

HERZING

BACHELOR OF SCIENCE IN SOFTWARE DEVELOPMENT WITH NO DECLARED MINOR OR CONCENTRATION (BSSDNM)

PROGRAM DESCRIPTION

The Bachelor of Science Degree in Software Development Program employs an integrated and coherent approach that prepares students with the necessary academic knowledge and technical competencies required for a range of positions. The curriculum is focused on designing, implementing, or supporting computer application solutions to problems in industries such as business, homeland security, and health information management. Coursework is designed to enhance and build upon the knowledge and skills of students with associate's degrees, completed coursework, or practical experience in programming applications. Career opportunities include, but are not limited to, such areas as systems analysis, application programming, software engineering, and web design.

PROGRAM OBJECTIVES

Upon completion of this program, students should be able to demonstrate the ability to participate as a team member or to manage projects that:

1. Show mastery of software programming and techniques necessary to design, implement, and evaluate quality software solutions.
2. Demonstrate software engineering standards in the design, documentation, test, and implementation of software systems.
3. Reconcile conflicting project objectives in the design of software systems, finding acceptable compromises within limitations of cost, time, knowledge, existing systems and design choices, and organizations.
4. Articulate organizational, operational, ethical, social, legal, and economic issues impacting the design of software and software systems.
5. Analyze a problem in order to define the software requirements appropriate to a solution.
6. Apply mathematical foundations and algorithmic principles in software design and development.
7. Think critically at a conceptual level and by using mathematical analysis as well as the scientific method; write and speak effectively; use basic computer applications; and understand human behavior in the context of the greater society in a culturally diverse world.

POTENTIAL JOB POSITION TITLES

Potential entry-level job position titles include computer software application developer, computer software engineer, computer software systems engineer, computer systems administrator, database administrator, computer systems analyst, and web developer.

PROGRAM CONTENT

A minimum of 121.00 semester credit hours is required for graduation.

REQUIRED CORE COURSES IN COMPUTER SCIENCE

All courses, 32.00 semester credit hours, are required.

Course Number	Course Name	Prerequisite	Credit Hours
IS 103	Programming Logic	None	4.00
IS 109	Object-Oriented Programming 1	IS 103	4.00
IS 112	Computer Networks	IS 102	4.00
IS 182	Database Concepts and Applications I	IS 103	3.00
IS 185	Computer Architecture and Troubleshooting I	None	4.00
IS 207	Object-Oriented Programming 2	IS 109	4.00
IS 210	Discrete Structures for Computer Science	IS 103 and MA 107	3.00
IS 272	Introduction to Computer Security	IS 112	3.00
IS 328	Software Engineering I	IS 207	3.00

OPEN ELECTIVE COURSES

A minimum of 18.00 semester credit hours of open electives is required. IS 165 may not be taken to satisfy this requirement.

OPEN TECHNICAL ELECTIVE COURSES

A minimum of 16.00 semester credit hours of any Information Systems (IS), Information Technology (IT), or Networking and Security Technology (NT) course, except IS 165, is required. A minimum of 12.00 semester credit hours must be at the 300- to 400-level.

ELECTIVE COURSES IN SOFTWARE DEVELOPMENT—SECONDARY PROGRAMMING LANGUAGE

A minimum of 4.00 semester credit hours is required. Students must select one Secondary Programming Language Elective from the list below.

Course Number	Course Name	Prerequisite	Credit Hours
IS 170	Visual Basic I	IS 103	4.00
IS 211	Legacy Systems Introduction	IS 103	4.00
IS 213	C++ Programming	IS 207	4.00
IS 258	Web Scripting	IS 108	4.00
IS 312	C# Programming	IS 207	4.00
IS 316	Programming in Linux	IS 103	4.00
NT 325	System Administration Scripting	IS 103	4.00

ELECTIVE COURSES IN APPLICATION SPECIALTY DOMAIN

A minimum of 9.00 semester credit hours is required in one of the following broad areas. At least 3.00 semester credit hours must be at the 300- or 400-level.

- ◆ Accounting (AC), Business Management (BU), and Human Resources (HR)
- ◆ Criminal Justice (CJ) and Homeland Security (HS)
- ◆ Game Development (GD) and Graphic Arts (GA)
- ◆ Health Information Management (HI) and Healthcare Management (HC).

REQUIRED CAPSTONE OR INTERNSHIP

3.00 semester credit hours are required.

Course Number	Course Name	Prerequisite	Credit Hours
IS 491	Capstone Project	Final semester	3.00
IS 495	Internship	Final semester and PD 214	3.00

REQUIRED COURSES IN GENERAL EDUCATION

Students enrolled in this bachelor's degree must complete a minimum of 37.00 semester credit hours in general education distributed among the following disciplines. A minimum of 9.00 semester credit hours must be upper level (300- to 400-level courses). Refer to the General Education section of the catalog for Herzing University courses that would satisfy these requirements. *

- 1.00 Semester Credit Hour in Information Literacy
- 6.00 Semester Credit Hours in English Composition or Literature
- 3.00 Semester Credit Hours in Speech
- 4.00 Semester Credit Hours in Computer Applications ◆
- 7.00 Semester Credit Hours in Mathematics (College Algebra or Above)
- 4.00 Semester Credit Hours of Natural Science With a Lab Component
- 3.00 Semester Credit Hours in Social or Behavioral Science
- 3.00 Semester Credit Hours in Humanities With a Critical Thinking Focus ** ◆
- 3.00 Semester Credit Hours in Cultural Diversity
- 3.00 Semester Credit Hours in General Education Electives ◆

- * Transfer students may transfer courses that are within 1.00 semester credit hour of the courses listed above to meet these discipline requirements. Any resulting deficiency in the total of 37.00 semester credit hours required in general education may be made up with general education electives from any of the listed disciplines.
- ** A course with a critical thinking focus would be a course that addresses the theories and application of critical analysis with an emphasis on developing sequential reasoning skills. Examples may be courses in critical thinking, philosophy, logic, or science.
- ◆ The state of Minnesota requires a minimum of 30.00 semester credit hours of general education for bachelor's degrees, not counting computer applications. However, all Herzing University students in the BSSDNM program must complete a minimum of 37.00 semester credit hours in general education, including computer applications, to complete the requirement for graduation from this bachelor's degree program. Minnesota students must complete at least 4.00 semester credit hours of general education in the humanities.

PERSONAL AND PROFESSIONAL DEVELOPMENT COURSES

A minimum of 2.00 semester credit hours is required. Students taking the IS 495 Internship must also take PD 214.

Course Number	Course Name	Prerequisite	Credit Hours
PD 121	Professional Development I	None	1.00
PD 202	Professional Development II	None	1.00
PD 214	AS/AAS/BS/Diploma Internship Preparation	None	0.00

For more information about our graduation rates, the median debt of students who completed the program, and other important information, please visit our website at <http://www.herzing.edu/academics/software-development>