



New Jersey's Science & Technology University

## LIFE LONG LEARNING = LIFE LONG EMPLOYABILITY

### ESSENTIALS OF WEB APPLICATION DEVELOPMENT CERTIFICATE WHICH LEADS TO A BACHELOR'S OF SCIENCE IN INFORMATION SYSTEMS

The Internet and the World Wide Web are the most transformative inventions of our time, and NJIT's new Web Application Development certificate is designed to prepare qualified working adults for exciting career opportunities in this area. Beginning with an introduction to utilizing some of the fundamental web application development tools, students will then study the necessary concepts from information technology and progress to developing expertise in areas like multimedia information systems, building applications for E-Commerce, and advanced web development tools.

Completion of this certificate will open the pathway for individuals to gain entry to new career positions in E-Commerce and Web Development, or to advance their knowledge in their current career position. Individuals who complete this certificate may also wish to consider enrolling in NJIT's nationally accredited baccalaureate degree programs in Information Systems, for which all the certificate degree credits would be transferable.

#### Certificate Includes

<b>IS 118:</b>	Introduction to Application Development Tools
<b>IS 218:</b>	Introduction to Web Systems Design
<b>IS 245:</b>	Information Technology Systems: Hardware/Software
<b>IT 202:</b>	Internet and Applications
<b>IS 270:</b>	Multimedia Information Systems
<b>IT 310:</b>	E-commerce Technology
<b>IS 373:</b>	World Wide Web Standards
<b>IS 447:</b>	Human Computer Interfaces

#### **IS 118 - Introduction to Application Development Tools**

Application development principles, and associated development tools and programming. HTML, and PHP are examples of open source development tools that are becoming defacto standards within the development community. Knowledge of these tools will benefit the student in subsequent courses and in their senior capstone project. In the proprietary arena, VB.Net is extensively used for application in all environments and its penetration into the development area is quite large and often is the language of choice of many Windows shops.

#### **IS 218 - Introduction to Web Systems Design**

This course provides a critical, hands-on introduction to Web-based Information Systems and Web systems design. Students will research and discuss emerging trends, capabilities, and limitations of web technologies used to capture, store, access, and disseminate information for both businesses and online communities. Students will design and develop different types of websites and web applications which will then be analyzed as to their usability in real public and private settings.

#### **IS 245: - Information Technology Systems: Hardware/Software**

This course reviews hardware/software technologies in order to enable system developers to understand tradeoffs in the design of computer architectures for effective computer systems. Also covered are operating systems and systems architecture for networked computing systems. Topics include Hardware (CPU architecture, memory, registers, addressing modes, busses, instruction sets, multi processors versus single processors, and peripheral devices), Operating systems (processes, process management, memory and file system management), and Telecommunications (basic network components, switches, multiplexers and media, installation and configuration of multi-user operating systems).

### **IT 202 - Internet Applications**

This course covers Internet programming and applications. A variety of software technologies are used to illustrate important concepts in Information Technology, from the client-server paradigm to text-based protocols like HTTP. HTML is introduced as the standard tool for information layout for web documents and for transferring information to/from a server-side program. The client-side language Javascript that interfaces with HTML is introduced including some of the Document Object Model [DOM]. The eXtended Markup Language (XML), Document Type Definition grammars [DTD] and Cascading Style Sheets (CSS) are used to illustrate technologies for structuring information and uniformizing the presentation of information. A server-side language (like JSP) is considered in some detail, together with a database (like Access) and the Structured Query Language (SQL) to allow implementing a three-tier web application. As time allows, other topics will be discussed.

### **IS 270 - Multimedia Information Systems**

Multimedia combines text, graphics, sound, video, and animation in a single application. Preparation for creating multimedia information systems, and understanding the crucial issues involving technology, design and effectiveness of multimedia applications. Programming techniques for integrating video, sound, animation, and graphics, and design strategies for multimedia information systems.

### **IT 310 - E-commerce Technology**

An overview of the technologies relevant to electronic commerce. Communications and networking, web authoring tools, system security, databases and archiving, EDI, transaction processing, and factory/warehouse data networks. Provides competency to appraise tools such as HTTP servers, secure transaction software and firewalls, low and high-end database systems, heterogeneous networks, NNTP Servers, client software, procurement systems, and intelligent agents. Covers e-commerce models including agent-based and Java-based, electronic contracts and the electronic exchange of technical data, electronic cash systems and user security.

### **IS 373 - World Wide Web Standards**

This course covers the standards that are emerging for formatting, accessing, displaying, transmitting and structuring information, including the standards and protocols existing and under development today. Topics include: Standards, Rationale, Pros and Cons, the Standards Process; Standards Bodies & Participating on Standards Bodies; How Companies Influence Standards; How Developers Incorporate Standards in their Programs; Planning for Emerging Standards; Company Policies Regarding Web Standards; Standards and Legal Issues.

### **IS 447 - Human-Computer Interfaces**

This course covers the design and evaluation of the human-computer interface in interactive computer systems. Among the topics covered are approaches to interface design such as menus, commands, direct manipulation; screen layout strategies; metaphor models; models of human information process; evaluation approaches such as protocol for analysis, interactive monitoring, use of surveys; and requirements for documentation and help. Students are expected to design interface mockups and evaluate them.

For more information on Information Systems at NJIT visit: <http://is.njit.edu/>