

# Information Technology— Web Analyst / Programmer

Associate in Applied Science Degree  
 Information Technology Program Cluster  
 Center for Agriscience & Technologies  
 Program offered at Madison Campuses  
 For information call: (608) 246-6800 or  
 (800) 322-6282 Ext. 6800

## About the Program

The Web Analyst/Programmer program meets the specific skills and knowledge requirements of technical and professional jobs within the Information Technology field for an entry-level web analyst/programmer. It is designed to meet entry-level educational needs of most segments of the IT field which utilize a variety of computers. Training blends general educational development and required IT technical skills. Graduates are prepared for entry-level web developer jobs in government, insurance, manufacturing, service, software development, wholesale and retail sales, utilities, banking and accounting.

## Requirements for Admission

High school diploma, HSED, or GED with a minimum grade point average of 2.0 or equivalent and General knowledge of Microsoft Windows

## Program Courses

### 10-107-111 Careers in IT 1 credit

Introduces students to the various careers available in the vast field of Information Technology and examines the Network Specialist, Programmer/Analyst, Web Programmer/Analyst, Computer Systems Administration Specialist and Security Specialist career paths. Students create an individualized career path plan as the capstone project for the course. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

### 10-107-175 Job Search Preparation 1 credit

Introduction to planning and organizing a job search in Information Technology. Activities include the development of a personalized job search plan, correspondence and portfolio. Prerequisite: IT students must have completed all IT courses in the first two semesters of the program in order to enroll in this course.

### 10-150-160 IT Security Awareness 1 credit

Provides a basic survey of the importance of IT security awareness and data confidentiality. This security awareness-training course walks users through every aspect of Information Security in a very broad, easy to understand way and explains to them the value of securing data, for both themselves and the organization. The class will introduce legislation, local, state and federal privacy policies and liability of individuals and institutions related to data confidentiality and integrity. The course will introduce risk management, security policies, and common threats and countermeasures. The course will also present best practices in access control and password policies.

### 10-152-101 Introduction to Visual Basic.NET Programming 3 credits

Teaches the basic concepts of VB.NET programming. Topics include the Visual Studio Integrated Development Environment, program logic constructs, event-driven programming techniques, and development in an object-oriented context. Prerequisite: 10-107-111 and 10-152-119.

## Curriculum

FIRST YEAR		Credits	Hrs/week Lec-Lab
<b>First Semester</b>			
10-107-111	Careers in IT .....	1	1-0
10-150-160	IT Security Awareness.....	1	1-0
10-152-119	Introduction to Programming with JavaScript.....	3	2-2
10-152-120	Website Development-XHTML.....	3	2-2
10-152-124	Introduction to Database .....	3	2-2
10-801-195	Written Communication .....	3	3-0
10-804-144	Math of Finance.....	3	3-0
<b>Semester Total</b>		<b>17</b>	

### Second Semester

10-152-101	Introduction to Visual Basic.NET Programming OR 3 .....	3	2-2
10-152-111	Introduction to Java Programming .....	(3)	(2-2)
10-152-125	SQL Database Programming .....	3	2-2
10-152-130	Object-Oriented Design with UML.....	3	2-2
10-801-196	Oral/Interpersonal Communication.....	3	3-0
10-809-197	Contemporary American Society.....	3	3-0
10-809-199	Psychology of Human Relations .....	3	3-0
<b>Semester Total</b>		<b>18</b>	

## SECOND YEAR

### First Semester

10-107-175	Job Search Preparation .....	1	1-0
10-152-102	Advanced Visual Basic.NET* OR.....	3	2-2
10-152-112	Advanced Java Programming*.....	(3)	(2-2)
10-152-121	Advanced Website Development.....	3	2-2
10-152-131	Object-Oriented Systems Analysis* .....	3	2-2
10-801-197	Technical Reporting.....	3	3-0
<b>Elective</b> .....		<b>3</b>	<b>E</b>
<b>Semester Total</b>		<b>16</b>	

### Second Semester

10-152-103	Web Application Development Using ASP.NET** OR.....	3	2-2
10-152-113	Enterprise Java Programming**.....	(3)	(2-2)
10-152-126	Database Design and Data Warehousing**.....	3	2-2
10-152-132	Web Analyst/Programmer Internship** .....	3	2-2
10-152-168	AJAX and JavaScript Web Development.....	3	2-2
10-809-166	Introduction to Ethics: Theory and Applications.....	3	3-0
<b>Elective</b> .....		<b>3</b>	<b>E</b>
<b>Semester Total</b>		<b>18</b>	

**Note:** All Information Technology courses require a grade of C or better in order to graduate.

**Note:** Students are assessed for correct placement in English or mathematics courses based on their scores on the COMPASS test or on completion of the appropriate prerequisite(s). Additionally, there may be courses in other subject areas that may use COMPASS scores as prerequisites when reading, writing, math, or critical thinking competencies are required.

## Recommended Electives

Electives must be associate degree (100 level) or college transfer (200-level) courses.

10-101-111	Accounting 1-Principles	4 credits
10-150-170	CCNA1&2: Networking and Routing Basics	3 credits
10-152-141	C# Programming in Visual Studio.NET**	3 credits
10-152-157	Ruby on Rails Development**	3 credits
10-152-143	iPhone Applications Development*	3 credits
10-152-153	Advanced iPhone Applications Development**	3 credits
10-152-166	PHP Web Development with MySQL	3 credits

\*Offered fall semester only

\*\*Offered spring semester only

## Program Courses (continued)

### 10-152-102 Advanced Visual Basic.NET 3 credits

The course provides students with a comprehensive understanding of object-oriented system development. It examines and uses the prewritten .NET Framework classes and explores the MSDN help facility. Topics include: collections, exception handling, interfaces and advanced development techniques such as XML and database programming using ADO.NET. Prerequisite: 10-152-101 and 10-152-124.

### 10-152-103 Web Application Development Using ASP.NET 3 credits

Students learn to develop Microsoft ASP.NET applications that deliver dynamic content to the web. An emphasis is placed on server-side programming and the role of ASP.NET plays. As part of the class, students create web forms with server controls, display dynamic data from a database using Microsoft ADO.NET, read XML configuration files and learn to debug ASP.NET web pages. Prerequisite: 10-152-102 and 10-152-120.

### 10-152-111 Introduction to Java Programming 3 credits

Introduces programming and object-oriented design concepts using the Java programming language. Students learn all the Java programming basics and use a simple text editor as a development environment. Design concepts and programming tools will be integrated with an emphasis on practical business solutions. Prerequisite: 10-107-111 and 10-152-119.

### 10-152-112 Advanced Java Programming 3 credits

Focuses on the server side of application programming for the web. Topics include: Java servlets, database access with JDBC, JavaServer Pages and JavaBeans. A portion of the class deals with application design issues in a web environment. Prerequisite: 10-152-111 and 10-152-125.

### 10-152-113 Enterprise Java Programming 3 credits

The third class of the Java sequence explores advanced Java topics within the J2EE application framework. Topics include JDBC, Enterprise JavaBeans, Servlets, JSPs, XML, JMS, JNDI, Web Services, custom tag libraries, web applications and enterprise applications. Prerequisite: 10-152-112 and 10-152-121.

### 10-152-119 Introduction to Programming with JavaScript 3 credits

Teaches the basic concepts of programming using the JavaScript language. Topics include: embedding JavaScript in HTML, event-driven programming techniques, program control logic, and an introduction to object-oriented programming. Prerequisite: concurrent enrollment in 10-152-120.

### 10-152-120 Website Development-XHTML 3 credits

Teaches the fundamentals and techniques of developing business websites using XHTML-compliant HTML. Topics include webpage design, tables, image manipulation, image maps, forms, tags, cascading style sheets (CSS) and an introduction to JavaScript. All work is done directly with XHTML. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

### 10-152-121 Advanced Website Development-XML 3 credits

Provides the student with experience in the design and implementation of business internet websites using advanced command syntax. Topics include: JavaScript, browser object models, dynamic HTML, advanced cascading style sheets (CSS), XML, document type definitions, extensible stylesheet language transformations (XSLT), and XML schemas. Prerequisite: 10-152-120.

### 10-152-124 Introduction to Database 3 credits

Introduces the student to relational database concepts using the MS Access database environment. Students learn to use various software tools to use queries, forms and reports in developing comprehensive business applications using MS/Access. Prerequisite: Working knowledge of Microsoft Windows (computer literacy, proficiency with a mouse, file management).

### 10-152-125 SQL Database Programming 3 credits

Presents relational database concepts and teaches beginning to intermediate Structured Query Language (SQL) using an Oracle database. Students learn to create and maintain database objects and to store, retrieve, and manipulate data. Demonstrations and hands-on practice reinforce the fundamental concepts. Prerequisite: 10-152-124 and completion of or concurrent enrollment in 10-152-130.

### 10-152-126 Database Design and Data Warehousing 3 credits

Study of the construction of relational databases. Activities include: designing a database using the relational database model, implementing a database in normal form and demonstrating a functional database in terms of performance, integrity and security. Prerequisite: 10-152-125, 10-152-131.

### 10-152-130 Object-Oriented Design w/UML 3 credits

Practical, introductory-level systems analysis experience. Emphasis is on the physical system elements: data design (record, file, database and entity-relationship diagrams), object-oriented design (use case, class and sequence diagrams), user interface design (screen and report) and system interface design (platforms and factoring). The use of CASE tools is integrated throughout the course. Prerequisite: 10-152-119 and 10-152-124.

### 10-152-131 Object-Oriented Systems Analysis 3 credits

Introduction to the methodologies of systems analysis and design. Emphasizes developing interviewing skills, identifying organizational problems and objectives, analyzing and documenting systems, physical modeling and design. Students gain experience in the creation of UML diagrams, a project repository, entity-relationship diagrams, database design, data normalization and data flow modeling. Focuses on problem solving skills, business-client relations, project analysis, team dynamics and communication skills. Prerequisite: 10-152-130.

### 10-152-132 Web Analyst/Programmer Internship 3 credits

Opportunities for students to learn and practice web programming and analysis techniques through activities and experiences in an actual information systems department. Students will seek internship opportunities and interview to be selected for internships. The student spends approximately 216 hours over the course of the semester at the internship site. If no internship is available, a special project may be substituted for the internship by consent of the instructor. Activities include designing and testing new web programs, designing and modifying existing web programs, object oriented systems analysis and design, and sharing experiences with other interns. Prerequisite: 10-107-175, 10-152-121 and 10-152-131 and one of the following: 10-152-102 or 10-152-112.

### 10-152-168 AJAX and JavaScript Web Development 3 credits

AJAX turns static web pages into interactive applications, allowing you to deploy rich-client applications. Course covers the basics of DHTML, JavaScript, and the XMLHttpRequest call. Students learn how to add JavaScript and AJAX to existing programs, and design new applications to exploit the power of Web 2.0. Students learn the three layers of AJAX framework, and when (and how) to use each. Students learn how to create rich clients, use visual effects, add client-side validation, and handle forms. Prerequisite: grade of C or better in 10-152-121 and one of the following: 10-152-102, 10-152-112 or 10-152-167.

## Career Potential:

### ▪ Web Developer

With additional education and/or work experience, graduates may find employment as:

- Web Designer
- Web Architect

*More detailed and updated information on this program may be available at: [matcmadison.edu](http://matcmadison.edu). The college reserves the right to make changes in the regulations and courses announced in this publication without notice.*

*Madison Area Technical College provides equal opportunity in education and employment.*

Rev. 5/09