COURSES

INFORMATION SYSTEMS ENGINEERING

- Master of Science in Information Systems Engineering
- Post-Master’s Certificate in Information Systems Engineering
- Graduate Certificate in Information Systems Engineering

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§ Master of Science in Information Systems Engineering

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§ Graduate Certificate in Information Systems Engineering

PREREQUISITES

605.201 Introduction to Programming Using Java
605.202 Data Structures
605.203 Discrete Mathematics

These courses do not count towards degree or certificate requirements.

FOUNDATION COURSES

Students working toward a master’s degree in Information Systems Engineering are required to take the following three foundation courses before taking any other courses.

605.401 Foundations of Software Engineering
635.401 Foundations of Information Systems Engineering
695.401 Foundations of Information Assurance

One or more foundation courses can be waived by the student’s advisor if a student has received an A or B in equivalent courses. In this case, the student may replace the waived foundation courses with the same number of other graduate courses and may take these courses after all remaining foundation course requirements have been satisfied.

COURSES BY TRACK

ENTERPRISE AND WEB COMPUTING

635.482 Website Development
635.483 E-Business: Models, Architecture, Technologies, and Infrastructure
605.481 Principles of Enterprise Web Development*
605.484 Agile Development with Ruby on Rails*
605.486 Mobile Application Development for the Android Platform*
605.782 Web Application Development with Java*
605.784 Enterprise Computing with Java*
605.785 Web Services with SOAP and REST: Frameworks, Processes, and Applications*
605.786 Enterprise System Design and Implementation*

635.775 Cyber Policy, Law, and Cyber Crime Investigation
635.776 Building Information Governance
695.401 Foundations of Information Assurance
695.411 Embedded Computer Systems—Vulnerabilities, Intrusions, and Protection Mechanisms*
695.421 Public Key Infrastructure and Managing E-Security*
695.422 Web Security*
695.442 Intrusion Detection*
695.443 Introduction to Ethical Hacking*
695.711 Java Security*
695.712 Authentication Technologies in Cybersecurity*
695.721 Network Security*
695.744 Reverse Engineering and Vulnerability Analysis
695.791 Information Assurance Architectures and Technologies*

635.471 Data Recovery and Continuing Operations
635.476 Information Systems Security

635.782 Web Application Development with Java*
635.784 Enterprise Computing with Java*
635.785 Web Services with SOAP and REST: Frameworks, Processes, and Applications*
605.786 Enterprise System Design and Implementation*

CYBERSECURITY

635.471 Data Recovery and Continuing Operations
635.476 Information Systems Security

605.782 Web Application Development with Java*
635.784 Enterprise Computing with Java*
635.785 Web Services with SOAP and REST: Frameworks, Processes, and Applications*
605.786 Enterprise System Design and Implementation*

ENTERPRISE AND WEB COMPUTING

635.482 Website Development
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635.471 Data Recovery and Continuing Operations
635.476 Information Systems Security

605.782 Web Application Development with Java*
635.784 Enterprise Computing with Java*
635.785 Web Services with SOAP and REST: Frameworks, Processes, and Applications*
605.786 Enterprise System Design and Implementation*
605.787  Rich Internet Applications with Ajax*
605.788  Big Data Processing Using Hadoop*

**HUMAN-COMPUTER INTERACTION**
635.461  Principles of Human-Computer Interaction
605.462  Data Visualization
645.450  Foundations of Human Systems Engineering

**INFORMATION MANAGEMENT**
635.421  Principles of Decision Support Systems
605.441  Principles of Database Systems*
605.443  The Semantic Web*
605.444  XML Design Paradigms
605.741  Large-Scale Database Systems*
605.744  Information Retrieval*

**NETWORK ENGINEERING**
635.411  Principles of Network Engineering
635.711  Advanced Topics in Network Engineering
605.772  Network and Security Management

For students with appropriate backgrounds, the following courses may be taken toward the network engineering track. Advisor approval and permission of the instructor is required.

605.473  High-Speed Networking Technologies*
605.477  Internetworking with TCP/IP I*
605.478  Cellular Communications Systems*
605.771  Wired and Wireless Local and Metropolitan Area Networks*
605.776  Fourth-Generation Wireless Communications: WiMAX and LTE*
605.777  Internetworking with TCP/IP II*
605.778  Voice Over IP*

**SOFTWARE ENGINEERING**
605.401  Foundations of Software Engineering
605.402  Software Analysis and Design
605.404  Object Oriented Programming with C++
605.407  Agile Software Development Methods*
605.408  Software Project Management
605.701  Software Systems Engineering*
605.702  Service-Oriented Architecture*
605.704  Object-Oriented Analysis and Design
605.708  Tools and Techniques of Software Project Management*

**SYSTEMS ENGINEERING**
635.401  Foundations of Information Systems Engineering
645.450  Foundations of Human Systems Engineering
645.462  Introduction to Systems Engineering
645.467  Management of Systems Projects
645.742  Management of Complex Systems
645.753  Enterprise Systems Engineering
645.757  Foundations of Modeling and Simulation in Systems Engineering
645.761  Systems Architecting
645.767  System Conceptual Design
645.771  System of Systems Engineering
595.460  Introduction to Project Management
595.792  Management of Innovation

**INDEPENDENT STUDY AND SPECIAL TOPICS**
635.795  Information Systems Engineering Capstone Project
635.801  Independent Study in Information Systems Engineering I
635.802  Independent Study in Information Systems Engineering II

*Please refer to the course schedule (ep.jhu.edu/schedule) published each term for exact dates, times, locations, fees, and instructors.*

*Admission to these courses requires fulfillment of the data structures prerequisite.*