COMPUTER INFORMATION SYSTEMS
AAS DEGREE

The Game Animation and Design degree prepares students to create animations, design and develop video games, and incorporate art assets using game industry tools.

Field of Study Code: CIS.AAS.GAMEA

Program Requirements ............................................. 58
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 1212 Game Asset Creation and File Optimization .. 3
Cis 1400 Programming Logic and Technique .......... 4
Cis 2212 3D Game Development ......................... 3
Cis 2332 Game Animation ...................................... 3

OR
Mptv 2332 Game Animation ...................................... 3

Cis 2290 Game Development Capstone Project ........ 4
Mptv 1311 Introduction to Animation .................. 3
Mptv 1313 History of Animation ......................... 3
Mptv 1320 Experimental Animation ................... 3
Mptv 1324 Motion Graphics and Special Effects I .... 3
Mptv 2331 3-D Animation I ................................... 3
Art 1101 Drawing I ........................................... 3
Physi 1100 Physics ........................................... 3
Engli 1101 English Composition I ...................... 3

OR
Engli 1105 Workplace Writing ................................ 3
Spec 1100 Fundamentals of Speech Communication .... 3

OR
Spec 1120 Small Group Communication .................. 3

OR
Spec 1150 Introduction to Business Communication ..

General Education .................................................. 6
Select one course from each category: Social and Behavioral Sciences, Mathematics (1000 level or above)

Total Credits Required .......................................... 64

AAS DEGREE

The Game Design and Development degree prepares students to design and develop video games through application of game design elements and development tools used in the game industry.

Field of Study Code: CIS.AAS.GAMED

Program Requirements ............................................. 50
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 1212 Game Asset Creation and File Optimization .. 3
Cis 1400 Programming Logic and Technique .......... 4
Cis 2211 2D Game Scripting ................................. 3
Cis 2212 3D Game Development ......................... 3
Cis 2541 C++ Language Programming .................. 3
Physi 1100 Physics ........................................... 4
Art 1101 Drawing I ........................................... 3
Engli 1101 English Composition I ...................... 3

OR
Engli 1105 Workplace Writing ................................ 3
Spec 1100 Fundamentals of Speech Communication .... 3

OR
Spec 1120 Small Group Communication .................. 3

OR
Spec 1150 Introduction to Business Communication ..

Electives ............................................................ 8
Select eight credits from any 1000- or 2000- level courses. (In addition to the courses listed above.)

General Education .................................................. 6
Select one course from each category: Social and Behavioral Sciences, Mathematics (1000 level or above)

Total Credits Required .......................................... 64
AAS DEGREE

The Game Programming and Development degree prepares students to develop video games using programming languages and development tools used in the game industry.

Field of Study Code: CIS.AAS.GAMEP

Program Requirements .............................................. 58-60
Cis 1199 Introduction to Game Industry .................... 3
Cis 1200 Game Design ............................................. 3
Cis 1211 2D Game Development ................................ 3
Cis 1212 Game Asset Creation and File Optimization .... 3
Cis 1400 Programming Logic and Technique ............... 4
Cis 2211 2D Game Scripting .................................... 3
Cis 2212 3D Game Development ................................ 3
Cis 2220 Game Programming Using C++ .................... 3
Cis 2420 Microprocessor Assembly Language .............. 4
Cis 2541 C++ Language Programming ....................... 4
Cis 2542 Advanced C++ with Data Structure Applications .............................................. 4
Cis 2770 Introduction to System Analysis and Design ....... 3
Cis 2290 Game Development Capstone Project ................ 4
Physi 1100 Physics ................................................. 4
Math 1115 Technical Mathematics I .............................. 3

OR
Math 1428 College Algebra with Applications .................. 3

OR
Math 1431 Precalculus I ............................................ 5

OR
Math 1432 Precalculus II: Trigonometry ......................... 3
Engli 1101 English Composition I .................................. 3

OR
Engli 1105 Workplace Writing ..................................... 3
Spec1100 Fundamentals of Speech Communication .......... 3

OR
Spec1120 Small Group Communication ............................ 3

OR
Spec 1150 Introduction to Business Communication ..........

General Education ..................................................... 6
Select one course from each category: Social and Behavioral Sciences, Humanities and Fine Arts

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

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 & Design3
Cis 2790 Systems Analyst Simulation ............................ 3
Engli 1105 Workplace Writing ..................................... 3

Emphasis Courses ....................................................... 16
Select any two course sequences for a minimum of 16 hours.

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 Programming ................................................. 4
Program Requirements ................................................. 36
Cis 1150 Understanding Computers, Information and Systems ................... 3
Cis 1160 Windows Command Line .................................. 3
Cis 1180 Introduction to Networking ................................ 3
OR
Cis 1116 Network Essentials ........................................ 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 and Design .......... 3
Busin 1111 Customer Service .................................... 3
Cis 1100 IT Fundamentals .......................................... 2

.NET Emphasis .......................................................... 3
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++ Option, Java Option, or VB Option: (8 credits in single programming sequence).
Cis 1510 Graphical User Interface Programming... 4
Cis 2510 Advanced Graphic 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 provide help, support, and technical advice to computer users.

Field of Study Code: CIS.AAS.TECH

Program Electives ......................................................... 13
Select 13 credits from any CIS courses except CIS 1110. (In addition to the courses listed above.)

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

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

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 Data Analysis with Spreadsheets ......................... 3
Cis 1230 Microcomputer Database Application .................. 3
Cis 1240 Presentation Graphics – Windows Based2 .............. 3
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
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

The Game Design and Development certificate will prepare the student for careers in video game design and development.

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

**Total Credits Required** .................................................. 32  
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 1212 Game Asset Creation and File Optimization .......3  
Cis 1400 Programming Logic and Technique .........4  
Cis 2211 2D Game Scripting ..............................................3  
Cis 2212 3D Game Development ..........................................3  
Cis 2541 C++ Language Programming .................................4  
Art 1101 Drawing I ............................................................3

The Game Programming and Development certificate prepares the student to program and develop video games using programming languages and development tools used in the game industry.

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

**Total Credits Required** .................................................. 34  
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 2220 Game Programming Using C++ .......................3  
Cis 2420 Microprocessor Assembly Language .................4  
Cis 2541 C++ Language Programming .................................4  
Cis 2542 Advanced C++ with Data Structure Applications ....4

The iPhone/iPad Developer Proficiency certificate prepares the student to design and develop applications for Apple iOS platform in accordance with Apple development standards. This certificate requires 16 credits in the courses listed below.

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

**Total Credits Required** .................................................. 16  
Cis 1400 Programming Logic and Technique ........................4  
Cis 2541 C++ Language Programming ................................4  
Cis 2592 iPhone/iPad Application Development ........4  
Cis 2594 Advanced iPhone/iPad Application Development ..........4

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

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

**Total Credits Required** .................................................. 15  
Cis 1150 Understanding Computers, Information and Systems ..........3  
Cis 1400 Programming Logic and Technique ........................4  
Cis 2571 Introduction to Java .........................................4  
Cis 2572 Collections in Java .......................................4

The LINUX certificate documents proficiency in the Linux operating system and its environment. This certificate requires 16 credits in the courses listed below.

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

**Total Credits Required** .................................................. 16  
Cis 1150 Introduction to Computer Information Systems ..........3  
Cis 1400 Programming Logic and Technique ........................4  
Cis 1450 Introduction to Linux/Unix Operating Systems ..........3  
Cis 2440 Shell Programming for UNIX/Linux ..........3  
Cis 2455 LINUX System Administration ..............................3

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 Systems ..........1

8/19/19 COLLEGE OF DUPAGE 2019-2021 CATALOG  COMPUTER INFORMATION SYSTEMS 4
CERTIFICATE

This Windows based Spreadsheet Proficiency Certificate prepares students to utilize spreadsheets, analyze data, and apply business intelligence tools in business applications.

Field of Study Code: CIS.CER.SPREAD

Total Credits Required................................................. 11-12
Cis 1110 Introduction to Informatics .............................................. 2
OR
Cis 1130 Windows Basics ........................................... 2
OR
Cis 1150 Understanding Computers, Information and Systems ................. 3
OR
Ofti 1200 MS Office for Professional Staff ................. 3
Cis 1205 Office Suite Software Integration ......... 3
Cis 1221 Data Analysis with Spreadsheets ......... 3
Cis 1222 Advanced Spreadsheets with Business Intelligence ....... 3

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 ......... 4
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

Total Credits Required................................................. 15
Cis 1150 Understanding Computers, Information and Systems ................. 3
Cis 1400 Programming Logic and Technique ......... 4
Cis 1510 Graphical User Interface Programming ......... 4
Cis 2510 Advanced Graphical User Interface Programming ................. 4

CERTIFICATE

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

Field of Study Code: CIS.CER.WEBPRG

Total Credits Required................................................. 31
Cis 1120 The Internet ......... 2
Cis 1130 Windows Basics ......... 2
Cis 1150 Understanding Computers, Information and Systems ................. 3
Cis 1180 Introduction to Networking ......... 3
Cis 1300 Web Design Software ......... 3
Cis 1310 HTML and CSS ......... 3
Cis 1400 Programming Logic and Technique ......... 4
Cis 2320 JavaScript and Advanced HTML ......... 3
Cis 2571 Introduction to Java ......... 4
Cis 2572 Collections in Java ......... 4

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

Total Credits Required................................................. 13
Cis 1300 Web Design Software ......... 3
Cis 1310 HTML and CSS ......... 3
Cis 1400 Programming Logic and Technique ......... 4
Cis 2320 JavaScript and Advanced HTML ......... 3