



NAVAL
POSTGRADUATE
SCHOOL

Innovations in HSI Education at the Naval Postgraduate School

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Human Systems Integration Program
Operations Research Department
Naval Postgraduate School

The Nation's Premiere Defense Research University

Monterey, California
WWW.NPS.EDU



Attributes of a Profession

- A systematic body of knowledge
- Professional authority and credibility
- Regulation and control of members
- A professional code of ethics
- A culture of values, norms, and symbols



Ten HSI Principles (Booher)

- Top level understanding and advocacy
- Human Centered Design (“Systems” include humans)
- Source Selection policy
- Organizational integration of all “human factors” domains
- Documentation integration of HSI into acquisition process
- Quantification of human parameters
- Application of HSI Technology
- Test & Evaluation integrated with HSI
- **Highly qualified HSI practitioners**
- **Broad HSI education and training program**



- ***Master of Science in HSI***
- Graduate Certificate in HSI
- Workshops



- ***Eligibility***

- US Military Officers
- US Government Civilians
- Enlisted Personnel
- International Students
- DoD Contractors

- ***Prerequisites***

- Baccalaureate Degree
- Undergraduate GPA of 2.2 or better
- At least one Calculus course with B or better



HSI Master's Degree Program

Two Years (Eight Academic Quarters)

- Four **HSI** courses (NPS Certificate)
- Four **Systems Engineering** courses (NPS Certificate)
- Systems Acquisition & Program Management (leads to DAU certification)
- Three-Course **Statistics** sequence
- **Research Methods** and **Survey Research** courses
- **Cost Estimation** course (leads to DAU certification)
- **Test & Evaluation** course (leads to DAU certification)
- Domain courses (HFE, Manpower, Personnel, Training, ESOH)
- Thesis



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- ***Graduate Certificate in HSI***
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- US Government Civilians
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- ***Prerequisites***

- Baccalaureate Degree
- Undergraduate GPA of 2.2 or better
- Two or more pre-Calculus courses with B or better
- Completion of DAU ACQ 101 and ACQ 201A
- Waivers may be considered



- **Resident and DL**
- **Curriculum Development Funded by:**
 - 711th HPW (Course 1: \$100K)
 - NASA (Course 2: \$100K)
 - NAVSEA (Course 3: \$100K)
 - NAVAIR (Course 4: ~ \$40K)
 - NPS (Course 4: \$50K)
- **Faculty Assisting with Curriculum Development:**
 - HSI (Shattuck, N. Miller, O'Connor, McCauley)
 - Operations Research (Nussbaum, Mislick)
 - Systems Engineering (Whitcomb, G. Miller)
 - Business School (Hatch)

- **Technical Support Provided by:**

Sherrill Meaney*

Phil McCullick*

Diane Jones*

Dianna Beardslee*

Tami Isaksen *

Mike DiFranco*

Mike Northcutt*

Nikki Brink*

Ali Rodgers

Marek Piesyk*

Diana Kim

Jamie Hopp

Joi Spencer

Mary Anne Egan



Certificate Program Linkages

The HSI Certificate Program can be taken as:

- a stand-alone course sequence (DL)
- a part of the MS in HSI (DL or resident)
- an elective track in the NPS SE program (DL or resident)

Certificate Program Costs

Federal Government Employees:

\$1750 per course or \$7000 for entire certificate

DoD Contractors:

\$2000 per course or \$8000 for entire certificate



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\$1750 per course or \$7000 for entire certificate

DoD Contractors:

\$2000 per course or \$8000 for entire certificate



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OA3411: Introduction to Human Systems Integration

The Nation's Premiere Defense Research University

Monterey, California
WWW.NPS.EDU



Course Structure

Week 1	Course Introduction; What is HSI?
Week 2	DoD/Federal HSI Policies
Week 3	Service Policies
Week 4	Individual Performance
Week 5	Team Performance
Week 6	Human Factors Engineering
Week 7	Manpower
Week 8	Personnel
Week 9	Training
Week 10	Environment, Occupational Health, Habitability
Week 11	Safety and Survivability
Week 12	Course Paper Preparation



Course Evaluation

- **Weekly Quizzes**
 - Ten weekly quizzes, each worth 10 points.
 - Designed to check knowledge of material covered in each module.
- **Weekly Post and Assess Activity**
 - Ten Post and Assess activities, each worth 15 points.
 - Short essay questions.
 - Require application and integration of material in each module.
 - Students respond to discussion question(s) and assess a classmate's response(s).
 - Instructor evaluates responses and assessments and provides written feedback.
- **Course Paper**
 - Students write an 8 – 10 page paper.
 - Requires discussion of how theories, concepts, and processes of two HSI domains are utilized in the acquisition of a UAS and how these two domains interact with each other.



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**OA3412:
Human Systems Integration
in the Acquisition Life Cycle**

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Course Structure

Week 1	Course Introduction and Overview of the SE Process
Week 2	Cost Estimation
Week 3	HSI Prior to the Materiel Development Decision (Part 1)
Week 4	HSI Prior to the Materiel Development Decision (Part 2)
Week 5	HSI in Materiel Solutions Analysis
Week 6	HSI in Materiel Technology Development
Week 7	HSI in Materiel Technology Development
Week 8	HSI in Engineering and Manufacturing Development (Part 1)
Week 9	HSI in Engineering and Manufacturing Development (Part 2)
Week 10	HSI in Production, Deployment, Operations, and Support (Part 1)
Week 11	HSI in Production, Deployment, Operations, and Support (Part 2)



Example 1

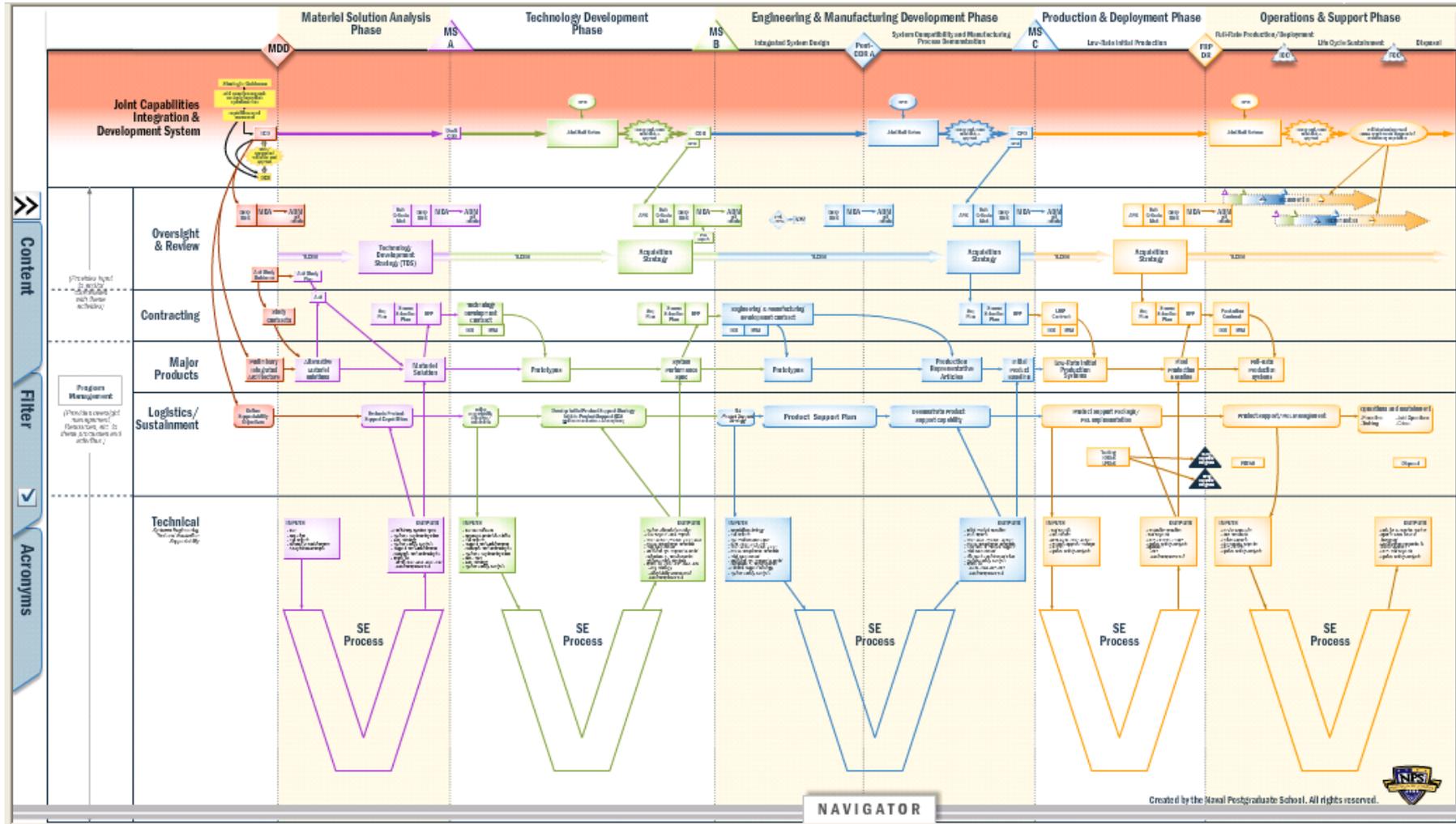
Write a generic KPP for HSI that could be used as a prototype for any ACAT system. This HSI KPP should be overarching rather than for any one specific domain of HSI. Include threshold values and objective values. Defend your KPP and threshold/objective values by explaining why it is viable.

Example 2

Review the ICD with respect to HSI content. Write a memo to the ICD Team Leader with your evaluation and your recommendations for improving the HSI content of the ICD so that it complies with appropriate policies and guidance.



OA3412: HSI in Acq Life Cycle





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**OA3413:
Tools, Techniques and
Processes for HSI**

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Weekly Outline

1. Introduction to OA3413: Tools, Techniques, Approaches and Methods (TTAMs) for HSI; Review of recent HSI Tools Surveys
2. Tool Repositories and TTAM Resources
3. HSI Tradeoffs and Trade Space Exploration in HSI
4. Traceability and Crosswalk of HSI in Acquisition
- 5-10. TTAMs by Phase
11. Final Course Project: list of HSI TTAMs by DA Lifecycle Phase relevant to your organization.



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**OA4414:
Human Systems Integration
Case Studies and Applications**

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Scenario

Department of Homeland Security (DHS) Crisis in 2014
Natural Disasters in Southern Mexico and Central America
Refugees moving north
DHS must respond with short and long term solutions
Long term solutions will address US – Mexico border security

Student Activities

Students divided into teams
Teams conduct Capabilities Based Assessment (CBA)
Based on CBA, teams will pursue different solutions
Solutions will be worked out through remainder of course (HSI Plan, CDD, CDR, and TEMP/OT&E)



Tentative Course Structure

- Week 1 Course Overview and Introduction to Case Study
- Weeks 2 & 3 Capabilities Based Assessment
- Weeks 4 & 5 Systems Engineering Plan and HSI Plan
- Weeks 6 & 7 Capability Development Document/Milestone B Review
- Weeks 8 & 9 Critical Design Review
- Weeks 10 & 11 Operational Test & Evaluation

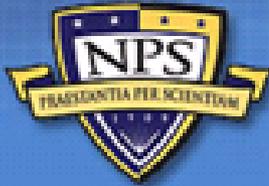




- Master of Science in HSI
- Graduate Certificate in HSI
- ***Workshops***



- Leverage content of all four Certificate Program courses
- Tailored to meet the needs of the sponsor
 - Length: one to five days
 - Location: Sponsor location or NPS
 - Content: Based on sponsor's requirements
- Cost
 - 1 - 2 weeks of faculty salary for preparation (1st time only)
 - TDY (if workshops not at NPS)
 - Salary for instructor for each day of workshop (NPS salary equivalent)



Human Systems Integration Newsletter *February 2010*

HSI Certificate Program Registration is Open for July 2010 Start!

We are pleased to announce that registration is open for the next offering of the NPS Distance Learning HSI Certificate Program! The program begins the 1st week in July and consists of four graduate-level courses. One course is offered each academic quarter (summer, fall, winter, spring).

Students who successfully complete all four courses receive an NPS Certificate in Human Systems Integration and thirteen graduate credits. *The application deadline is 4 June, 2010.*

How do you apply? Answer

online application, prospective students must also arrange for NPS to receive official transcripts from all previous undergraduate and graduate institutions and a command endorsement letter. The letter should state that the command approves of the enrollment and will pay tuition costs.

What are the requirements?
Successful applicants will have:

- Baccalaureate Degree
- GPA of 2.2 or better
- Two or more pre-calculus courses with B or better average
- Completion of DAU ACQ 101 and

What will you learn? A lot! In OA3411 (Intro to HSI) you'll learn about the policies that govern HSI and the domains that comprise HSI.

In OA3412 (HSI in the Acquisition Process) you'll learn what HSI practitioners do throughout the acquisition process—and how they do it.

In OA3413 (HSI Tools, Trade-offs, and Processes) you'll learn about the tools, techniques, approaches, and methods that HSI practitioners use on a regular basis.

In OA3414 (HSI Case Studies



HUMAN SYSTEMS INTEGRATION

*THE NATION'S PREMIER
MASTER OF SCIENCE IN HSI*



*NAVAL POSTGRADUATE
SCHOOL
MONTEREY, CALIFORNIA*



HUMAN SYSTEMS INTEGRATION Certificate Program

ONLINE



**For All Federal
Government Personnel**
**Program Starts
Each Summer Quarter**



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