Naval Postgraduate School
Cyber Academic Group
Graduation Checklist for MSCS/MSCS/MSES/MSEE Degrees (326)
6208P Subspecialty Code
(Revised: WINTER AY18)

Name/Rank/Service: ____________________________________________________________
Month/Year Enrolled: __________________________________________________________
Projected Graduation Date: _____________________________________________________
CSO Track: Operational  Computational  Electrical Engineering  Engineering Science

1. Thesis/Capstone: proposal must be approved by end the 3rd or 4th academic quarter (not counting Qtr-0), prior to taking any CS0810 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 must submit by the end of their 3rd 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
   ___CS3600 Introduction to Computer Security (4-2) (Fall/Win/Spr/Sum) ____________
   ___CS3040 Low-Level Programming I (4-2) (Fall/Spr) _____________________________
   ___EC3730 Cyber Network & Physical Infrastructures (3-2) (Fall/Spr) ______________
   ___CY3000 Intro to Cyber Systems & Operations (3-0) (Fall/Spr) _________________
   ___EC3760 Information Operations Systems (3-2) (Win/Sum) ___________________
   ___CS3690 Network Security (4-1) (Fall/Spr) ____________________________________
   ___CS3250 Intro to Cyber Physical Systems (3-2) (Win/Sum) _____________________
   ___CY3800 Topics in Signal Operations (3-0) (Win/Sum) _________________________
   ___EC3740 Reverse Engineering (3-2) (Win/Sum) ________________________________
   ___CS4900 Technology & Transformation (2-0) (Win/Sum) (OPS/CS only) __________
   ___CS4901 CSO Research Methods (1-0) (Fall/Spr) _____________________________
   ___CY4400 Cyber Mission Planning w/Capstone (3-2) ___________________________
3. Track: All CSO students will select one of the following Tracks. **Circle choice above, and initial each completed course or annotate when it will be taken.**

*See the NPS catalog for prerequisites and offering quarters for all courses listed below.*

- **COMPUTATIONAL TRACK (CSO-CS):** (PO: LT Tye Wylkynsone AA: Karen Burke)

  **Students must take the following CS Degree Requirements:**

  ___ CS3101 Theory of Formal Languages and Automata (4-2) (Fall/Spr)
  ___ CS3310 Artificial Intelligence (4-1) (Fall/Spr)
  ___ CS3502 Computer Communications & Networks (4-2) (Win/Sum)
  ___ CS3600 (part of the CSO/326 Core)

  **Three track courses are required:**

  ___ OS3307 Modeling Practices for Computing (4-1) (Fall/Spr)
  ___ CS3070 Operating Systems (3-2) (Win/Sum)
  ___ CS4315 Learning Systems and Data Mining (3-1) (Fall/Spr)

  **Finally, one concentration 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)
  ___ CS3140 / CS4648 / CS4678 (pre-req: CS3140)

  (Elect one from Offensive Cyber Operations concentration)

  **Defensive Cyber Operations:**

  ___ CS4558 Network Traffic Analysis (3-2)
  ___ CS4677 Computer Forensics (3-2)
  ___ CS4684 Cyber Security Incident Response & Recovery (3-2)
  ___ CS3140 / CS4648 / CS4678 (pre-req: CS3140)

  (Elect one from Offensive Cyber Operations concentration)

  **Offensive Cyber Operations:**

  ___ CS3140 Low-Level Programming II (3-2)
  ___ CS4678 Advanced Cyber Vulnerability Assessment (4-2)
  ___ CS4648 Advanced Cyber Munitions (3-2)

  1 Cyber Operations or Computation Elective as approved by Academic Team

  To wit: ___________
• **OPERATIONS TRACK (CSO-OPS):** *(PO: LCDR Brian Judy AA: Duane Davis)*

*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 one (1) elective:*

- OS3307 Modeling Practices for Computing (4-1) (Fall/Spr)
- CS3070 Operating Systems (3-2) (Win/Sum)
- CS3502 Computer Communications & Networks (4-2) (Win/Sum)
- CY3650 Cyber Data Management and Analytics (4-0)
- CS4558 Network Traffic Analysis (3-2)
- EC4765 Cyber Warfare (3-2)
- 1 additional Operations Track Elective as approved by Academic Team

To wit: __________

• **ELECTRICAL ENGINEERING TRACK (MSEE):** *(PO: LCDR(sel) Bryan Martin AA: Preetha Thulasiraman)*

*Students may make the following EE Core change:*

- EC3700 Joint Network-Enabled Warfare (3-2) in lieu of CY3800, provided:
  1) possess an undergraduate ECE degree that is ABET accredited
  2) take EC2650 as a refresher

*In addition, the following courses are required plus four (4) 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)
  (in lieu of CS4900)
*Four (4) Engineering track electives approved by the Academic team*

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• **ENGINEERING SCIENCES TRACK (MSES):**
   (PO: LCDR (sel) Bryan Martin AA: Preetha Thulasiraman)
   
   *The following courses are required for the track plus six (6) electives:*
   - CY3800 Topics in Signals Operations (3-0; Part of CSO/326 Core)
   - 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)
     (in lieu of CS4900)

   Six (6) Engineering track electives approved by the Academic team

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   4. Additional Military Requirements:
   - **All U.S. Navy & Marine Corps students**
     - NW3230 Strategy & War (4-2)
   - **All U.S. Navy Line Officer students (except Engineering Duty Officers)**
     - 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)
     *Recommended for all Marine Corps students; may be dropped only with concurrence of the Senior Marine Office.*
   - **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.
   **No more than 4 (OPS/CS) or 5 (EE/ES) sections of CS0810 may be taken, and no more than 2 sections may be taken during a given quarter.**
6. **Student Certification:** I certify that the information on this form is correct, and that I have completed all requirements for the MSCS degree, with any course deviations from my Specialization sequence listed below (must be approved by Academic Advisor).

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Signature: ___________________________ Date: ______________

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

Signature: ___________________________ Date: ______________

8. **Program Officer final review:** Checklist complete.

Signature: ___________________________ Date: ______________