

Mobile Applications Development

Associate in Applied Science Degree

Information Technology Program Cluster

School of Agriscience and Technologies

Program offered at Madison Campuses

For information call: (608) 246-6800 or
(800) 322-6282 Ext. 6800

About the Program

This two-year program meets the specific skills and knowledge requirements of technical and professional jobs within the Information Technology field for an entry-level web programmer/analyst working in a small to medium size organization. Training blends general educational development with required IT technical skills. Additional education and job experience lead to work in website design and management.

Requirements for Admission

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

NOTE: Students starting this program in a spring semester will need a minimum of 5 semesters to complete the program due to some courses being offered fall only or spring only. These students (and students going part-time) are advised to use the Planner in their student center account to map out the order in which to take the required courses semester by semester, taking into account any limited semesters courses are offered and any pre-requisites for the sequence of courses.

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. Prerequisites: Grade of C or better in 10-107-111 and students must have completed all IT courses in the first two semesters

10-152-111 Intro 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: 10-152-119 and 10-152-124

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

10-152-119 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

Curriculum

The courses listed below outline the requirements for graduation for students entering this program in the 2012-2013 academic year. Requirements for graduation may vary depending on the semester in which a student is admitted to their program.

Current/continuing students should consult their degree progress report available through their student center account for specific graduation requirements. Program requirements are subject to change.

FIRST YEAR		Credits	Hrs/week Lec-Lab
First Semester			
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-HTML5	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
Semester Total		17	

Second Semester			
<i>Course #1</i>	Emphasis Area course #1 (see below)	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
Semester Total		18	

SECOND YEAR

First Semester		Credits	Hrs/week Lec-Lab
<i>Course #2</i>	Emphasis Area course #2 (see below)	3	2-2
<i>Course #3</i>	Emphasis Area course #3 (see below)	3	2-2
10-107-175	Job Search Preparation	1	1-0
10-152-121	Advanced Website Development-XML	3	2-2
10-152-131	Object-Oriented Systems Analysis*	3	2-2
10-801-197	Technical Reporting	3	2-2
Semester Total		16	

Second Semester			
<i>Course #4</i>	Emphasis Area course #4 (see below)	3	2-2
10-152-168	AJAX and JavaScript Web Development**	3	2-2
10-152-174	IT Mobile Development Internship**	3	2-2
10-809-166	Introduction to Ethics: Theory and Application	3	2-2
	Elective	6	E
Semester Total		18	

Android Emphasis	Course Sequence
10-152-111	Intro to Java Programming.....#1
10-152-112	Advanced Java Programming*
10-152-189	Android Applications Development – IDC*
10-152-195	Advanced Android Apps Development – IDC**

iPhone Emphasis	Course Sequence
10-152-139	Intro to C and Objective-C
10-152-167	Advanced PHP & MySQL Web Development*
10-152-143	iPhone Applications Development*
10-152-153	Advanced iPhone Apps Development**

*Offered fall semester only **Offered spring semester only

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 (10-level) or college transfer (20-level) courses.

10-152-126	Database Design and Data Warehousing**	3
10-152-141	C# Programming in Visual Studio.NET*	3
10-152-157	Ruby on Rails development**	3
10-154-190	Linux Server	3



Madison Area Technical College
IT—Programmer / Analyst – Mobile Applications Development

Program Courses (continued)

Program Number: 10-152-1

10-152-120 Website Development-HTML5
Teaches the fundamentals and techniques of developing business websites using XHTML-compliant HTML5. Topics include webpage design, tables, image manipulation, image maps, forms, cascading style sheets (CSS) and an introduction to JavaScript in conjunction with forms. All work is done directly with HTML5. 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

10-152-130 Object-Oriented Design with 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. Prerequisites: 10-152-119 and 10-152-124

10-152-131 Object-Oriented Systems Analysis 3 credits
In this course, the student learns to analyze the business organization as a system, to structure both the information and processes of a business or organization, and to complete the systems development process through the logical design phase. The course utilizes an object-oriented methodology for the systems development process. Prerequisite: 10-152-130

10-152-139 Intro to C and Objective-C 3 credits
The purpose of this course is to prepare students for advanced coursework in development of applications in Apple's iOS environment (e.g. iPhone/iPad/iPod devices). Students will be introduced to basic syntax, debugging, pointers, functions, and file I/O processing using the C programming language. Further course topics will be taught using Objective C, the native development language for iOS application development. These include classes, objects & methods, properties, and message sending. Prerequisites: 10-107-111 and 10-152-119

10-152-143 iPhone Applications Development 3 credits
Introduces programming simple iPhone applications using Cocoa and Objective C. Students will learn basic Objective C concepts, iPhone programming basics, and use the SDK environment on Apple Macintosh computers with OS X as a development platform. Design concepts and programming tools will be integrated with an emphasis on developing and deploying iPhone applications. Prerequisite: 10-152-139

10-152-153 Advanced iPhone Applications Development 3 credits
Focuses on advanced features of the iPhone for applications development, including GPS for location-aware applications, motion sensing, and network-aware applications. A portion of the class deals with application design issues including sharing applications. Prerequisite: 10-152-143

10-152-167 Advanced PHP and MySQL Web Development 3 credits
This course prepares the student to implement professional PHP and MySQL web applications. Students will learn advanced techniques for session management, validation, and authentication. Advanced web application features such as shopping carts, content management using Drupal, web forums and connecting to web services are discussed. Installation and customization of open source PHP web applications is also covered. Prerequisites: 10-152-125 and 10-152-139.

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. Prerequisites: 10-152-121 and one of the following: 10-152-143 or 10-152-189

10-152-174 IT Mobile Development Internship 3 credits
Opportunities for students to learn and practice programming and analysis techniques through activities and experiences in a group project at Madison College, or in an actual information systems department. Objectives commensurate with student's background and experience. Activities include designing and testing new programs, designing and modifying existing programs, systems analysis and design, and sharing experiences with other interns. Prerequisites: 10-107-175, 10-152-121, 10-152-131 and one of the following: 10-152-143 or 10-152-189

10-152-189 Android Applications Development - IDC 3 credits
This course introduces developing applications for Android devices. All the required software is free, including the Android emulator. It is not necessary to own an Android device, though the applications developed in the course can be deployed to one. Basic familiarity with Java and Eclipse (or willingness to learn them quickly) is assumed. After preliminaries with Google Docs and Google Maps, we take up Android layout and input widgets, both in XML and programmatically; menus and dialogs; gesture detection; graphics and the Android drawing API; database access with SQLite and file IO; location-based services (geo-location); and device dependency issues. Prerequisite: 10-152-111

10-152-195 Advanced Android Development - IDC 3 credits
This is a second course in Android application development, assuming a background in Android development and taking up more advanced topics, including geo location, web services and network programming generally, game programming, HTML 5 strategies, and graphics programming. More complex user interfaces are considered, including multi-activity applications. Prerequisites: 10-152-112 and 10-152-189

Additional Required Program Course
10-150-160 IT Security Awareness 1 credit

Career Potential:

- Mobile App Developer
- Web Developer
- Web Application Developer
- Programmer/Analyst

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

- Web Designer
- Web Architect
- Systems Analyst
- Systems Programmer
- Database Programmer
- Project Manager
- Information Systems Department Manager

More detailed and updated information on this program may be available at: madisoncollege.org. 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.

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