Core Curriculum Review

Division of Professional Development
Department of Seamanship and Navigation

02 March 2005
Overview

• Sea Nav Core and the Maritime Continuum
• Where are we now?
• How did we get here?
• Where should we go?
  – Maritime Continuum review
  – Integrating summer training
  – Course descriptions
    • Changes implemented, planned
• Staffing
• The way ahead
## Seamanship and Navigation Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>NS100 Fundamentals of Naval Science</td>
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<td>8-8-12</td>
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The Maritime Continuum

**4/C YEAR**
- PLEBE SUMMER
- PLEBE YEAR

**3/C YEAR**
- 3/C CRUISE
- 3/C YEAR

**2/C YEAR**
- 2/C CRUISE
- 2/C YEAR

**1/C YEAR**
- 1/C CRUISE
- 1/C YEAR

**The Basics**
- Deck seamanship
- Charts
- Intro to Piloting
- Rules of the Road
- Maneuvering Board

**Advanced Knowledge**
- Celestial/Electronic Navigation
- Tides and Currents
- Weather
- Piloting Mastery
- At-Sea Application

**Putting it Together**
- Naval strategy
- Fleet communications
- Warfare tactics
- LANTPAT execution

**Ready for the Fleet**
- Fleet training
- Warfare-specific practicum
What’s the Problem?

• Great slide ... but the devil is in the details
• Fleet feedback indicates erosion of USNA graduate mastery of “the basics”:
  – Standard commands: Conning/linehandling
  – Shiphandling
  – Navigation
  – “Tactical” skills: R/T, signals, etc.
• Echoed in Curriculum 21 Fleet survey
**Question:** What set of skills capable of being taught by USNA are necessary for Junior Officer success in your warfare area? List three most important

- Leadership 46%
- Seamanship and Shiphandling 25%
- Communication Skills 19%
- English Composition 13%
- Management 12%
- Personnel Management 12%
- Time Management 10%
- Navigation 9%
- Computer Literacy 7%
Question: List up to three Academic Strengths of USNA graduates

- Mathematics 39%
- Engineering 34%
- Physical, Hard and Applied Sciences 17%
- Technical Knowledge and Skills 16%
- Computer Literacy 10%
- English Composition 10%
- Nav Science & Professional Development 9%
- History and Naval History 8%
- Seamanship and Shiphandling 8%
- Work Ethic and Discipline 6%
Where are we now?
Spring 2004, Fall 2004 Courses

**NS 100**
- Rules of the Road
- Deck Equipt Fam
- MoBoards
- Piloting
- Gyro/Magnetic Compass
- R/T Procedures
- Electronic Charts
- Marine Propulsion

**NN 204**
- Piloting
- Tides/Currents
- MoBoards
- Weather/Storms
- Celestial Theory
- Rules of the Road
- ECDIS/VMS
- Radar Nav

**NS 310**
- Military strategists
  - Sun Tsu, Jomini, Mahan, Corbett
- Contemporary strategy
  - NSS, NMS
  - FFTS, Sea Power 21
  - NCW
- Fleet Operations
  - ESG, CSG
  - Command and Control
  - SUW, AW, USW, Strike
  - Expeditionary Warfare
  - USMC
“Current” Core: Initial Impressions

- Too much redundancy:
  - Piloting, Rules of the Road, MoBd

- Inadequate emphasis:
  - Use of fixes to pilot, application of MoBd to practical scenarios, voice communications procedures

- Not taught:
  - Signal book content/use, linehandling

- Out of place in SeaNav:
  - Marine propulsion, military strategists

So, how did we get here?
# Historical Perspective – SeaNav Core

## 1984-1985

<table>
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<tr>
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7-8-11

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Where should we go?

Maritime Continuum Review

• Zero-based review
  – Start from goals, vice existing curriculum
  – Work independent of external requirements

• Consider integration with summer training
  – Course work should produce midshipmen ready to participate in summer training
  – Summer training should reinforce/validate academic work
Maritime Continuum Review

• Which mariner skills should be mastered by all USNA graduates?
• What is the best way to teach those skills?
• What is the best sequence of instruction?
  – Focus areas for each class
  – Optimizing the value of summer training

Reduce redundancy, expand practical application
Integrating Summer Training

<table>
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<tr>
<th>Class</th>
<th>Summer</th>
<th>AcYear</th>
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<tr>
<td>4/C</td>
<td>Linehandler, Lookout</td>
<td>Basic Seamanship Skills, Standard Commands, Piloting team member, Understand relative motion, Know Rules of the Road</td>
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<tr>
<td>3/C</td>
<td>JOOD</td>
<td>Master visual/radar piloting, MoBd, Refresh RoR, shiphandling</td>
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<tr>
<td>2/C</td>
<td>YP OOD</td>
<td>Master tactical communications and maneuvering</td>
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<tr>
<td>1/C</td>
<td>YP CO</td>
<td>Warfare community “finishing skills”</td>
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# NS100: Fundamentals of Naval Science

## Seamanship: 16 contact hours
- Introduction - 1
- Ship Characteristics - 1
- Deck Equipment, Marlinspike Seamanship, and Deck Safety - 2
- Standard Commands and Practical Ex - 4
- YP Familiarization Lab - 2
- Shiphandling and Tide/Current Basics - 1
- R/T Procedures and R/T Practical Ex - 3
- Anchoring Equipment and Procedures - 1
- Seamanship Exam/Review (PW #1) - 1

## Moboards: 7 contact hours
- Introduction to Moboards I/II - 2
- Contact Tracking - 1
- Moboard Practical Exercise - 2
- Moboard Exam/Review (PW #4) - 2

## Rules of the Road: 9 contact hours
- ROR and ROR Practical Exercise - 8
- ROR Exam/Review (PW #3) - 1

## Navigation: 36 contact hours
- Nautical Charts - 1
- Gyrocompass and Magnetic Compass - 1
- Intro to Navigation and Time - 2
- Navigational Instruments - 1
- Deduced Reckoning and Current Sailing - 1
- LOPs and Fixes - 1
- Aids to Navigation - 1
- Anchoring Plotting - 1
- Precise Piloting - 1
- Navigation Team/NAVDORM - 1
- Navigation Team U/W Lab I and Lab II - 4
- Nav Case Studies - 2
- PE #1 Plotting Electronic (GPS) Fixes - 1
- PE #2 Plotting Visual Fixes - 2
- PE #3 Plotting Visual Fixes and Applying Rules of DR - 2
- PE #4 Plotting Radar Fixes and Applying Rules of DR - 1
- PE #5A/B Navigator Chart Prep/Timed Simulation - 5
- PE #6A/B Nav Team Chart Prep/Timed Simulation - 5
- Navigation Exam (PW #2)/Review - 3

## Course Review/Simulator Fam: 7 contact hours
- SIM Familiarization - 2
- Course Review Navigation - 2
- Course Review Seamanship - 1
- Course Review Rules of the Road - 1
- Course Review Moboards - 1
# NN204: Navigation and Piloting

**General Navigation: 21 contact hours**
- Piloting Review/Precise Piloting - 2
- Time Zone Review - 1
- Visibility of Lights - 1
- Voyage Planning - 1
- Tides/Currents - 2
- Tides/Currents Practical - 1
- Navigator Practical - 2
- Navigation Team Exercise - 1
- *Navigation Team U/W (YP) Labs* - 4
- Final project preparation/presentation - 4
- Test (PW) 1- 2

**Simulator Exercises: 5 contact hours**
- Simulator Familiarization - 1
- Visual Piloting - 3
- Rules of the Road/Contact Management - 1
- RADNAV Team Exercise - 2

**Rules of the Road:**
- *Blackboard Test = no class time relearning material*

**Weather for the Navigator: 6 contact hours**
- Weather - 2
- Tropical Storms/Evasion - 2
- Test (PW) 2 - 2

**Celestial Navigation: 12 contact hours**
- Sunrise/Sunset - 1
- Celestial Theory - 3
- Intercept Method/Plotting - 2
- Latitude by LAN, Polaris - 1
- Stella Practical Exercises - 3
- Test (PW) 2 - 2

**MO BOARDs: 4 contact hours**
- Moboard Review - 2
- Moboard Practical Exercise - 1
- Moboards Exam (PW#3) - 1

**Electronic Navigation: 7 contact hours**
- Datums, Coordinates, and Projections - 1
- ECDIS - 1
- Electronic Navigation/RADAR - 1
- GPS - 2
- VMS Practical Exercise - 2
NS310: Strategy and Tactics

Navy/Joint Strategy: 15 contact hours
Course Introduction - 1
National Security Strategy - 2
Sea Power 21 - 2
Joint Vision 2010/2020/
  Network Centric Warfare - 3
CWC Concept/Command and Control - 5
Case Studies/Current Strategic Issues - 2

Fleet Tactics: 13 Contact Hours
Rules of Engagement - 1
Expeditionary Strike Group/Carrier Strike Group/
  Practical Exercise - 4
Surface Warfare/Practical - 3
Strike Warfare – 1
Air Warfare/Practical – 2
USW/Practical – 1
Expeditionary Warfare – 1

Navy Tactics: Practical Applications: 12 contact hours
MoBd Simulator Practical - 2
R/T Fundamentals/MTP Use - 2
YP Piloting - 1
YP Lab: Shiphandling Review - 2
YP Lab: DIVTACS - 4
Guest Lecture - 1
NS40X: Junior Officer Continuum

• Warfare-specific courses of instruction
  – Community culture
  – Warfare fundamentals

• Sea Nav provides oversight:
  – Review syllabuses, plans for semester, approve exams

• Largely taught by “adjunct” instructors (except SWO course)
Staff/Instructor Loading

**Sea Nav Billets**

1 USN O-5 (1110) - Chairman
3 USN O-4 (1110)
24 USN O-3 (24 1110, 1 1050)
1 USCG O-3
5 International O-4/O-3: RN, JMSDF, FN, IN, BN

**Note:**
2 USN O-3s permanently transferred to Special Events, teaching on adjunct basis
Fall 2004: Sections Taught

SEA NAV Staff Average: 2.8 Sections/Instructor
Fall 2004: Contact Hours

SEA NAV Staff Average: 9.9 Contact Hours/Week/Instructor
Fall 2004: Mid’n Contact Hours

SEA NAV Staff Average: 217.9 Mid’n Contact Hours/Week/Instructor
Spring 2005: Sections Taught

SEA NAV Staff Average: 2.5 Sections/Instructor
Spring 2005: Contact Hours

SEA NAV Staff Average: 9.5 Contact Hours/Week/Instructor
Spring 2005: Mid’n Contact Hours

- SEA NAV Staff: 6706
- Others: 2851

SEA NAV Staff Average: 279.4 Mid’n Contact Hours/Week/Instructor

NS100 Average Section: 24.5
The Way Ahead

• Fully implement integrated four-year program of progressive qualification standards
• Refine 100 to 204 to 310 sequence
• Improve instruction of “chartless” navigation
• Continue to improve use of simulators
• Increase emphasis in grading on practical demonstration vice in-class exams