2017-2018 Core Skill Requirements Curriculum 362

Subspecialty 4600 Resident Masters of Science *Human Systems Integration*

Billet subspecialty coding is to be based on the minimum education/training/experience level required for optimum performance. Human Systems Integration/4600 coding is justified when, in addition to the general criteria stated in NAVPERS 15839 series (Manual of Navy Officer Manpower and Personnel Classification) Part B, the following specific criteria are satisfied:

1. Subspecialty Coding Restrictions:

a. Billets assigned to shore-based Unrestricted Line Officers, Restricted Line Officers, and Staff Corps.

2. Applicable Officer Designator(s): 1110, 120X, 13XX, and 2300

3. Applicable Billet Designator: 1000, 1020, 1050, 1100, 120X, 13XX, and 2300

4. Significant Experience Criteria

a. Human Systems Integration/4600 S-coded Billets are justified for Officers when they can:

(1) Demonstrate knowledge of HSI concepts, principles, activities, and their application in system or technology design (e.g., HSI program planning, conducting and providing technical expertise in human performance requirements analysis, training analysis and design, manpower and personnel analyses, developing and applying human performance metrics. Additionally, HSI domain knowledge shall be demonstrated in support of Systems Engineering planning activities as documented in a Systems Engineering Plan (SEP) or stand-alone Human Systems Integration Program Plan (HSIPP).

(2) Demonstrate experience in performing tradeoff analyses within and across HSI domains and other system acquisition disciplines (e.g., hardware/software engineering, logistics, systems engineering, test and evaluation (T&E), and cost analyses) to determine impacts to human-system performance while minimizing total lifecycle costs. Tradeoff analyses includes applying HSI processes, techniques and RDT&E to systems engineering cost, schedule, and performance decision making, Commercial/Government off the Shelf technologies and using human performance testing and modeling techniques to determine the impact of alternate approaches on mission performance.

(3) Demonstrate experience in applying human performance research and analyses to the systems engineering processes including, requirements analysis, function allocation, design deep synthesis, task analysis, user interface design, test and evaluation, and HSI risk assessments.

(4) Demonstrate experience in application of HSI in Operations and Maintenance (O&M) activities. These experiences include in depth knowledge of Anthropometry and Biomechanics, use of software modeling, address strength prediction, and physical risk factors of ergonomics (e.g., Posture, Force, Duration, Repetition, Compression, Vibration, and Temperature).

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(5) Demonstrate the ability to identify HSI risks during SETR and Independent Logistics Assessments (ILA) and to identify entrance/exit criteria for major milestone and technical reviews.

(6) Demonstrate the ability to effectively communicate to technical and non-technical audiences the role and importance of HSI in the DoD acquisition lifecycle and System Engineering processes to include the cost, benefits and risks of recommended HSI approaches in system and technical design.

(7) Demonstrate the ability to develop and implement policy and guidance for the planning or execution of HSI within the Department of Defense acquisition life-cycle management system in accordance with OPNAVINST 5310.23.

(8) Demonstrate an understanding of the roles and responsibilities of the key Navy stakeholders in HSI and systems acquisition (e.g., program offices, resource sponsors, competencies, COTF, OPNAV, Fleet Forces, SYSCOM's, etc.)

b. Human Systems Integration/4600 S-coded Officers are justified for Officers when:

(1) FITREP justifies H, S, R, B, P, Q, AYB or AYC coded billet for more than 18 months and has no Subspecialty Code in this field.

(2) FITREP justifies that s/he has demonstrated a majority of the experience criteria indicated above for more than 18 months.

c. Human Systems Integration/4600 R-coded Billets are justified for Officers when all of the S-coded billet functions above plus at least four of the below:

(1) Demonstrate experience in applying HSI skills and abilities to system or technology design during the execution of HSI tasks (e.g., HSI planning, human performance requirements and metrics analyses, training analysis and design, manpower and personnel analyses, providing independent expert assessment and evaluation methods to conduct SETR and ILA events).

(2) Demonstrate significant experience (18 or more consecutive months) in performing tradeoff analyses based on requirements and risks across multiple HSI domains and other engineering disciplines (e.g., Logistics, Systems Engineering, Test and Evaluation (T&E), and Cost Analysis) to determine the impact to system performance while minimizing total lifecycle costs. Tradeoff recommendations include applying business case analyses using data derived from modeling and simulation techniques to determine the capabilities associated with alternate approaches, developing and evaluating design concepts, identifying risk, and conducting HSI T&E activities.

(3) Demonstrate significant experience in applying human performance research and analyses to the systems engineering and acquisition processes including requirements analysis, function allocation, task analysis, user interface design and evaluation, and risk assessments.

(4) Demonstrate experience in application of HSI in Operations and Maintenance (O&M) activities. These experiences include in depth knowledge of Anthropometry and Biomechanics, use of software modeling, address strength prediction, and physical risk factors of ergonomics (e.g., Posture, Force, Duration, Repetition, Compression, Vibration, and Temperature).

(5) Ability to integrate HSI domains into the Systems Engineering (SE) and Logistics lifecycle process to include entrance/exit criteria to milestones and at SETR events.

(6) Demonstrate the ability to effectively communicate to technical and non-technical audiences the role and importance of HSI in the DOD acquisition lifecycle and System engineering processes to include the benefits and risks of various approaches in system and technical design

(7) Ability to evaluate and recommend policy and guidance revisions for the planning or execution of HSI within the Department of Defense acquisition process.

d. Human Systems Integration/4600 R-coded are justified for Officers when:

(1) All S-coded functions plus filled an S, R, B, H, P, Q, AYB or AYC coded billet for more than 18 months and has no Subspecialty Code in this field.

(2) The Officer's FITREPs justify that s/he has successfully demonstrated the Core Skill Requirements for at least 18 months.

5. Baccalaureate Criteria

a. Human Systems Integration/4600 E-coded Billets and Officers are not authorized.

6. Elective Level Criteria – *NOTE: These will be counted in Quota Model for Master's degree.*

a. Human Systems Integration/4600 H-coded Billets are justified when the billet desires an Officer possessing an HSI subspecialty code, but an HSI subspecialty is not required.

b. Human Systems Integration/4600 H-coded Officers are not authorized.

7. Functional Education Criteria

a. Human Systems Integration (4600) F-coded and G-coded Billets are not authorized:

b. Human Systems Integration (4600) F-coded Officers are justified when:

(1) An Officer has not completed all required ESRs (not completed a Thesis at Naval Postgraduate School).

(2) An Officer attends a Civilian Institution and completes all required ESRs (JPME related ESR not required).

c. Human Systems Integration/4600 G-coded Officers are justified after having acquired a 4600S code, and when:

(1) An Officer possesses an F code.

(2) An Officer has completed a tour in a master's degree billet or higher.

8. Masters Criteria

a. Human Systems Integration (4600) P-coded Billets are justified when a billet requires that an Officer:

(1) Demonstrate the application of HSI tasks (e.g., HSI planning, human performance requirements analysis, training analysis and design, manpower and personnel analyses, human performance metrics, and evaluation methods at SETR events).

(2) Demonstrate experience in performing tradeoff analyses incorporating risk assessments across HSI domains and other acquisition disciplines (e.g., Logistics, Systems Engineering, Test and Evaluation (T&E), and Cost) to determine the impact of design alternatives on human-system performance while minimizing total lifecycle costs. These analyses can include applying business case data derived from modeling techniques to determine the capabilities associated with alternate approaches, developing and evaluating design concepts, assessing risk, and supporting T&E.

(3) Demonstrate significant experience in applying human performance considerations to the systems engineering and acquisition process. This can included influencing requirements analysis, function allocation, task analysis, user interface design and evaluation, and risk assessments.

(4) Demonstrate experience in application of HSI in Operations and Maintenance (O&M) activities. These experiences include in depth knowledge of Anthropometry and Biomechanics, use of software modeling, address strength prediction, and physical risk factors of ergonomics (e.g., Posture, Force, Duration, Repetition, Compression, Vibration, and Temperature).

(5) Ability to apply the HSI process to the systems engineering (SE) and logistics lifecycle process to include entrance/exit criteria to major lifecycle and SETR and major acquisition milestone events.

(6) Ability to effectively communicate to technical and non-technical audiences the role and importance of HSI in DoD acquisition lifecycle and SETR and major acquisition milestone events.

(7) Ability to develop and implement policy and guidance for the planning or execution of HSI within the Department of Defense acquisition life cycle process.

b. Human Systems Integration (4600) P-coded Officers are justified when:

(1) An Officer completes NPS Curriculum 362 ESRs including a Thesis. (NOTE: If Thesis is not completed Officer will be awarded an F Subspecialty Code. Utilization and obligations are still required.)

c. Human Systems Integration/4600 Q-coded Billets are justified when a billet requires that an Officer demonstrate four of the six abilities below.

(1) Ability to apply HSI system or technology design tasks (e.g., HSI planning, human performance requirements analysis, training analysis and design, manpower and personnel analyses, human performance metrics, and evaluation methods in technical reviews).

(2) Ability to perform tradeoff analysis across HSI domains and other technical disciplines (e.g., Logistics, Acquisition, and (T&E)) to determine the impact to human performance while minimizing total lifecycle costs. Tradeoff analysis can include applying various modeling techniques to determine the capabilities associated with alternate approaches.

(3) Ability to conduct human performance research and analyses to include requirements analysis, function allocation, task analysis, user interface design and evaluation, and risk assessments.

(4) Demonstrate experience in application of HSI in Operations and Maintenance (O&M) activities. These experiences include in depth knowledge of Anthropometry and Biomechanics, use of software modeling, address strength prediction, and physical risk factors of ergonomics (e.g., Posture, Force, Duration, Repetition, Compression, Vibration, and Temperature).

(5) Ability to apply the HSI process and Logistics lifecycle process during milestone and SETR and major acquisition milestone events.

(6) Ability to effectively communicate to technical and non-technical audiences the role and importance of HSI in DoD acquisition lifecycle and SETR events.

(7) The ability to develop and implement policy and guidance for the planning or execution of HSI within the Department of Defense acquisition process.

d. Human Systems Integration (4600) Q-coded Officers are justified when:

(1) They complete NPS Curriculum 362 ESRs and have successfully completed at least 18 months in a master's degree 4600P coded billet or higher.

(2) They have a P code prior to Q, B, and H coded tour (NOTE: F coded Officers cannot obtain Q codes. They will be authorized G codes.)

9. Post-Masters

a. Human Systems Integration (4600) N-coded Billets and Officers are not authorized.

b. Human Systems Integration (4600) M-coded Billets and Officers are not authorized.

10. Doctorate Criteria

a. Human Systems Integration (4600) D-coded Billets and Officers are not authorized.

b. Human Systems Integration (4600) C-coded Billets and Officers are not authorized.

11. Community Managers, specifically, the Surface (1110), HR (1200), Aviation (13XX), and Medical (2300) indicated non-concurrence on the DCNO, N1 subspecialty requirements review, and recommend removal from CSR and quotas for the resident curriculum and shift to civilian billets.

12. Sponsor and Subject Matter Experts

a. Major Area Sponsor: Mr. Dave R Menzen, Director, Total Force Manpower, Training and Education Requirements (OPNAV N12)

b. Subject Matter Expert: Mr. Richard Etheridge, Deputy Branch Chief, Acquisition Manpower and Training Branch (OPNAV N125)

APPROVED: D R Mez

Director, Total Force Manpower,
Training and Education Requirements
Division (OPNAV N12)

5 July 2016
DATE

Enclosure (3)