

BACHELOR OF SCIENCE IN SOFTWARE DEVELOPMENT WITH A CONCENTRATION IN MOBILE APPLICATION DEVELOPMENT (BSSDMAD)

(Please see the *Undergraduate Program Offerings by Campus* chart in the catalog or on the Herzing Website at www.herzing.edu/career-programs/downloads for a list of Herzing campuses offering this program.)

PROGRAM DESCRIPTION

The Bachelor of Science in Software Development With a Concentration in Mobile Application Development 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.

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 122.00 semester credit hours is required for graduation.

REQUIRED CORE COURSES IN COMPUTER SCIENCE

All courses, 29.00 semester credit hours, are required.

Course Number	Course Name	Prerequisites/Corequisites	Semester Credit Hours
IS 103	Programming Logic	None	4.00
IS 109	Object-Oriented Programming 1	IS 103	4.00
IS 112	Computer Networks	None	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

Course Number	Course Name	Prerequisites/Corequisites	Semester Credit Hours
IS 210	Discrete Structures for Computer Science	IS 103 and MA 107	3.00
IS 272	Introduction to Computer Security	IS 112	3.00

OPEN ELECTIVE COURSES ▸

A minimum of 6.00 semester credit hours of open electives is required.

- Completion of BU 345 Project Management or IT 345 Information Technology Project Management eliminates either course as an additional elective. Completion of BU 482 Strategic Management or IS 481 IT Strategic Management eliminates either course as an additional elective. See Elective Courses in Application Specialty Domain also.

REQUIRED COURSES IN TECHNICAL SPECIALTY DOMAIN—MOBILE APPLICATION DEVELOPMENT

All courses, 13.00 semester credit hours, are required.

Course Number	Course Name	Prerequisites/Corequisites	Semester Credit Hours
IS 108	Internet Foundation	IS 102	4.00
IS 328	Software Engineering I	IS 207	3.00
IS 358	Software Engineering II	IS 328	3.00
IS 336	Mobile Applications Development	IS 103 and IS 108	3.00

ELECTIVE COURSES IN TECHNICAL SPECIALTY DOMAIN—INTRODUCTORY APPLICATION DEVELOPMENT

A minimum of 4.00 semester credit hours is required.

Course Number	Course Name	Prerequisites/Corequisites	Semester Credit Hours
IS 324	Introduction to Android Mobile Development	IS 165 or IS 207	4.00
IS 334	Introduction to Blackberry Mobile Development	IS 165 or IS 207	4.00
IS 344	Introduction to iPhone Mobile Development	IS 213	4.00
IS 354	Introduction to Symbian Mobile Development	IS 213	4.00
IS 364	Introduction to Windows Mobile Application Development	IS 312	4.00

ELECTIVE COURSES IN TECHNICAL SPECIALTY DOMAIN—ADVANCED APPLICATION DEVELOPMENT

A minimum of 4.00 semester credit hours is required.

Course Number	Course Name	Prerequisites/Corequisites	Semester Credit Hours
IS 424	Advanced Android Mobile Development	IS 324	4.00
IS 434	Advanced Blackberry Mobile Development	IS 334	4.00
IS 464	Advanced Windows Mobile Development	IS 364	4.00

ELECTIVE COURSES IN TECHNICAL SPECIALTY DOMAIN—SECONDARY PROGRAMMING LANGUAGE

A minimum of 4.00 semester credit hours is required.

Course Number	Course Name	Prerequisites/Corequisites	Semester Credit Hours
IS 213	C++ Programming	IS 207	4.00

Course Number	Course Name	Prerequisites/Corequisites	Semester Credit Hours
IS 312	C# Programming	IS 207	4.00

ELECTIVE COURSES IN TECHNICAL SPECIALTY DOMAIN—MOBILE APPLICATION DEVELOPMENT

A minimum of 11.00 semester credit hours is required.

Course Number	Course Name	Prerequisites/Corequisites	Semester Credit Hours
IS 213	C++ Programming	IS 207	4.00
IS 312	C# Programming	IS 207	4.00
IS 321	Mobile Application Security	IS 109	3.00
IS 324	Introduction to Android Mobile Development	IS 165 or IS 207	4.00
IS 334	Introduction to Blackberry Mobile Development	IS 165 or IS 207	4.00
IS 344	Introduction to iPhone Mobile Development	IS 213	4.00
IS 354	Introduction to Symbian Mobile Development	IS 213	4.00
IS 364	Introduction to Windows Mobile Application Development	IS 312	4.00
IS 422	Mobile Game Development	IS 207	4.00
IS 424	Advanced Android Mobile Development	IS 324	4.00
IS 434	Advanced Blackberry Mobile Development	IS 334	4.00
IS 464	Advanced Windows Mobile Development	IS 364	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	Prerequisites/Corequisites	Semester 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. *

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 BSSDMAD 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

2.00 semester credit hours are required. Students taking the IS 495 Internship must also take PD 214.

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
PD 214	AS/AAS/BS/Diploma Internship Preparation	None	0.00