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

(Please see the *Undergraduate Program Offerings by Campus* chart in the catalog for a list of Herzing campuses offering this program.)

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.

This bachelor's degree includes courses that provide a strong foundation for industry certifications. Depending on the student's core and elective courses, as well as their commitment to prepare outside of class, the student can take these industry certification exams from one or more of the following companies: Cisco, CompTIA, Microsoft, Oracle, VMware, and Red Hat. For a full listing of courses and their corresponding certifications, please talk to your admissions advisor.

PROGRAM OUTCOMES

Upon completion of this program, the student should be able to:

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 OCCUPATIONAL TITLES

Potential occupational titles for this program include, but are not limited to, applications software developer, systems software developer, and software quality assurance engineer and tester.

PROGRAM CONTENT

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

REQUIRED CORE COURSES IN COMPUTER SCIENCE

All courses, 52.00 semester credit hours, are required.

Course Number	Course Name	Prerequisites/Corequisites	Semester Credit Hours
IS 122	Programming Logic	None	3.00
IS 123	Computer Networks	None	3.00
IS 127	Internet Foundation	IS 102	3.00
IS 128	Object-Oriented Programming 1	IS 122	3.00
IS 171	Visual Basic I	IS 122	3.00

Course Number	Course Name	Prerequisites/Corequisites	Semester Credit Hours
IS 183	Database Concepts and Applications I	IS 122	3.00
IS 187	Computer Architecture and Troubleshooting I	None	3.00
IS 210	Discrete Structures for Computer Science	IS 122 and MA 107	3.00
IS 219	Database Concepts and Applications II	IS 183	3.00
IS 223	Object-Oriented Programming 2	IS 128	3.00
IS 228	C++ Programming	IS 223	3.00
IS 273	Introduction to Computer Security	IS 123	3.00
IS 318	C# Programming	IS 223	3.00
IS 338	Software Testing	IS 223	3.00
IS 341	Software Engineering I	IS 223	3.00
IS 342	Software Engineering II	IS 341	3.00
IS 347	Business Systems Analysis	IS 122	3.00
IT 120	Technical Writing	EN 104	1.00

ELECTIVE COURSES IN SOFTWARE DEVELOPMENT

A minimum of 15.00 semester credit hours is required, of which 9.00 semester hours must be at the 300- or 400-level.

Course Number	Course Name	Prerequisites/Corequisites	Semester Credit Hours
IS 192	Linux Administration	IS 123	3.00
IS 227	Legacy Systems Introduction	IS 122	3.00
IS 259	Web Scripting	IS 122 and IS 127	3.00
IS 323	Client-Side Website Development	IS 127	3.00
IS 333	Data Warehousing	IS 219	3.00
IS 337	Mobile Applications Development	IS 122 and IS 127	3.00
IS 391	Advanced Web Development	IS 127 and IS 183	3.00
IS 487	Database Administration	IS 219	3.00
IT 100	Introductory Topics in Information Technology and Software Development	None	3.00
IT 122	Portfolio Development	None	1.00
IT 346	Information Technology Project Management	IS 102	3.00
NT 181	Network and Server Operating Systems	IS 123 or IS 188	3.00
NT 326	System Administration Scripting	IS 122	3.00

OPEN ELECTIVE COURSES

A minimum of 12.00 semester credit hours of open electives is required.

REQUIRED CAPSTONE OR INTERNSHIP

3.00 semester credit hours are required.

Course Number	Course Name	Prerequisites/Corequisites	Semester Credit Hours
IS 491	Capstone Project	Final semester	3.00
IS 495 *	Internship	Final semester	3.00

* Online students in some states may not be allowed to take this internship due to state restrictions.

* Enrollment in a student readiness training is required prior to the internship course. Successful completion of training is required prior to internship course enrollment.

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. *

4.00 Semester Credit Hours in Computer Applications ◆

3.00 Semester Credit Hours in Cultural Diversity

6.00 Semester Credit Hours in English Composition or Literature

3.00 Semester Credit Hours in General Education Electives ◆

3.00 Semester Credit Hours in Humanities With a Critical Thinking Focus ** ◆

1.00 Semester Credit Hour in Information Literacy

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 Speech

* 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.

Course Number	Course Name	Prerequisites/Corequisites	Semester Credit Hours
PD 121	Professional Development I	None	1.00
PD 202	Professional Development II	None	1.00