COMPUTER INFORMATION TECHNOLOGY

AAS DEGREE

The Game Animation and Design degree prepares students to create computer generated animation, design, and create video games, and incorporate the art assets into games. This degree requires a minimum of 68 credits in program requirements and general education in the courses listed below.

Field of Study Code: CIS.AAS.GAMEA

<table>
<thead>
<tr>
<th>Program Requirements</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cis 1199 Introduction to Game Industry</td>
<td>3</td>
</tr>
<tr>
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<td>3</td>
</tr>
<tr>
<td>Cis 1201 Advanced Game Design</td>
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</tr>
<tr>
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<td>Cis 2213 Advanced 3D Game Development</td>
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<tr>
<td>Mptv 1311 Introduction to Animation</td>
<td>3</td>
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<tr>
<td>Mptv 1313 History of Animation</td>
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<tr>
<td>Mptv 1320 Experimental Animation</td>
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<tr>
<td>Mptv 1324 Motion Graphics and Special Effects I</td>
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<tr>
<td>Mptv 2331 3-D Animation I</td>
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<tr>
<td>Mptv 2333 Motion Graphics and Special Effects II</td>
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<tr>
<td>Mptv 2340 Three-Dimensional Animation II</td>
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<tr>
<td>Mptv 2342 Animation Portfolio</td>
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<tr>
<td>Art 1101 Drawing I</td>
<td>3</td>
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<tr>
<td>Physi 1100 Physics</td>
<td>4</td>
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</tbody>
</table>

General Education ................................................12 to 14
(In addition to the courses listed above.)

Total Credits Required ........................................68 to 70

AAS DEGREE

The Game Design and Development degree prepares students to design and develop computer games through application of game design elements and development tools used in the game industry. This degree requires a minimum of 64 credits in program requirements, electives and general education in the courses listed below.

Field of Study Code: CIS.AAS.GAMED

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<tr>
<td>Cis 2213 Advanced 3D Game Development</td>
<td>3</td>
</tr>
<tr>
<td>Cis 2220 Game Programming Using C++</td>
<td>3</td>
</tr>
<tr>
<td>Cis 2250 Multiplatform Game Programming</td>
<td>3</td>
</tr>
<tr>
<td>Cis 2252 Advanced Multiplatform Game Programming</td>
<td>3</td>
</tr>
<tr>
<td>Cis 2420 Microprocessor Assembly Language</td>
<td>4</td>
</tr>
<tr>
<td>Cis 2541 C++ Language Programming</td>
<td>4</td>
</tr>
<tr>
<td>Cis 2542 Advanced C++ with Data Structure</td>
<td>4</td>
</tr>
<tr>
<td>Physi 1100 Physics</td>
<td>4</td>
</tr>
</tbody>
</table>

Program Electives ................................................3
Select three credits from any 2000- level Cis course. (In addition to the courses listed above.)
General Education .............................................. 14 to 18
(In addition to the courses listed above.)

Total Credits Required ....................................... 64 to 68

AAS DEGREE

The Software Development degree prepares students to work in the field of computer technology. This degree requires 64 credits in program requirements, program electives, electives and general education in the courses listed below.

Field of Study Code: CIS.AAS.SOFTW

Program Requirements ........................................ 33
Cis 1150 Understanding Computers, Information and Systems ............................................. 3
Cis 1160 Windows Command Line ................................... 2
Cis 1180 Introduction to Networking ................................. 3
Cis 1230 Microcomputer Database Application .............. 3
Cis 1310 HTML and CSS .............................................. 3
Cis 1400 Programming Logic and Technique ............... 4
Cis 1450 Introduction to Linux/Unix Operating Systems ..................................... 3
Cis 2330 Introduction to XML .......................................... 3
Cis 2770 Introduction to System Analysis & Design .... 3
Cis 2790 Systems Analyst Simulation ............................... 3
Engl 1105 Workplace Writing ...................................... 3

Emphasis Courses ................................................. 16
Choose One of the following Emphases: Software Development: C++, Java, Visual Basic (VB) or .NET.

C++ Emphasis ..................................................... 8
This emphasis focuses on the creation, maintenance, and support of software applications in the C++ environment.
Cis 2541 C++ Language Programming ............................. 4
Cis 2542 Advanced C++ with Data Structure Applications ............................................. 4

Java Emphasis ..................................................... 8
This emphasis focuses on the creation, maintenance, and support of software applications in the Java environment.
Cis 2571 Introduction to Java .......................................... 4
Cis 2572 Collections in Java ......................................... 4

Visual Basics Emphasis ......................................... 8
This emphasis focuses on the creation, maintenance, and support of software applications in the Visual Basics environment.
Cis 1510 Graphical User Interface Programming .......... 4
Cis 2510 Advanced Graphical User Interface

Program Electives ................................................. 4 to 8
Select four to eight additional credits. (In addition to the courses listed above.)

Only for the following emphases: Software Development: C++ Option, Java Option, or VB Option: (8 credits in single programming sequence).

Cis 1510 Graphical User Interface Programming ........... 4
Cis 2510 Advanced Graphical User Interface Programming ............................................. 4
Cis 2541 C++ Language Programming ............................. 4
Cis 2542 Advanced C++ with Data Structure Applications ............................................. 4
Cis 2571 Introduction to Java .......................................... 4
Cis 2572 Collections in Java ......................................... 4

General Education ............................................. 15 to 17
(In addition to the courses listed above.)

Total Credits Required ........................................ 64 to 66

AAS DEGREE

The Application and Technical Support Specialist degree prepares students to work in the field of computer technology. This degree requires a minimum of 64 credits in general education, program electives and program requirements in the courses listed below.

Field of Study Code: CIS.AAS.TECH

Program Requirements ........................................ 32
Cis 1150 Understanding Computers, Information and Systems ............................................. 3
Cis 1160 Windows Command Line ................................... 2
Cis 1180 Introduction to Networking ................................. 3
Cis 1205 Office Suite Software Integration ..................... 3
Cis 1310 HTML and CSS .............................................. 3
Cis 1400 Programming Logic and Technique ............... 4
Cis 1450 Introduction to Linux/Unix Operating Systems ..................................... 3
Cis 1610 Windows Client OS .......................................... 3
Cis 2770 Introduction to System Analysis & Design .... 3
Busin 1111 Customer Service ....................................... 3
Cit 1100 PC Maintenance and Upgrading ...................... 2
Engl 1105 Workplace Writing ...................................... 3

.NET Emphasis ..................................................... 12
This emphasis focuses on the creation, maintenance, and support of software applications in the .NET environment.
Cis 1510 Graphical User Interface Programming ........... 4
Cis 2350 Introduction to ASP.NET ................................... 4
Cis 2561 Introduction to C# .NET ..................................... 4

Program Electives ................................................. 4 to 8
Select four to eight additional credits. (In addition to the courses listed above.)

Only for the following emphases: Software Development: C++, Java, Visual Basic (VB) or .NET Option, Java Option, or VB Option: (8 credits in single programming sequence).

Cis 1510 Graphical User Interface Programming ........... 4
Cis 2510 Advanced Graphical User Interface Programming ............................................. 4
Cis 2541 C++ Language Programming ............................. 4
Cis 2542 Advanced C++ with Data Structure Applications ............................................. 4
Cis 2571 Introduction to Java .......................................... 4
Cis 2572 Collections in Java ......................................... 4

General Education ............................................. 15 to 17
(In addition to the courses listed above.)

Total Credits Required ........................................ 64 to 66
Program Elective.................................................................14 to 18
Select 14 to 18 credits from any Cis courses except Cis 1110.
(In addition to the courses listed above.)

General Education ..........................................................15 to 19
(In addition to the courses listed above.)

Total Credits Required .....................................................64 to 72

CERTIFICATE

The Business Productivity Software certificate requires 19 credits in the courses listed below.

Field of Study Code: CIS.CER.BUSPRO

Total Credits Required .....................................................19
Cis 1130 Windows Basics..................................................2
Cis 1150 Understanding Computers, Information and Systems ............................................3
Cis 1205 Office Suite Software Integration............................................3
Cis 1221 Introduction to Spreadsheets ........................................3
Cis 1230 Microcomputer Database Application ........................................3
Cis 1240 Presentation Graphics – Windows Based ........................................2
Cis 1300 Web Design Software................................................3

CERTIFICATE

The C++ Language Proficiency certificate requires 15 credits in the courses listed below.

Field of Study Code: CIS.CER.CPLUS

Total Credits Required .....................................................15
Cis 1150 Understanding Computers, Information and Systems ........................................3
Cis 1400 Programming Logic and Technique........................................4
Cis 2541 C++ Language Programming ........................................4
Cis 2542 Advanced C++ with Data Structure Applications ........................................4

CERTIFICATE

The Database Proficiency certificate requires proficiency in using Windows and 10 credits in the courses listed below.

Field of Study Code: CIS.CER.DBPRO

Total Credits Required .....................................................10
Cis 1150 Understanding Computers, Information and Systems ........................................3
Cis 1230 Microcomputer Database Application ........................................3
Cis 2710 Database Management......................................................4

CERTIFICATE

The Enterprise Database Proficiency certificate requires 13 credits in the courses listed below.

Field of Study Code: CIS.CER.ENTDB

Total Credits Required .....................................................13
Cis 1400 Programming Logic and Technique........................................4
Cis 2720 Structured Query Language (SQL) I........................................3
Cis 2725 Enterprise SQL Application........................................3
OR
Cis 2730 Enterprise Database Development........................................3
Cis 2770 Introduction to System Analysis & Design........................................3

CERTIFICATE

The Game Design and Development certificate will prepare the student for careers in computer game design and development. This certificate requires 31 credits in the courses listed below.

Field of Study Code: CIS.CER.GAMED

Total Credits Required .....................................................31
Cis 1199 Introduction to Game Industry........................................3
Cis 1200 Game Design.....................................................3
Cis 1201 Advanced Game Design..................................................3
Cis 1211 2D Game Development..................................................3
Cis 1400 Programming Logic and Technique........................................4
Cis 2211 2D Game Scripting ....................................................3
Cis 2212 3D Game Development..................................................3
Cis 2213 Advanced 3D Game Development........................................3
Cis 2230 Simulation and Serious Game Design........................................3
Cis 2240 Cross-Platform Game Design................................................3

CERTIFICATE

The Game Programming and Development certificate prepares the student to create and develop computer games using programming languages and development tools used in the game industry. This certificate requires 43 credits in the courses listed below.

Field of Study Code: CIS.CER.GAMEP

Total Credits Required .....................................................43
Cis 1199 Introduction to Game Industry........................................3
Cis 1200 Game Design.....................................................3
Cis 1211 2D Game Development..................................................3
Cis 1400 Programming Logic and Technique........................................4
Cis 2211 2D Game Scripting ....................................................3
Cis 2212 3D Game Development..................................................3
Cis 2213 Advanced 3D Game Development........................................3
Cis 2220 Game Programming Using C++........................................3
CERTIFICATE

The **Windows Network Administration certificate** for Information Technology (IT) professionals with the knowledge to design and implement a Microsoft network using Active Directory (AD). This certificate requires 21 credits in the courses listed below.

**Field of Study Code: CIS.CER.NETWK**

**Total Credits Required** ........................................... **21**
- **Cis 1150 Understanding Computers, Information and Systems** ......................................................... **3**
- **Cis 1180 Introduction to Networking** .................................. **3**
- **Cis 1610 Windows Client OS** ........................................ **3**
- **Cis 1620 Windows Server OS** ........................................ **3**
- **Cis 1630 Windows Server Active Directory (AD)** ........... **3**
- **Cis 1660 Managing a Microsoft Windows Server Network** ............................................................ **3**
- **Cis 1670 Planning a Microsoft Windows Server Network** ............................................................ **3**

CERTIFICATE

The **Spreadsheet Proficiency certificate** requires 18 credits in the courses listed below.

**Field of Study Code: CIS.CER.SPREAD**

**Total Credits Required** ........................................... **18**
- **Cis 1130 Windows Basics** ............................................. **2**
- **Cis 1150 Understanding Computers, Information and Systems** ......................................................... **3**
- **Cis 1205 Office Suite Software Integration** ..................... **3**
- **Cis 1221 Introduction to Spreadsheets** ......................... **3**
- **Cis 1222 Advanced Spreadsheets** ................................ **3**
- **Cis 1400 Programming Logic and Technique** ................... **4**

CERTIFICATE

The **UNIX Proficiency certificate** requires 16 credits in the courses listed below.

**Field of Study Code: CIS.CER.UNIX**

**Total Credits Required** ........................................... **16**
- **Cis 1150 Introduction to Computer Information Systems** ......................................................... **3**
- **Cis 1400 Programming Logic and Technique** .................... **3**
- **Cis 1450 Introduction to Linux/Unix Operating Systems** ......................................................... **3**
- **Cis 2440 Shell Programming for UNIX/LINUX** .................. **3**
- **Cis 2450 UNIX System Administration** ........................ **3**
CERTIFICATE

The Visual BASIC Language Proficiency certificate requires 15 credits in the courses listed below.

Field of Study Code: CIS.CER.VB

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 1150</td>
<td>Understanding Computers, Information and Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIS 1400</td>
<td>Programming Logic and Technique</td>
<td>4</td>
</tr>
<tr>
<td>CIS 1510</td>
<td>Graphical User Interface Programming</td>
<td>4</td>
</tr>
<tr>
<td>CIS 2510</td>
<td>Advanced Graphical User Interface Programming</td>
<td>4</td>
</tr>
</tbody>
</table>

CERTIFICATE

The Web Programmer certificate requires 31 credits in the courses listed below.

Field of Study Code: CIS.CER.WEBPRG

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIS 1120</td>
<td>The Internet</td>
<td>2</td>
</tr>
<tr>
<td>CIS 1130</td>
<td>Windows Basics</td>
<td>2</td>
</tr>
<tr>
<td>CIS 1150</td>
<td>Understanding Computers, Information and Systems</td>
<td>3</td>
</tr>
<tr>
<td>CIS 1180</td>
<td>Introduction to Networking</td>
<td>3</td>
</tr>
<tr>
<td>CIS 1300</td>
<td>Web Design Software</td>
<td>3</td>
</tr>
<tr>
<td>CIS 1310</td>
<td>HTML and CSS</td>
<td>3</td>
</tr>
<tr>
<td>CIS 1400</td>
<td>Programming Logic and Technique</td>
<td>4</td>
</tr>
<tr>
<td>CIS 2320</td>
<td>JavaScript and Advanced HTML</td>
<td>3</td>
</tr>
<tr>
<td>CIS 2571</td>
<td>Introduction to Java</td>
<td>4</td>
</tr>
<tr>
<td>CIS 2572</td>
<td>Collections in Java</td>
<td>4</td>
</tr>
</tbody>
</table>

CERTIFICATE

The Web Client Developer certificate provides the necessary skills and knowledge for client-side Web site development. Learn to develop Web sites using Hypertext Markup Language version 5 (HTML5), Cascading Style Sheets (CSS), and JavaScript. You will write code manually, as well as use graphical user interface (GUI) authoring tools, and program client-side, platform-independent solutions. This certificate requires 13 credits in the courses listed below.

Field of Study Code: CIS.CER.CLIENT

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>CIS 1300</td>
<td>Web Design Software</td>
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<tr>
<td>CIS 1310</td>
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</tr>
<tr>
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<td>CIS 2320</td>
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