TSSE Course Sequence

Jarema M. Didoszak
NPS, MAE Department
May 2024
A primary goal of the TSSE program is for [primarily] EDO students who are not necessarily naval architects to gain experience in naval engineering through a broad-based, systems engineering and design-oriented program focusing on the warship as a total engineering system.

The capstone design project starts with stakeholder requirements, evaluates preliminary alternatives through detailed analysis, and culminates in a conceptual ship design using the classic naval architecture ship design spiral, set-based design, and other design strategies as applicable.
Core TSSE Courses

• All students participating in the TSSE program from MAE, SE, ECE, and PH take the following courses, and/or approved alternate courses to fulfill the multi-disciplinary intent of the TSSE program design team experience.

• TS3000  Electrical Power Engineering (3-2)
• TS3001  Fundamental Principles of Naval Architecture (3-2)
• TS3002  Principles of Ship Design and Case Studies (3-2)
• TS3003  Naval Combat Systems Elements (3-2)
• TS4000  Naval Combat Systems Engineering (3-2)
• TS4001  Integration of Naval Engineering Systems (3-2)
• TS4002  Ship Design Integration (2-4)
• TS4003  Total Ship Systems Engineering (2-4)
Alternate Courses for in lieu of TS Courses

- TS3000 approved equivalents for TSSE program
  - EC3150 – Power Electronics
- TS3001 equivalents for TSSE program
- TS3002 equivalents for TSSE program
  - SE3100 – Introduction to Systems Engineering + SE4150- System Architecture and Design
- TS3003 Naval Combat Systems Elements (3-2)
  - SE3112-Intro to Sensors + SE3113 – Conventional Weapons; or as arranged with TSSE Program Director
- TS4000 Naval Combat Systems Engineering (3-2)
  - SE4112- Combat Systems Engineering III + SE4115-Combat System Integration; or as arranged with TSSE Program Director
- TS4001 Integration of Naval Engineering Systems (3-2)
- TS4002 Ship Design Integration (2-4)
- TS4003 Total Ship Systems Engineering (2-4)
P-code

• TSSE program was designed to provide a P-code with a distinct 4th digit to signify “Parent degree w/ Total Ship Systems” which is relevant to EDOs for senior officer billet assignments.

• This is outlined in the U.S. Navy Subspecialty Codes Manual, Vol 1, Part B and controlled by the parent curriculum sponsors annotated here.
  • Manual_1_83_PTB_SSP_Apr23.pdf (navy.mil), current version dtd Apr 2023
    • ME – (NAVSEA05)
      • 5602 – Naval Mechanical Engineering with Total Ship Systems
    • SE – (SSP)
      • 5801 – SE Ship Systems
    • EE – (NAVWAR)
      • 5308 – EE Total Ship Systems
    • PH-(PEO IWS)
      • 5705 – Combat Systems – Total Ship Systems
Current TSSE Course Sequence

1. TS3001
   - Summer

2. TS3002
   - Fall

3. TS3000
   - Winter

4. ME2501
   - Winter

5. ME2502
   - Spring

6. TS4000
   - Spring

7. TS4001
   - Summer

8. TS4002
   - Fall

- ME2501
  - Requires Prerequisites

- TS3003
  - Non-TSSE Prerequisite

- ME2201
  - Alternate Quarter Offering

- TS3002
  - No Prerequisite
TSSE Courses – ECE Power Systems

- TS3000 Electrical Power Engineering (3-2) EC3150
- TS3001 Fundamental Principles of Naval Architecture (3-2)
- TS3002 Principles of Ship Design and Case Studies (3-2)
- TS3003 Naval Combat Systems Elements (3-2)
- TS4000 Naval Combat Systems Engineering (3-2)
- TS4001 Integration of Naval Engineering Systems (3-2)
- TS4002 Ship Design Integration (2-4)
- TS4003 Total Ship Systems Engineering (2-4)
TSSE Courses – SE Ship Systems

• TS3000 Electrical Power Engineering (3-2)
• TS3001 Fundamental Principles of Naval Architecture (3-2)
• TS3002 Principles of Ship Design and Case Studies (3-2) SE3100+SE4151
• TS3003 Naval Combat Systems Elements (3-2) SE3112+SE3113
• TS4000 Naval Combat Systems Engineering (3-2) SE4112+SE4115
• TS4001 Integration of Naval Engineering Systems (3-2)
• TS4002 Ship Design Integration (2-4)
• TS4003 Total Ship Systems Engineering (2-4)