　Advisor(s): _____

　　Co-Advisor / Second Reader (*circle one*): _____

　　Joint Thesis Members, if applicable: _____

2. Core Courses: *All of the courses below must be completed or validated to graduate. Students will select their track during the second week of quarter 2, and must submit* **by the end of their 2ⁿᵈ academic quarter** *a plan for completing all core courses not yet taken as part of their Track selection, and also populate their course matrix in Python.*

Completed	Planned Qtr
___CS2020 Introduction to Programming (4-2)	_____
___EC2700 Intro to Cyber Systems (4-1)	_____
___MA2025 Logic & Discrete Math (4-1)	_____
___MA1113 Single Variable Calculus (4-0)	_____
___CS3600 Introduction to Computer Security (4-2)	_____
___CS3040 Low-Level Programming I (4-2)	_____
___EC3730 Cyber Network & Physical Infrastructures (3-2)	_____
___CY3000 Intro to Cyber Systems & Operations (3-0)	_____
___EC3760 Information Operations Systems (3-2)	_____
___CS3690 Network Security (4-1)	_____
___CS3250 Intro to Cyber Physical Systems (3-2)	_____
___EC3740 Reverse Engineering (3-2)	_____
___CY4400 Cyber Mission Planning w/Capstone (3-2)	_____

3. Track Selection: *All CSO students will select one of the following Tracks.*

- **COMPUTATIONAL TRACK (MSCS):**
  (PO: LCDR Eric Regnier, AA: Dr. Al Shaffer)

  <div align="right">Planned Qtr</div>

  Students must take the following CS Degree Requirements:
  ___CS3101 Theory of Formal Languages and Automata (4-2)   _____
  ___CS3310 Artificial Intelligence (4-1)   _____
  ___CS3502 Computer Communications & Networks (4-2)   _____
  ___CS3600 (part of the CSO/326 Core)   _____

  Additional CS Core Requirements:
  ___CS3001 Formal Foundation of Computer Science (4-2)   _____
  ___OS3307 Modeling Practices for Computing (4-1)   _____
  ___CS3070 Operating Systems (3-2) (Win/Sum)   _____
  ___CS3315 Introduction to Machine Learning and Big Data (3-1)   _____

  Finally, one Computational Track subspecialization area of four courses will be taken:

  Network Operations:
  ___CS4552 Network Design & Programming (3-3)   _____
  ___CS4554 Network Modeling & Analysis (4-0)   _____
  ___CS4558 Network Traffic Analysis (3-2)   _____
  ___Elective from CS Network & Mobility Track, upon agreement of Thesis Advisor:

  _____

  Defensive Cyber Operations:
  ___CS4558 Network Traffic Analysis (3-2)   _____
  ___CS4677 Computer Forensics (3-2)   _____
  ___CS4684 Cyber Security Incident Response & Recovery (3-2)   _____
  ___CY4700 Defensive Cyberspace Operations (3-3)   _____

  Offensive Cyber Operations:
  ___CS3140 Low-Level Programming II (3-2)   _____
  ___CS4678 Advanced Cyber Vulnerability Assessment (4-2)   _____
  ___CS4648 Advanced Cyber Munitions (3-2)   _____
  ___CY4710 Adversarial Cyberspace Operations (3-3)   _____

  Artificial Intelligence:
  ___CS4555 Machine Learning in Networking (X-X)   _____
  ___MV4025 Cognitive and Behavioral Models for Simulations (3-2)   _____
  ___CY3650 Cyber Data Management and Analytics (4-0)   _____
  ___Elective from CS AIAS Track, upon agreement of Thesis Advisor:

  _____

Graduation Checklist for Cyber Systems and Operations Curriculum 326

- **OPERATIONS TRACK (MSCSO):**
  (PO: LCDR Eric Regnier, AA: Dr. Duane Davis)

  <u>Planned Qtr</u>

  Students must take the following CSO Degree Requirements:
  ___CY4410 Cyber Policy and Strategy (3-0) _____
  ___CY4700 Applied Defensive Cyber Operations (3-3) _____
  ___CY4710 Adversarial Cyber Operations (3-3) _____

  In addition, the following courses are required plus two electives:
  ___OS3307 Modeling Practices for Computing (4-1) _____
  ___CS3070 Operating Systems (3-2) (Win/Sum) _____
  ___CS3502 Computer Communications & Networks (4-2) _____
  ___CY3650 Cyber Data Management and Analytics (4-0) _____
  ___CS4558 Network Traffic Analysis (3-2) _____
  ___EC4765 Cyber Warfare (3-2) _____

  Two Operations Track Electives as approved by the Thesis Advisor:

  _____   _____

- **ELECTRICAL ENGINEERING TRACK (MSES(EE)):**
  (PO: CDR Clay Herring, AA: John Roth)

  In addition, the following courses are required plus five electives:
  ___EC3710 Computer Communications Methods (3-2) _____
  ___EC4730 Covert Communications (3-2) _____
  ___EC4745 Mobile Ad Hoc Wireless Networks (3-2) _____
  ___EC4765 Cyber Warfare (3-2) _____
  ___EC4770 Wireless Communications Network Security (3-2) _____
  ___EC3000 Introduction to Graduate Research Seminar [P/F] (1-0) _____

  Five Engineering track electives approved by the Thesis Advisor:

  _____   _____

  _____   _____

  _____

- **ENGINEERING SCIENCES TRACK (MSES):**
  (PO: CDR Clay Herring, AA: Dr. John Roth)

  Planned Qtr

  The following courses are required for the track plus seven electives:
  ___EC4730 Covert Communications (3-2)   _____
  ___EC4765 Cyber Warfare (3-2)   _____
  ___EC4770 Wireless Communications Network Security (3-2)   _____
  ___EC3000 Introduction to Graduate Research Seminar [P/F] (1-0)   _____

  Seven Engineering track electives approved by the Thesis Advisor:

  _____   _____

  _____   _____

  _____   _____

  _____

4. Additional Military Requirements:

All U.S. Navy Line Officer students (*except* Engineering Duty Officers)
___NW3230 Strategy and War (4-2)   _____
___NW3275 Joint Maritime Operations Part 1 (4-0)   _____
___NW3276 Joint Maritime Operations Part 2 (2-2)   _____
___NW3285 Theater Security Decision Making (4-0)   _____

All U.S. Marine Corps & Army students
___MN3331 Principles of System Acquisition & Program Management (5-1)   _____

International Military students (*as required by the International Office*)
___IT1500 Informational Program Seminar for International Officers (4-0)   _____
___IT1600 Communication Skills for International Officers (3-0)   _____
___IT1700 Academic Writing for International Officers (2-0)   _____

5. Credit Hour Requirements:
___40 graduate credit hours at 3000-4000 level, with at least 12 of those hours at 4000 level.
___28 of the 40 graduate credit hours must be in CS, MOVES, SW courses.

6. Student Certification: I certify that the information on this form is correct, and that I have completed all requirements for the CSO Curriculum 326 degree, with any course deviations from the requirements detailed in this checklist described below (must be approved by Thesis Advisor).

Signature: _____ Date: _____

7. Advisor approval**: Specialization courses above are approved.

Signature: _____ Date: _____

**Thesis Advisor for Computational and Operations tracks, Academic Associate for Engineering Sciences and Electrical Engineering tracks

8. Program Officer final review: Checklist complete.

Signature: _____ Date: _____