FY13-15 Educational Skills Requirements  
Computer Science and System Design  
Subspecialty 6203  
Curriculum 368

1. Curriculum Number: 368

2. Curriculum taught at NPS.

3. Students are Fully Funded or Partially Funded: FULLY

4. Curriculum Length in months: 18 months

5. APC Required: 325

6. Community Managers and the Budget Submitting Office have agreed to allow Officers to be educated for Computer Science and System Design/6203.

    Designator  Officer Community Manager Name  Approval Date

    a.

    b.

7. The Computer Science and System Design subspecialty code (6203) is intended to serve the Navy by providing commands with officers who possess expertise related to the specification, development, installation, maintenance, evaluation, and security of hardware and software computer systems and networks. The officer must have the theoretical knowledge and practical expertise to perform technical and oversight responsibilities related to computer systems as required by the Department of Defense. Particular skills and competencies that constitute this subspecialty are detailed below:

    a. Fundamental Computer Science: Architectures, operating systems, computer networks, high- and low-level languages and their translation, software systems, human-computer interaction.

    b. Software Development: Planning and development of large software projects to include specification of requirements, design, technical documentation, implementation, risk analysis, testing, quality assurance, maintenance, process metrics, and measures of effectiveness.
through the use of modern software engineering techniques and tools.

c. Analysis: Application of scientific methods to determine reliability, efficiency and performance of computer systems; modeling, simulation, and analysis of algorithms, processes, and systems in support of Naval operations.

d. Data Systems and Management: Devices, interfaces and interconnects; storage architectures and data organizations, addressing and indexing; continuity, backup and recovery; resilience; models, analytics, and visualization; large data sets, and data mining.

e. Autonomous Systems: Design, construction, and operation of autonomous systems including unmanned vehicles; analysis tools for security, forensics and intelligence. Basic skills include artificial intelligence, knowledge management and representation, machine learning, heuristic search, and data mining.


g. Networking & Distributed Computing: Modeling, design and implementation of network infrastructures for distributed and mobile systems. Application of distributed multi-core and multi-processor systems in High Performance Computing (HPC) and cloud computing configurations to support analysis, forensics, engineering, management, and other “big data” applications, such as operations, intelligence and meteorological/oceanographic.

h. Specialization: In addition to the breadth obtained from the collection of previous items, the officer will complete a series of advanced courses that integrate computer science in DOD systems, software, and operations. This in-depth study conveys essential real-world complexities and details that are required to make informed decisions during every stage of computer systems’ lifecycles. Knowledge is deepened through a thesis or capstone project in a framework that exercises the
practices of innovation, problem solving, systems-thinking, and real-world application.

i. JPME: Per community requirements, the officer will have an understanding of warfighting within the context of operational art to include: strategy and war, theater security decision making, and joint maritime operations. Confers JPME Phase I certification.

APPROVED: ____________________________  ____________________________
Major Area Sponsor  Date

APPROVED: ____________________________  ____________________________
President, NPS  Date

APPROVED: ____________________________  ____________________________
Director, TFTE (OPNAV N15)  Date