

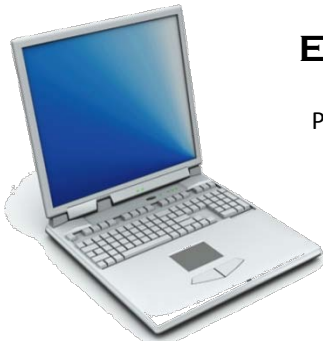
# MANAGEMENT INFORMATION SYSTEMS & COMPUTER SCIENCE



## DEGREE AND CERTIFICATES

EFFECTIVE SPRING 2007 – FALL 2009

Packet Last Updated: 10/02/2008, NOTE: No curriculum changes.



For Information about MIS programs, Related Careers, Job Opportunities, and Faculty, visit the IMS website at:  
[www.morainevalley.edu/ims](http://www.morainevalley.edu/ims)

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Information Management Systems Department

[www.morainevalley.edu/ims](http://www.morainevalley.edu/ims)

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# Computer Science and Management Information Systems



*Welcome!*

We're so glad that you are interested in pursuing an education in the field of Management Information Systems or Computer Science!

Whether you are interested in pursuing a degree or certificate or are looking to renew or pick up a new skill set, the Information Management Systems Department has a variety of courses from which to select. We take tremendous pride in offering our students classes that cover the most up-to-date technologies in our state-of-the-art computer labs.

Please take some time to review our degrees, certificates, and course offerings; and if you have any questions, please ask your teacher, a program coordinator, or the IMS department chair, Michelle August.

## *Information Management Systems Department*

The Information Management Systems Department is comprised of four distinct areas: Management Information Systems, Information Management Systems, Office Systems & Applications, and Computer Science. Depending on the degree or certificate you are pursuing, you may take courses in one, two, three, or all four of these areas.

Visit our website at <http://www.morainevalley.edu/ims> to obtain more information about our talented faculty, careers in Management Information Systems, and up-to-date course information.

## *Questions?*

If you have any questions about our courses, certificates, or degrees, we are always happy to help. Contact one of the IMS faculty members about the area of study that interests you.

## *Packet Information*

### **If you are a New Student:**

#### ***This is your packet!***

If you are a new student or a student who started classes spring 2007, this is your packet. You will need to follow the requirements outlined for the degree or certificate that you wish to pursue. Included in this packet is a schedule of course offerings so that you can map out your plan of study.

### **Current Students:**

If you are a current student who started before spring 2007, you may use this packet or you may use the packet that was current when you started taking courses to chart out your plan of study for the degree or certificate you would like to pursue.

## **Table of Contents**

<b>Course Offering Schedule</b>	2
<b>MIS Degree</b>	4
<b>MIS Certificates</b>	7
<b>CSC Degree</b>	19

**Information Management Systems  
Course Offering Schedule  
Fall 2008 – Summer 2010**

<b>Legend:</b>
D = Daytime
E = Evening
W = Weekend
H = Hybrid
OL = Online
WDN = Withdrawn due to low enrollment

Course	Fall 08	Spring 09	Summer 09	Fall 09	Spring 10	Summer 10
CSC 140		D	D/E	D	D	D/E
CSC 240		D			D	
IMS 100	D/E/W	D/E/W	D/E	D/E/W	D/E/W	D/E
IMS 101	D/E/OL	D/E/OL	D/E/OL	D/E/OL	D/E/OL	D/E/OL
IMS 115	D/E/W/OL	D/E/W/OL	D/E/OL	D/E/W/OL	D/E/W/OL	D/E/OL
IMS 215	E	D		E	D	
MIS 105	D/E/OL	D/E/OL	E	D/E/OL	D/E/OL	E
MIS 108	D/E	D/E	E	D/E	D/E	E
MIS 111	D/E/OL	D/E/OL	OL	D/E/OL	D/E/OL	OL
MIS 120				OL		
MIS 121		E			E	
MIS 123	E	OL		E	OL	
MIS 139	WDN (D)	E	OL		E	OL
MIS 141	OL	E	OL	OL	E	
MIS 146	D/E	D/E		D/E	D/E	
MIS 154	E			E		
MIS 160			OL			
MIS 176	E			E		
MIS 197	WDN (E)	OL				
Special Topics courses may be offered if sufficient student interest is expressed. The following are possible topics:						
MIS 199	What's New in Office 2007 – D/E					
MIS 200	Intro to LEGO Robotics-WDN (W)  PHP – WDN (E)					
MIS 210		E			E	
MIS 220	WDN (OL)				OL	
MIS 221	Contact Steve Mastej for information about this course (Mastej@morainevalley.edu)					
MIS 239	WDN (E)			E		
MIS 241	OL	OL		E	OL	
MIS 251		E				
MIS 254		E			E	
MIS 259	WDN (E)					
MIS 261	E	Contact Ed Martig for information about this course (Martig@morainevalley.edu)				
MIS 264		E	Contact Ed Martig about this course (Martig@morainevalley.edu)			
MIS 276		E			E	
MIS 283	E			E		
MIS 284	Contact Larry Langellier for information about this course (Langellier@morainevalley.edu).					
MIS 285		E			E	
MIS 286		E			E	
MIS 287	Contact Dawn Patitucci for information about this course (Patitucci@morainevalley.edu)					
MIS 289	E			E		
MIS 291	E			E		
MIS 292		OL			E	
MIS 295		OPEN			OPEN	
MIS 296	Withdrawn – Please contact Ed Martig for information (Martig@morainevalley.edu)					
MIS 297		E			E	
MIS 298	WDN (E)					

## *IMS Course Offering Schedule*

Course	Fall 08	Spring 09	Summer 09	Fall 09	Spring 10	Summer 10
OSA 100	D/E	D/E	D/E	D/E	D/E	D/E
OSA 102	E	D		E	D	
OSA 103	D/E	D/H		D/E	D/H	
OSA 104	D/E	D/E	E	D/E	D/E	E
OSA 116	E	E		E	E	
OSA 122	E/OL	D/E		E/OL	D/E	
OSA 125	WDN (E)			H		
OSA 135		E			E	
OSA 145	E	E/OL		E/OL	E/OL	
OSA 225		E			E	
OSA 230	E	H		E	H	
OSA 232	E			E		
OSA 234	E			E		
OSA 235		E			E	
OSA 236		E			E	
OSA 243		H			H	
OSA 246		E			E	
OSA 249	E			E		
OSA 250	E			E		
OSA 252		E			E	
OSA 255	E			E		
OSA 257	OL	E		OL	E	
OSA 258		OPEN			OPEN	
OSA 260	OL			OL		
OSA 275	Contact Dawn Patitucci for information about this course (Patitucci@morainevalley.edu).					

**Legend:**

**D = Daytime**  
**E = Evening**  
**W = Weekend**  
**H = Hybrid**  
**OL = Online**

**Faculty and Students Please Note:** This schedule was created in good faith, based on past and predicted enrollments, to assist students in the planning of their coursework. If circumstances change regarding curriculum, this schedule may need to be altered!

Here are names and e-mail addresses of faculty members who can assist you with questions:

**Nancy Woodard** (IMS Program Coordinator) Woodard@morainevalley.edu

**Carol Straka** (OSA Program Coordinator) Straka@morainevalley.edu

**Larry Langellier** (MIS Program Coordinator) Langellier@morainevalley.edu

**Jane Corradetti** (OSA Internship Coordinator) Corradetti@morainevalley.edu

**Ed Martig** (MIS Internship Coordinator) Martig@morainevalley.edu

**Michelle August**, IMS Department Chairperson, August@morainevalley.edu

**Management Information Systems  
A.A.S. Degree  
Curriculum Code #1206**

This program prepares students for pursuit of careers in information technology. Graduates qualify for management information systems support staff positions such as applications trainers, technical support staff, software support staff, and programming and Web applications trainees.

According to the Bureau of Labor Statistics Occupational Outlook Handbook, employment in information technology careers is expected to grow faster than the average through 2014. Management information systems jobs should be plentiful in information services departments and businesses. IT skills are needed in all industries.

**Required General Education Courses- 16 credits as follows:**

COM 101	Composition I	3	
COM 103	Speech Fundamentals	3	
	Select three credits from ANT, ECO, GEO, HIS, PSC, PSY, SOC, SSC, ARB, ART, FRE, GER, HUM, JPN, LIT, MUS, PHI, SPA, THE	3	
BUS 120 <b>OR</b> MTH 120	Business Mathematics General Education Mathematics	3	
	Select four credits from BIO, CHM, EAS, GEL, NAT, PHY, PHS	4	
			<b><u>16</u></b>

**Required Career Courses-21 credits as follows:**

IMS101 <b>OR</b> IMS 115	Introduction to Computer Systems Introduction to PC Applications	3	
MIS 105	Programming Principles	3	
MIS 111	Internet Technologies	3	
MIS 121	Networking for Business	3	
MIS 123	Database Design	3	
MIS 146	Operating Systems	3	
MIS 295	Internship	3	
			<b><u>21</u></b>

**Concentrations**

Students may select E-Commerce, Application Development, or Web Development.

**E-Commerce (27 credits)**
**Required Special Career Courses as follows:**

OSA 135	Website Applications	3	
	Select six credits from BUS	6	
MIS 141	Web Page Authoring and Publishing	3	
MIS 197	E-Commerce Development	3	
MIS 210 <b>OR</b> MIS 291	Project Management Systems Analysis and Design	3	
MIS 292	SQL/Database Applications	3	
MIS 297	Data-Driven Websites	3	
MIS 298	E-Commerce Policy and Strategy	3	
			<b><u>27</u></b>

**Application Development (27 credits)**
Required Special Career Courses- 9 credits as follows:

MIS 210	Project Management	3
MIS 291	Systems Analysis and Design	3
MIS 292	SQL/Database Applications	3

**Choose one track (9 credit hours):**

<b>Visual Basic.NET Programmer Track (9 credit hours)*</b>	<b>C# Programmer Track (9 credit hours)*</b>
MIS 139 VB .NET Programming I 3	MIS 154 C# Programming I 3
MIS 239 VB .NET Programming II 3	MIS 254 C# Programming II 3
MIS 285 ASP .NET Web Applications 3	MIS 285 ASP .NET Web Applications 3
Or MIS 289 .NET Desktop Application Development	Or MIS 289 .NET Desktop Application Development
<b>Java Programmer Track (9 credit hours)</b>	<b>C++ Programmer Track (9 credit hours)</b>
MIS 176 Java Programming I 3	MIS 160 C++ Programming I 3
MIS 276 Java Programming II 3	MIS 261 C++ Programming II 3
MIS 283 Java Web Development	MIS 264 C++ Software Development 3
Or MIS 286 Java Software Development 3	
<b>RPG Programmer Track (9 credit hours)</b>	
MIS 120 RPG Programming I 3	
MIS 220 RPG Programming II 3	
MIS 221 Interactive Programming for RPG 3	

**Choose another track\*\*\*\* (6 credit hours not duplicating selections from the prior track):**

<b>Visual Basic.NET Programming Track (6 credit hours)*</b>	<b>C# Programming Track (6 credit hours)*</b>
MIS 139 VB .NET Programming I 3	MIS 154 C# Programming I 3
MIS 239 VB .NET Programming II 3	MIS 254 C# Programming II 3
<b>Java Programming Track (6 credit hours)</b>	<b>C++ Programming Track (6 credit hours)</b>
MIS 176 Java Programming I 3	MIS 160 C++ Programming I 3
MIS 276 Java Programming II 3	MIS 261 C++ Programming II 3
<b>RPG Programming Track (6 credit hours)</b>	<b>Web Client Scripting Track (6 credit hours)</b>
MIS 120 RPG Programming I 3	MIS 141 Web Page Authoring and Publishing 3
MIS 220 RPG Programming II 3	MIS 241 Advanced Web Page Authoring 3
<b>E-Commerce Development Track (6 credit hours)</b>	<b>Web Design Track (6 credit hours)</b>
MIS 197 E-Commerce Development 3	OSA 125 Introduction to Website Design 3
MIS 297 Data-driven Websites for E-Commerce 3	OSA 135 Website Applications 3
<b>Web Development Track (6 credit hours)</b>	
MIS 251 ColdFusion Programming 3	
MIS 297 Data-driven Websites for E-Commerce 3	

Elective Courses (Select 3 Credit Hours that have not been selected above):

MIS 120 RPG Programming I	3	MIS 283 Java Web Applications	3
MIS 139 VB .NET Programming I	3	MIS 284 XML .NET Web Services	3
MIS 141 Web Page Authoring and Publishing	3	MIS 285 ASP .NET Web Applications	3
MIS 154 C# Programming I	3	MIS 286 Java Software Development	3
MIS 160 C++ Programming I	3	MIS 287 Visual Basic for Applications**	3
MIS 176 Java Programming I	3	MIS 289 VB .NET Software Development	3
MIS 197 E-Commerce Development	3	MIS 297 Data-driven Websites	3
MIS 199 Special Short Topics in Technology***	1	MIS 251 ColdFusion Programming	3
MIS 200 Special Topics in Technology***	3	MIS 259 Flash ActionScript	3
MIS 221 Interactive Programming for RPG	3	OSA 125 Introduction to Website Design	3
MIS 241 Advanced WebPage Authoring	3	OSA 135 Website Applications	3
MIS 264 C++ Software Development	3		

**27**

\*NOTE: Students pursuing VB .NET (or C#) in one track may not choose C# (or VB .NET) in the other track.

\*\*NOTE: MIS 287 is a recommended elective for students who select the VB .NET Track.

\*\*\*NOTE: MIS 199 and MIS 200 can be repeated up to three times for credit as long as different topics are selected.

\*\*\*\*NOTE: Courses from each track can be pursued simultaneously.

**Web Development (27 credits)**
*Required Special Career Courses-18 credits as follows:*

OSA 125*	Introduction to Website Design	
<b>OR</b> OSA 135*	Website Applications	3
MIS 141	Web Page Authoring and Publishing	3
Choose 6 credits (one must be an MIS course) from:		
	MIS 210, MIS 291, BUS 105, BUS 130, BUS 131, BUS 134, BUS 136, BUS 200, BUS 230, BUS 231	6
MIS 241	Advanced Web Page Authoring	3
MIS 292	SQL/Database Applications	3

**Choose one track (9 credit hours):**

<b>Java Programmer Track (9 credit hours)</b>		<b>C# Programmer Track (9 credit hours)</b>	
MIS 176 Java Programming I	3	MIS 154 C# Programming I	3
MIS 276 Java Programming II	3	MIS 254 C# Programming II	3
MIS 283 Java Web Applications	3	MIS 285 ASP .NET Web Applications	3
<b>Visual Basic .NET Programmer Track (9 credit hours)</b>		<b>Multimedia Programmer Track (9 credit hours)</b>	
MIS 139 VB .NET Programming I	3	MIS 259 Flash ActionScript	3
MIS 239 VB .NET Programming II	3	MIS 251 ColdFusion Programming	3
MIS 285 ASP .NET Web Applications	3	MIS 297 Data-driven Websites	3

**27**

\*NOTE: OSA 125 is recommended for students pursuing the VB .NET or C# Programmer Tracks;  
 OSA 135 is recommended for students pursuing the Java or Multimedia Programmer Tracks

**Total Credit Hours for Degree: 64**

05-09-06

**Website Designer Certificate**  
**Curriculum Code: #1434**

This certificate is designed for the computer user who has strong skills in Microsoft Windows navigation and computer applications packages. Students who are interested in beginning a career in Website Design and who do not possess these prerequisite skills should meet with a coordinator to plan appropriate course selection.

This program prepares students for positions as website designers.

**Required Career Courses – 30 credit hours as follows:**

<b>Course</b>	<b>Name</b>	<b>Credit Hours</b>
MIS 105	Programming Principles	3
MIS 111	Internet Technologies	3
MIS 123	Database Design	3
MIS 141	Web Page Authoring and Publishing	3
MIS 241	Advanced Web Page Authoring	3
OSA 125	Introduction to Website Design	3
OSA 135	Website Applications	3
OSA 234	Introduction to PC Graphics	3
OSA 236	PC Graphics Applications	3
MIS 297	Data-Driven Websites	<u>3</u>
<b>Total Credit Hours:</b>		<b>30</b>

#1434/02-24-06

**Website Developer Certificate**  
**Curriculum Code: #1433**

This certificate is designed for the experienced computer user who has strong skills in Microsoft Windows navigation and computer applications packages. Students who are interested in beginning a career in Website Development and who do not possess these prerequisite skills should meet with a coordinator to plan appropriate course selection.

This program prepares students for positions as web developers.

**Required Career Courses – 36 credit hours as follows:**

<b>Course</b>	<b>Name</b>	<b>Credit Hours</b>
MIS 105	Programming Principles	3
MIS 111	Internet Technologies	3
MIS 121	Networking for Business	3
MIS 123	Database Design	3
MIS 141	Web Page Authoring and Publishing	3
MIS 241	Advanced Web Page Authoring	3
MIS 292	SQL/Database Applications	3
Choose 3 credits from:		
	MIS 210, MIS 291, BUS 105, BUS 130, BUS 131, BUS 134, BUS 136, BUS 200, BUS 230, BUS 231	3
OSA 125	Introduction to Website Design	
<b>OR</b> OSA 135	Website Applications	3

**Choose one track (9 credit hours):**

<b>Java Programmer Track (9 credit hours)</b>		<b>C# Programmer Track (9 credit hours)</b>	
MIS 176 Java Programming I	3	MIS 154 C# Programming I	3
MIS 276 Java Programming II	3	MIS 254 C# Programming II	3
MIS 283 Java Web Applications	3	MIS 285 ASP .NET Web Applications	3
<b>Visual Basic .NET Programmer Track (9 credit hours)</b>		<b>Multimedia Programmer Track (9 credit hours)</b>	
MIS 139 VB .NET Programming I	3	MIS 251 ColdFusion Programming	3
MIS 239 VB .NET Programming II	3	MIS 259 Flash ActionScript	3
MIS 285 ASP .NET Web Applications	3	MIS 297 Data-driven Websites	3

**Total Credit Hours:                    36**

\*NOTE:    OSA 125 is recommended for students pursuing the VB .NET or C# Programmer Tracks;  
               OSA 135 is recommended for students pursuing the Java or Multimedia Programmer Tracks

**E-Commerce Assistant Certificate**  
**Curriculum Code: #1460**

This program prepares students to assist in the development and management of electronic commerce Web sites. E-Commerce has become a major objective of most mid-to large-size companies as well as small companies. E-Commerce includes the knowledge of business principles as well as Web development, database design, and infrastructures. Demand for people with e-commerce skills will continue to grow as businesses continue to expand their use of electronic technology.

**Required Career Courses** – 36 credit hours as follows:

<b>Course</b>	<b>Name</b>	<b>Credit Hours</b>
	Select six credits from BUS 105, BUS 130, BUS 131, BUS 134, BUS 136 BUS 200, BUS 230, BUS 231	6
IMS101	Introduction to Computer Systems	3
<b>OR</b> IMS 115	Introduction to PC Applications	3
MIS 111	Internet Technologies	3
MIS 123	Database Design	3
MIS 141	Web Page Authoring and Publishing	3
MIS 197	E-Commerce Development	3
MIS 210	Project Management	3
<b>OR</b> MIS 291	Systems Analysis and Design	3
MIS 292	SQL/Database Applications	3
MIS 297	Data-Driven Websites	3
MIS 298	E-Commerce Policy and Strategy	3
OSA 135	Website Applications	<u>3</u>
<b>Total Credit Hours:</b>		<b>36</b>

#1460/06-22-06

**Software Developer Certificate**  
**Curriculum Code: #1305**

This program prepares students with programming skills that will, when combined with a degree and industry experience, provide the background for entry-level or trainee software development positions. Information technology professionals may also pursue this program to enhance their versatility and career advancement potential.

Within this certificate's courses you will gain hands-on experience using at least two programming languages — selecting from C++, Java, and Visual Basic. Software development lifecycle issues — including solution conception, design, implementation, and testing — are addressed with hands-on experiences using the latest hardware and software development tools. Students expand on their breadth of knowledge by selecting from database, web design/development, eCommerce, and Microsoft Office application integration course options.

**Required Career Courses – 15 credit hours as follows:**

<b>Course</b>	<b>Name</b>	<b>Credit Hours</b>
IMS101	Introduction to Computer Systems	
<b>OR</b> IMS 115	Introduction to PC Applications	3
MIS 105	Programming Principles	3
MIS 123	Database Design	3
MIS 210	Project Management	
<b>OR</b> MIS 291	Systems Analysis and Design	3
MIS 292	SQL/Database Applications	3

**Choose one track (9 credit hours):**

<b>Visual Basic.NET Programmer Track (9 credit hours)*</b>		<b>C# Programmer Track (9 credit hours)*</b>	
MIS 139 VB .NET Programming I	3	MIS 154 C# Programming I	3
MIS 239 VB .NET Programming II	3	MIS 254 C# Programming II	3
MIS 285 ASP .NET Web Applications	3	MIS 285 ASP .NET Web Applications	3
<b>Or</b> MIS 289 .NET Desktop Application Development		<b>Or</b> MIS 289 .NET Desktop Application Development	
<b>Java Programmer Track (9 credit hours)</b>		<b>C++ Programmer Track (9 credit hours)</b>	
MIS 176 Java Programming I	3	MIS 160 C++ Programming I	3
MIS 276 Java Programming II	3	MIS 261 C++ Programming II	3
MIS 283 Java Web Applications		MIS 264 C++ Software Development	3
<b>Or</b> MIS 286 Java Software Development	3		
<b>RPG Programmer Track (9 credit hours)</b>			
MIS 120 RPG Programming I	3		
MIS 220 RPG Programming II	3		
MIS 221 Interactive Programming for RPG	3		

**Software Developer Certificate (Con't)**  
**Curriculum Code: #1305**

**Choose another track\*\* (6 credit hours not duplicating selections from the prior track):**

<b>Visual Basic.NET Programming Track (6 credit hours)*</b>		<b>C# Programming Track (6 credit hours)*</b>	
MIS 139 VB .NET Programming I	3	MIS 154 C# Programming I	3
MIS 239 VB .NET Programming II	3	MIS 254 C# Programming II	3
<b>Java Programming Track (6 credit hours)</b>		<b>C++ Programming Track (6 credit hours)</b>	
MIS 176 Java Programming I	3	MIS 160 C++ Programming I	3
MIS 276 Java Programming II	3	MIS 261 C++ Programming II	3
<b>RPG Programming Track (6 credit hours)</b>		<b>Web Client Scripting Track (6 credit hours)</b>	
MIS 120 RPG Programming I	3	MIS 141 Web Page Authoring and Publishing	3
MIS 220 RPG Programming II	3	MIS 241 Advanced Web Page Authoring	3
<b>E-Commerce Development Track (6 credit hours)</b>		<b>Web Design Track (6 credit hours)</b>	
MIS 197 E-Commerce Development	3	OSA 125 Introduction to Website Design	3
MIS 297 Data-driven Websites for E-Commerce	3	OSA 135 Website Applications	3

**Elective Courses (Select 6 Credit Hours that have not been selected above):**

MIS 120 RPG Programming I	3	MIS 261 C++ Programming II	3
MIS 139 VB .NET Programming I	3	MIS 264 C++ Software Development	3
MIS 141 Web Page Authoring and Publishing	3	MIS 276 Java Programming II	3
MIS 154 C# Programming I	3	MIS 283 Java Web Applications	3
MIS 160 C++ Programming I	3	MIS 284 XML .NET Web Services	3
MIS 176 Java Programming I	3	MIS 285 ASP .NET Web Applications	3
MIS 197 E-Commerce Development	3	MIS 286 Java Software Development	3
MIS 199 Special Short Topics in Technology***	1	MIS 287 Visual Basic for Applications**	3
MIS 200 Special Topics in Technology***	3	MIS 289 VB .NET Software Development	3
MIS 210 Project Management	3	MIS 291 Systems Analysis and Design	3
MIS 220 RPG Programming II	3	MIS 297 Data-driven Websites	3
MIS 221 Interactive Programming for RPG	3	MIS 259 Flash ActionScript	3
MIS 239 VB .NET Programming II	3	MIS 251 ColdFusion Programming	3
MIS 241 Advanced Web Page Authoring	3	OSA 125 Introduction to Website Design	3
MIS 254 C# Programming II	3	OSA 135 Website Applications	3

**Total Credit Hours: 36**

\*NOTE: Students pursuing VB .NET (or C#) in one track may not choose C# (or VB .NET) in the other track.

\*\*NOTE: MIS 287 is a recommended elective for students who select the VB .NET Track.

\*\*\*NOTE: MIS 199 and MIS 200 can be repeated up to three times for credit as long as different topics are selected.

\*\*\*\*NOTE: Courses from each track can be pursued simultaneously.

**Microsoft Application Developer Certificate  
Curriculum Code: #1313**

This certificate is designed for experienced software professionals who *use Microsoft technologies to develop and maintain department-level applications, components, Web or desktop clients, or back-end data services or work in teams developing enterprise applications*<sup>1</sup>. Students will gain training and practice with numerous features of the .NET Framework, including ADO.NET, ASP.NET, Crystal Reports, structured exception handling, Web Services, remoting, XML support, delegates, encryption, and deployment. Additionally, 3-tier architecture, componentization and object-oriented programming principles will be emphasized using the student's choice of either C# or Visual Basic.NET.

Courses in this certificate will include most of the topics found in Microsoft's 70-305, 70-306, 70-310, 70-315, 70-316, and 70-320 MCAD exams. Successful completion of three of these exams would result in obtaining the industry-respected *Microsoft Certified Application Developer* credential. This certificate is intended for students with a prior college degree and software development-related work experience.

<sup>1</sup> <http://www.microsoft.com/learning/mcp/mcsd/faq.asp>

**Required Career Courses** – 15 credit hours as follows:

Students choose **either** two semesters of **Visual Basic .NET** or two semesters of **C#** programming language for a total of 6 credit hours:

**Visual Basic .NET Track**

<b>Course</b>	<b>Name</b>	<b>Credit Hours</b>
MIS 139	VB .NET Programming I	3
MIS 239	VB .NET Programming II	3

OR

**C# Track**

<b>Course</b>	<b>Name</b>	<b>Credit Hours</b>
MIS 154	C# Programming I	3
MIS 254	C# Programming II	3

**All students must complete the following 9 credit hours:**

<b>Course</b>	<b>Name</b>	<b>Credit Hours</b>
MIS 284	XML .NET Web Services	3
MIS 285	ASP .NET Web Applications	3
MIS 289	.NET Desktop Application Development	<u>3</u>

**Total Credit Hours: 15**

**Visual Basic .NET Programmer Certificate**  
**Curriculum Code: #1457**

This program prepares students with programming skills that will, when combined with a degree, provide the background for entry-level or trainee positions or enhance an information technology professional's versatility and career advancement potential.

Visual Basic is considered to be one of the easiest-to-learn programming languages and it boasts the largest community of software developers worldwide. Visual Basic provides developers with a tool they can use to rapidly deliver desktop, PDA, and data-driven web applications using state-of-the-art object-oriented techniques. Within this certificate's courses you will learn the latest in software design and development methodologies while gaining hands-on experience with the latest versions of Visual Basic.

**Required Career Courses – 21 credit hours as follows:**

<b>Course</b>	<b>Name</b>	<b>Credit Hours</b>
IMS 101	Introduction to Computer Systems	
<b>OR</b> IMS 115	Introduction to PC Applications	3
MIS 105	Programming Principles	3
MIS 123	Database Design	3
MIS 139	VB .NET Programming I	3
MIS 239	VB .NET Programming II	3
MIS 287	VB for Applications	3
MIS 285	ASP .NET Web Applications	
<b>OR</b> MIS 289	.NET Desktop Application Development	<u>3</u>
<b>Total Credit Hours:</b>		<b>21</b>

#1457/02-27-06

**C++ Programmer Certificate**  
**Curriculum Code: #1459**

This program prepares students with programming skills that will, when combined with a degree, provide the background for entry-level or trainee positions or enhance an information technology professional's versatility and career advancement potential.

C++ is the primary language of choice when performance is critical. Designed as a general-purpose, cross-platform language, C++ can be used to write a wide variety of applications for many of today's popular operating systems, including Windows, Unix, and Linux. C++ offers the tools necessary to develop object-oriented skills that will be in demand for years. Within this certificate's courses you will learn the latest in software design and development methodologies while gaining hands-on experience with the latest versions of C++.

**Required Career Courses** – 18 credit hours as follows:

<b>Course</b>	<b>Name</b>	<b>Credit Hours</b>
IMS 101	Introduction to Computer Systems	
<b>OR</b> IMS 115	Introduction to PC Applications	3
MIS 105	Programming Principles	3
MIS 123	Database Design	3
MIS 160	C++ Programming I	3
MIS 261	C++ Programming II	3
MIS 264	C++ Software Development	<u>3</u>
<b>Total Credit Hours:</b>		<b>18</b>

#1459/02-24-06

**C# Programmer Certificate**  
**Curriculum Code: #1466**

This program prepares students with programming skills that will, when combined with a degree, provide the background for entry-level or trainee positions or enhance an information technology professional's versatility and career advancement potential.

C# bears syntactic similarities to C++ and Java while utilizing a drag-and-drop development environment more commonly found in Visual Basic. The result is a tool that allows for the rapid development of desktop, PDA, data-driven Web applications using state-of-the-art object-oriented techniques. Within this certificate's courses, you will learn the latest in software design and development methodologies while gaining hands-on experience with the latest versions of Visual C#.

**Required Career Courses – 18 credit hours as follows:**

<b>Course</b>	<b>Name</b>	<b>Credit Hours</b>
IMS 101	Introduction to Computer Systems	
<b>OR</b> IMS 115	Introduction to PC Applications	3
MIS 105	Programming Principles	3
MIS 123	Database Design ( <b>new course</b> )	3
MIS 154	C# Programming I	3
MIS 254	C# Programming II	3
MIS 285	ASP .NET Web Applications	
<b>OR</b> MIS 289	.NET Desktop Application Development	<u>3</u>
<b>Total Credit Hours:</b>		<b>18</b>

#1466/02-24-06

**Java Programmer Certificate**  
**Curriculum Code: #1458**

This program prepares students with programming skills that will, when combined with a degree, provide the background for entry-level or trainee positions or enhance an information technology professional's versatility and career advancement potential.

Because Java was designed for the Internet, it has been a popular choice for writing programs that are platform independent and safe. Java remains popular for network programming and web development. More recently, object-oriented features in the language have made Java a competitive option for writing stand-alone applications. Within this certificate's courses you will learn the latest in software design and development methodologies while gaining hands-on experience with the latest versions of Java.

**Required Career Courses** – 18 credit hours as follows:

<b>Course</b>	<b>Name</b>	<b>Credit Hours</b>
IMS 101	Introduction to Computer Systems	
<b>OR</b> IMS 115	Introduction to PC Applications	3
MIS 105	Programming Principles	3
MIS 123	Database Design ( <b>new course</b> )	3
MIS 176	Java Programming I	3
MIS 276	Java Programming II	3
MIS 283	Java Web Applications	
<b>OR</b> MIS 286	Java Software Development	<u>3</u>
<b>Total Credit Hours:</b>		<b>18</b>

#1458/02-24-06

**RPG Programmer Certificate**  
**Curriculum Code: #1233**

This program prepares students to program in RPG IV on the IBM System i. According to <http://www.search400.com>, RPG skills will be in demand for a long while to come. They also state that most employers are looking for programmers with skills in other areas in addition to a strong RPG skill set. Web enablement seems to be the dominant interest of late so adding skills in Java, HTML, et al, will help you become more desirable in the job market. The e-Commerce Assistant, Software Developer, and Business Skills certificates would also be excellent complements to this certificate.

**Required Career Courses** – 18 credit hours as follows:

<b>Course</b>	<b>Name</b>	<b>Credit Hours</b>
IMS 101	Introduction to Computer Systems	
<b>OR</b> IMS 115	Introduction to PC Applications	3
MIS 105	Programming Principles	3
MIS 120	RPG Programming I	3
MIS 123	Database Design ( <b>new course</b> )	3
MIS 220	RPG Programming II	3
MIS 221	Interactive Programming for RPG	<u>3</u>
<b>Total Credit Hours:</b>		<b>18</b>

#1233/02-24-06

**Business Skills Certificate  
Curriculum Code: #1423**

This certificate provides students with opportunities to develop the most important basic skills needed in virtually all work places today. Students develop an understanding of business theory, accounting fundamentals, the most common PC applications, and essential Internet skills. Students may complete beginning-level or higher-level coursework in accounting and Internet technologies to qualify for this certificate, depending on requirements in other certificates or degrees they are pursuing.

**Required Career Courses** – 9 credit hours as follows:

<b>Course</b>	<b>Name</b>	<b>Credit Hours</b>
BUS 100	Introduction to Business	3
BUS 107	Fundamentals of Accounting	2
<b>OR</b> BUS 142	Financial Accounting	4
<b>OR</b> OSA 249	Accounting for Office Professionals	3
IMS 115	Introduction to PC Applications	3
MIS 108	Internet Basics	1
<b>OR</b> MIS 111	Internet Technologies	<u>3</u>
<b>Total Credit Hours:</b>		<b>9 - 13</b>

01/05

**Computer Science  
A.S. Degree  
IAI Recommended Curriculum**

Computer science majors encompass either a business and information systems emphasis or a technical emphasis. The **business and information systems emphasis** focuses on the use of computer technology and information management methods to solve business problems. This requires knowledge of both computer applications and the basics of business. The **technical emphasis** focuses on algorithms, theoretical foundations of computer science and development of software. A strong foundation in mathematics and science is needed for this emphasis.

These course recommendations are intended for students who are undecided about a transfer school. Students who have selected a transfer school should consult the catalog of that school and an academic advisor for requirements appropriate to the first two years of study. College catalogs and transfer guides for many four year colleges are available in the Academic Advising Center. A pre- or co-requisite may be required for some courses.

**Required General Education Core Curriculum Courses—35 credits as follows:**
**Communication—9 credits**

COM 101	Composition I	3
COM 102	Composition II	3
COM 103	Speech Fundamentals	3

**Physical and Life Sciences—8 credits**

Choose four credits (1 course) from the following:

BIO 111	General Biology I	4
BIO 112	General Biology II	4
BIO 115	Calculus I/Analytic Geometry	5
BIO 119	Introductory Microbiology	4
BIO 180	Human Anatomy and Physiology I	4
NAT 111	Environmental Science I	4
NAT 112	Environmental Science II	4

Choose four credits (1 course) from the following:

(PHY203 must be chosen for the computer science technical emphasis)

CHM 111	Fundamentals of Chemistry	4
CHM 131	Chemistry (University – Oriented) I	4
EAS 120	Introduction to Earth Science	4
EAS 125	Introduction to Weather and Climate	4
GEL 150	Physical Geology	4
PHS 101	Physical Science	4
PHS 103	Descriptive Astronomy	4
PHY 106 & PHY 107	Fundamentals of Physics	3
	Fundamentals of Physics Lab	1
PHY 110 & PHY 111	Mechanical Universe I	3
	Mechanical Universe I Lab	1
PHY 150	Mechanics, Heat and Sound	4
PHY 203	Mechanics	4

**Humanities and Fine Arts\*—9 credits**

Choose three credits (1 course) from Group A, choose three credits (1 course) from Group B, and choose an additional three credits (1 course) from either group:

Group A:

FRE 202	French IV	4
GER 202	German IV	4
HUM 101	Western Humanities I: Foundations	3
HUM 102	Western Humanities I: Continuities	3
HUM 104	Non-Western Humanities	3
HUM 115	World Mythology	3
HUM 120	Women in the Humanities	3
JPN 202	Japanese IV	4
LIT 213	American Literature I	3
LIT 214	American Literature II	3
LIT 215	Bible as Literature I	3
LIT 216	Bible as Literature II	3
LIT 217	Introduction to Poetry	3
LIT 218	Introduction to Drama	3
LIT 219	Women in Literature	3
LIT 220	Introduction to Fiction	3
LIT 221	English Literature I	3
LIT 222	English Literature II	3
LIT 223	Western Literature I	3
LIT 224	Western Literature II	3
LIT 225	Shakespeare	3
LIT 226	Literature of the Non-Western World	3
PHI 101	Introduction to Philosophy	3
PHI 111	Critical Thinking	3
PHI 120	World Religions	3
PHI 125	Ethics	3
SPA 202	Spanish IV	4
SPA 213	Introduction to Hispanic Literature	3

Group B:

ART 110	Art Appreciation	3
ART 205	Survey of Art I	3
ART 206	Survey of Art II	3
ART 208	Survey of Art III	3
ART 209	Survey of Non-Western Art	3
HUM101	Western Humanities I: Foundations	3
HUM 102	Western Humanities I: Continuities	3
HUM 104	Non-Western Humanities	3
HUM 120	Women in the Humanities	3
MUS106	Introduction to American Music	3
MUS 107	Music Appreciation	3
THE105	Theater Appreciation	3
THE 107	Film Appreciation	3
THE 110	History of the Theatre	3
THE 111	History of Film	3

**Social and Behavioral Sciences—9 credits**

ECO 101	Principles of Macroeconomics	3
ECO 102	Principles of Microeconomics	3

Choose an additional three credits (1 course) from the following:

ANT 201	Introductory Physical Anthropology	3
ANT 202	Introduction to Cultural Anthropology	3
ANT 210	Introduction to Archaeology	3
GEO101	Cultural Geography	3
GEO 102	World Regional Geography	3
GEO 201	Economic Geography	3
HIS 101	Western Civilization I	3
HIS 102	Western Civilization II	3
HIS 201	American History I	3
HIS 202	American History II	3
HIS 210	History of Asia	3
HIS 215	History of Africa	3
HIS 220	History of Latin America	3
PSC 103	Introduction to Political Science	3
PSC 110	American National Government	3
PSC 115	State and Local Government	3
PSC 210	International Relations	3
PSC 215	Comparative Government	3
PSC 225	Non-Western Comparative Politics	3
PSY101	Introduction to Psychology	3
PSY 104	Life-Span Developmental Psychology	3
PSY 105	Child Psychology	3
PSY 106	Adolescent Psychology	3
PSY 202	Social Psychology	3
PSY 210	Adult Psychology	3
SOC 101	General Sociology	3
SOC 102	Marriage and Family	3
SOC 204	Sociology of Contemporary Social Problems	3
SOC 210	Minority Groups	3
SSC 101	Social Science I	3

**Concentrations**

Students may select a business and information systems emphasis or a technical emphasis.

**Business and Information Systems Emphasis (26 to 28 additional credits)**
**Mathematics\*\*—4 or 5 credits**

Choose one course from the following:

MTH 143	Finite Mathematics	4
MTH 145	Calculus for Business and Social Science	4
MTH 150	Calculus I/Analytic Geometry	5

**Additional Degree Requirement—3 credits**

IMS 101	Introduction to Computer Systems	3
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**Area of Concentration/Major Field—6 credits**

CSC 140	Introduction to Computer Science	3
CSC 240	Advanced Computer Science	3

**Electives—13 or 14 credits**

BUS 142	Financial Accounting	4
BUS 143	Managerial Accounting	4
MTH 212	Business Statistics	4
MTH 151	Calculus II/Analytic Geometry	5

**Technical Emphasis (26 to 28 additional credits)**
**Mathematics\*\*— 5 credits**

MTH 150	Calculus I/Analytic Geometry	5
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**Additional Degree Requirement—3 credits**

CSC 140	Introduction to Computer Science	3
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**Area of Concentration/Major Field—3 credits**

CSC 240	Advanced Computer Science	3
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**Electives—16 credits**

MTH 151	Calculus II/Analytic Geometry	5
MTH 152	Calculus III/Analytic Geometry	4
PHY 204	Heat, Electricity and Magnetism	4
PHY 205	Waves and Modern Physics	4

**Minimum Total Credit Hours for Degree:**
**62**

\* Foreign Language Requirement: Some universities have a foreign language requirement. Generally, four years of a single foreign language in high school or four semesters of language in college will fulfill this requirement. It is recommended that students complete the entire foreign language sequence at one institution.

\*\* Math requirements vary at four-year institutions

**Engineering  
A.S. Degree  
IAI Recommended Curriculum**

The engineer is concerned with the application of scientific principles to practical problems. There is a wide variety of specialties, but not all types are offered at all baccalaureate schools. A typical four-year curriculum provides a background of chemistry, mathematics and physics during the first two years, with the specialty courses occurring primarily in the last two years. These course recommendations are intended for students who are undecided about a transfer school. Students who have selected a transfer school should consult the catalog of that school and an academic advisor for requirements appropriate to the first two years of study. College catalogs and transfer guides for many four-year colleges are available in the Academic Advising Center.

**Required General Education Core Curriculum --40 credits as follows:**
**Communication—9 credits**

COM 101	Composition I	3
COM 102	Composition II	3
COM 103	Speech Fundamentals	3

**Mathematics—5 credits**

MTH 150	Calculus I/Analytic Geometry	5
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**Physical and Life Sciences—8 credits**

CHM 131	Chemistry (University-Oriented) I	4
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Choose four credits (1 course) from the following:

BIO 111	General Biology I	4
BIO 112	General Biology II	4
BIO 115	Anatomy and Physiology	4
BIO 119	Introductory Microbiology	4
BIO 180	Human Anatomy and Physiology I	4
NAT 111	Environmental Science I	4
NAT 112	Environmental Science II	4

**Humanities and Fine Arts\*--9 credits**

Choose three credits (1 course) from Group A, choose three credits (1 course) from Group B, and choose an additional three credits (1 course) from either group:

**Group A:**

FRE 202	French IV	4
GER 202	German IV	4
HUM 101	Western Humanities I: Foundations	3
HUM 102	Western Humanities I: Continuities	3
HUM 104	Non-Western Humanities	3

HUM 115	World Mythology	3
HUM 120	Women in the Humanities	3
JPN 202	Japanese IV	4
LIT 213	American Literature I	3
LIT 214	American Literature II	3
LIT 215	Bible as Literature I	3
LIT 216	Bible as Literature II	3
LIT 217	Introduction to Poetry	3
LIT 218	Introduction to Drama	3
LIT 219	Women in Literature	3
LIT 220	Introduction to Fiction	3
LIT 221	English Literature I	3
LIT 222	English Literature II	3
LIT 223	Western Literature I	3
LIT 224	Western Literature II	3
LIT 225	Shakespeare	3
LIT 226	Literature of the Non-Western World	3
PHI 101	Introduction to Philosophy	3
PHI 111	Critical Thinking	3
PHI 120	World Religions	3
PHI 125	Ethics	3
SPA 202	Spanish IV	4
SPA 213	Introduction to Hispanic Literature	3

**Group B:**

ART 110	Art Appreciation	3
ART 205	Survey of Art I	3
ART 206	Survey of Art II	3
ART 208	Survey of Art III	3
ART 209	Survey of Non-Western Art	3
HUM101	Western Humanities I: Foundations	3
HUM 102	Western Humanities I: Continuities	3
HUM 104	Non-Western Humanities	3
HUM 120	Women in the Humanities	3
MUS106	Introduction to American Music	3
MUS 107	Music Appreciation	3
THE105	Theater Appreciation	3
THE 107	Film Appreciation	3
THE 110	History of the Theatre	3
THE 111	History of Film	3

If two courses are selected in one discipline, a two-semester sequence is recommended.

**Social and Behavioral Sciences—9 credits**

ECO 101	Principles of Macroeconomics	3
ECO 102	Principles of Microeconomics	3

Choose an additional three credits (1 course) from the following:

ANT 201	Introductory Physical Anthropology	3
ANT 202	Introduction to Cultural Anthropology	3

ANT 210	Introduction to Archaeology	3
GEO101	Cultural Geography	3
GEO 102	World Regional Geography	3
GEO 201	Economic Geography	3
HIS 101	Western Civilization I	3
HIS 102	Western Civilization II	3
HIS 201	American History I	3
HIS 202	American History II	3
HIS 210	History of Asia	3
HIS 215	History of Africa	3
HIS 220	History of Latin America	3
PSC 103	Introduction to Political Science	3
PSC 110	American National Government	3
PSC 115	State and Local Government	3
PSC 210	International Relations	3
PSC 215	Comparative Government	3
PSC 225	Non-Western Comparative Politics	3
PSY101	Introduction to Psychology	3
PSY 104	Life-Span Developmental Psychology	3
PSY 105	Child Psychology	3
PSY 106	Adolescent Psychology	3
PSY 202	Social Psychology	3
PSY 210	Adult Psychology	3
SOC 101	General Sociology	3
SOC 102	Marriage and Family	3
SOC 204	Sociology of Contemporary Social Problems	3
SOC 210	Minority Groups	3
SSC 101	Social Science I	3

#### **Additional Degree Requirement—5 credits**

MTH 151	Calculus II/Analytic Geometry	5
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#### **Areas of Concentration/Major Field—17 to 22 credits**

CSC 206	Fortran Programming	3
MTH 152	Calculus III/Analytic Geometry	4
MTH 201	Differential Equations	3
PHY 203	Mechanics	4
PHY 204	Heat, Electricity and Magnetism	4
PHY 205	Waves and Modern Physics	4

#### **Electives**

This program does not require any further electives; however, the following additional courses are recommended for each engineering specialty area. Students should complete entire course sequences at the same school. Students should consult the intended transfer school and an academic advisor.

#### **Aeronautical, Civil, General, Manufacturing, Mechanical, and Engineering Mechanics**

EGN 150	Engineering Graphics	3
EGN 201	Engineering Statics	3
EGN 202	Engineering Dynamics	3

**Chemical Engineering**

CHM 132	Chemistry University Oriented II	5
CHM 203	Organic Chemistry I	5
CHM 204	Organic Chemistry II	5

**Computer Engineering**

CSC 140	Introduction to Computer Science	3
CSC 240	Advanced Computer Science	3

**Industrial Engineering**

EGN 201	Engineering Statics	3
EGN 202	Engineering Dynamics	3

**Minimum Total Credit Hours for Degree:** **62**

\*Foreign Language Requirement: Some universities have a foreign language requirement. Generally, four semesters of language in high school or four semesters of language in college will fulfill this requirement. It is recommended that students complete the entire foreign language sequence at one institution.