

Ferris Program: Software Engineering
Degree Type: Bachelor of Science
Ferris College: College of Business
Transfer School: Washtenaw Community College
Consortium Eligible: Yes
Total Credits Required: 126-127
Catalog Year: 2025-2026

GENERAL EDUCATION REQUIREMENTS – 30 Credits Required

Students are encouraged to work with an advisor to select appropriate general education courses. Diversity Competency - 2 Courses Required. If not met by courses taken for Culture, Self and Society, or MTA, a student must meet the following: 1 course with the Global Diversity attribute and 1 course with the U.S. Diversity attribute.

Visit the Ferris State [general education page](#) for more information.

Communication Competency

| Ferris Course | Ferris Course Title | Ferris Credit Hours | Transfer Course |
|---|---|---------------------|-----------------|
| COMM 121 | Fundamentals of Public Speaking | 3 | COM 101 |
| ENGL 150 | English 1 | 3 | ENG 111 |
| ENGL 250 | English 2 | 3 | ENG 226 |
| ENGL 311 or ENGL 321 or ENGL 325 or TDMP 326 | Advanced Technical Writing or Advanced Composition or Advanced Business Writing or Script Writing | 3 | No Equivalent |

Quantitative Literacy Competency

4 Credits Required and is met in College Requirements.

Natural Sciences Competency

Two courses are required with a minimum of 6 credits: must have at least one lab course. Met in College Requirements.

Culture Competency

Three courses are required with a minimum of 9 credits: must be from two different disciplines and have at least one at FSU 200 level or higher course.

| Ferris Course | Ferris Course Title | Ferris Credit Hours | Transfer Course |
|---------------|---------------------|---------------------|-----------------|
| Varies | Culture Electives | 9 | Varies |

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Self and Society Competency

Three courses are required with a minimum of 9 credits: must be from two different disciplines and have at least one at FSU 200 level or higher course, and at least one Self and Society Foundation course. ECON 201 or ECON 202 are met in College Requirements.

| Ferris Course | Ferris Course Title | Ferris Credit Hours | Transfer Course |
|---------------|----------------------------|---------------------|-----------------|
| Varies | Self and Society Electives | 6 | Varies |

COLLEGE REQUIREMENTS – 99 Credits Required

Software Development Courses

21 Credits Required.

| Ferris Course | Ferris Course Title | Ferris Credit Hours | Transfer Course |
|---------------|--|---------------------|-----------------|
| SENG 101 | Computer Programming 1 | 3 | CPS 161 |
| SENG 102 | Computer Programming 2 | 3 | No Equivalent |
| SENG 300 | Software Data Structures | 3 | No Equivalent |
| SENG 301 | Programming Languages | 3 | No Equivalent |
| SENG 315 | Software Component Design | 3 | No Equivalent |
| SENG 400 | Engineering Enterprise Software Applications | 3 | No Equivalent |
| SENG 430 | Program Graphical Interfaces | 3 | No Equivalent |

Foundation Courses

18 Credits Required.

| Ferris Course | Ferris Course Title | Ferris Credit Hours | Transfer Course |
|----------------------|---|---------------------|-----------------|
| SENG 160 | Software Engineering Methodologies and Processes | 3 | No Equivalent |
| SENG 170 | Software Requirements Management | 3 | No Equivalent |
| SENG 210 | Software Configuration Management | 3 | No Equivalent |
| SENG 250 or ISYS 327 | Fundamentals of Operating Systems and Networking or Operating | 3 | No Equivalent |

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| Ferris Course | Ferris Course Title | Ferris Credit Hours | Transfer Course |
|---------------|----------------------------------|---------------------|-----------------|
| | Systems and Network Essentials | | |
| SENG 302 | Software Quality Assurance | 3 | No Equivalent |
| SENG 350 | Software Design and Architecture | 3 | No Equivalent |

Engineering Fundamentals Courses

6 Credits Required.

| Ferris Course | Ferris Course Title | Ferris Credit Hours | Transfer Course |
|--|--|---------------------|-------------------------|
| SENG 225 or ISYS 272 or ISIN 325 | Introduction to Database Design or Fundamentals of Database Systems or Database Security | 3 | No Equivalent |
| ECON 201 or ECON 202 | Principles of Microeconomics or Principles of Macroeconomics | 3 | ECON 222 or ECON 211 |

Mathematics and Sciences Courses

30 Credits Required.

| Ferris Course | Ferris Course Title | Ferris Credit Hours | Transfer Course |
|---------------|------------------------------------|---------------------|-----------------------|
| MATH 220 | Analytical Geometry and Calculus 1 | 4 | MTH 191 |
| MATH 230 | Analytical Geometry and Calculus 2 | 4 | MTH 192 |
| MATH 328 | Discrete Structures | 3 | No Equivalent |
| PHYS 241 | General Physics 1 | 5 | PHY 211 |
| STQM 260 | Introduction to Statistics | 3 | BMG 265 or MTH 160 |
| Varies | Natural Sciences Elective | 1 | Varies |
| Varies | Mathematics or Sciences Electives | 10 | Varies |

Business and Management Courses

3 Credits Required. Choose 1 of 5.

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| Ferris Course | Ferris Course Title | Ferris Credit Hours | Transfer Course |
|---------------|---|---------------------|-----------------|
| PROJ 320 or | Project Management Fundamentals or Agile Project Management | 3 | No Equivalent |
| BLAW 321 | Contracts and Sales | 3 | No Equivalent |
| BLAW 301 | Legal Environment of Business | 3 | No Equivalent |
| MKTG 321 | Principles of Marketing | 3 | BMG 250 |
| PROJ 325 | Agile Project Management | 3 | No Equivalent |

Professional Development Courses

9 Credits Required.

| Ferris Course | Ferris Course Title | Ferris Credit Hours | Transfer Course |
|-------------------------|---|---------------------|-----------------|
| SENG 355 or SENG 420 | Software Engineering Tools or Software Development Industry Certification | 3 | No Equivalent |
| SENG 491 | Software Engineering Applied Internship | 3 | No Equivalent |
| SENG 499 | Capstone in Software Engineering | 3 | No Equivalent |

APPLICATION DOMAIN ELECTIVES – 12 Credits Required

Choose one four-course sequence in an area of interest; other than those listed must be approved by an advisor.

Game Design and Development

| Ferris Course | Ferris Course Title | Ferris Credit Hours | Transfer Course |
|----------------------|--|---------------------|-----------------------------|
| DAGD 100 or DAGD 150 | 3D Modeling Animation 1 or Introduction to Game Design and Development | 3 | ANI 150 or No Equivalent |
| DAGD 255 | Game Programming 1 | 3 | No Equivalent |
| DAGD 300 | Level Design | 3 | No Equivalent |
| DAGD 355 | Game Programming 2 | 3 | No Equivalent |

FERRIS STATE UNIVERSITY

Machine Learning Engineering

| Ferris Course | Ferris Course Title | Ferris Credit Hours | Transfer Course |
|---------------|---|---------------------|-----------------|
| SENG 309 | Introduction to Machine Learning | 3 | No Equivalent |
| SENG 409 | Applied Machine Learning Software | 3 | No Equivalent |
| SENG 410 | Introduction to Big Data Concepts and Tools | 3 | No Equivalent |
| SENG 422 | Introduction to Cloud Application Development | 3 | No Equivalent |

Directed Electives

12 Credits Required. Choose 4 of the below courses.

| Ferris Course | Ferris Course Title | Ferris Credit Hours | Transfer Course |
|---------------|---|---------------------|--------------------|
| ACCT 201 | Principles of Financial Accounting | 3 | ACC 111 |
| ACCT 202 | Principles of Managerial Accounting | 3 | ACC 225 or ACC 122 |
| ACCT 241 | Computerized Accounting | 3 | No Equivalent |
| AIMC 300 | Principles of Advertising/Integrated Marketing Communications | 3 | No Equivalent |
| APPS 351 | Lean Thinking Production Flow and Plant | 3 | No Equivalent |
| ARTI 300 | Artificial Intelligence Concepts and Problem Solving | 3 | No Equivalent |
| ARTI 330 | Natural Language Processing | 3 | No Equivalent |
| ARTI 350 | Machine Learning | 3 | No Equivalent |
| ARTI 380 | Special Topics in Artificial Intelligence | 3 | No Equivalent |
| CITS 255 | Windows Server 1 | 3 | No Equivalent |
| CITS 260 | Windows Server 2 | 3 | No Equivalent |
| CITS 270 | Network + | 3 | No Equivalent |
| CITS 280 | Linux Administration | 3 | No Equivalent |

FERRIS STATE UNIVERSITY

| Ferris Course | Ferris Course Title | Ferris Credit Hours | Transfer Course |
|----------------------|--|----------------------------|------------------------|
| CITS 320 | Security + | 3 | No Equivalent |
| CPSC 320 | Computer Simulation | 3 | No Equivalent |
| CPSC 330 | Parallel Programming | 4 | No Equivalent |
| CPSC 340 | Computer Organization | 4 | No Equivalent |
| DSGN 224 | Web Design and Planning | 3 | No Equivalent |
| ECNS 125 | Networks 2 | 3 | No Equivalent |
| ECNS 225 | Networks 4 | 3 | No Equivalent |
| ECNS 311 | High Level Programming | 4 | No Equivalent |
| ECNS 315 | Network Theory and Test | 4 | No Equivalent |
| ECNS 323 | Real Time Operating Systems | 4 | No Equivalent |
| EAET 122 | Industrial Digital Electronics | 4 | No Equivalent |
| EAET 210 | Circuits and Systems | 3 | No Equivalent |
| EAET 221 | Troubleshooting | 3 | No Equivalent |
| EAET 216 | Non-Linear Electronics 1 | 3 | No Equivalent |
| EAET 222 | Microprocessor Applications | 4 | No Equivalent |
| EAET 323 | Advanced Automation Controls | 4 | No Equivalent |
| EAET 224 | Industrial Controls | 4 | No Equivalent |
| EAET 325 | Data Acquisition and Control | 4 | No Equivalent |
| ENGL 411 | Professional and Technical Communication | 4 | No Equivalent |
| FINC 322 | Financial Management 1 | 3 | No Equivalent |
| INTB 310 | International Business Systems | 3 | No Equivalent |
| ISIN 300 | Link and Visual Analysis | 3 | No Equivalent |
| ISIN 306 | Security Informatics | 3 | No Equivalent |
| ISIN 335 | Penetration Testing and Cloud Security | 3 | No Equivalent |

FERRIS STATE UNIVERSITY

| Ferris Course | Ferris Course Title | Ferris Credit Hours | Transfer Course |
|---------------|---|---------------------|-----------------|
| ISIN 380 | Current Issues in Information Security and Intelligence | 3 | No Equivalent |
| ISIN 409 | Network Forensics and Analysis | 3 | No Equivalent |
| ISYS 288 | Web Application Development | 3 | No Equivalent |
| ISYS 321 | Business Information Systems | 3 | No Equivalent |
| ISYS 372 | Advanced Database Systems Administration | 3 | No Equivalent |
| ISYS 431 | Systems Analysis and Design 2 | 3 | No Equivalent |
| MGMT 301 | Applied Management | 3 | BMG 230 |
| MGMT 310 | Small Business Management | 3 | BMG 209 |
| MGMT 350 | Management Metrics and Decision Making | 3 | No Equivalent |
| STQM 270 | Introduction to Data Mining | 3 | No Equivalent |
| STQM 322 | Inferential Statistics | 3 | No Equivalent |
| STQM 342 | Data Mining Tools | 3 | No Equivalent |
| STQM 360 | Risk Analysis and Strategy | 3 | No Equivalent |
| STQM 375 | Programming for Analytics | 3 | No Equivalent |
| STQM 385 | Visual Data Analytics | 3 | No Equivalent |
| STQM 421 | Applied Linear Statistical Models | 3 | No Equivalent |
| STQM 465 | Text and Web Mining | 3 | No Equivalent |
| TDMP 132 | Digital Media Art and Technology | 3 | No Equivalent |
| TDMP 328 | Online Media Management | 3 | VID 203 |

PROGRAM CONTACT INFORMATION

College of Business
 School of Digital Media
 (231) 591-2712

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SDM@ferris.edu

Ferris Statewide - Southeast Michigan

(586) 445-7150

FerrisSE@Ferris.edu

Ferris Online

(231) 591-2340

Online@Ferris.edu

ADMISSION REQUIREMENTS

New Student Admission Requirements

- 2.70 High School GPA (on a 4.00 scale)
- ACT Composite Score of 19

Transfer Student Admission Requirements

- Combined college or university GPA of 2.00 (on a 4.00 scale) from all institutions attended. GPA based on completion of 12 transferable semester credit hours or more.

MORE INFORMATION

To fulfill the residency requirement for a bachelor's degree a student must earn a minimum of 30 credits from Ferris State University.

Steps to Apply

- Complete your [free application](#).
- Submit official transcripts
 - Submit official transcripts from every school attended to Transfer@Ferris.edu
 - Or mail to:
Ferris State University Admissions Office
1201 S. State St., CSS 201
Big Rapids, MI 49307
- Submit test scores (if required)
 - ACT Scores; go to the [ACT website](#) - Ferris State University School Code: 1994
 - SAT, CLEP and AP Scores; go to the [College Board website](#) - Ferris State University School Code: 1222

Advising Notes

It is recommended that potential applicants meet with an advisor to review the degree, course schedule, transfer policies and have any questions answered prior to completing an application. Ferris accepts transfer courses in which the student earned a letter grade of "C" or better. Additional policies such as the Ferris Sunset and Residency Requirement should be discussed with a Ferris advisor. Students who are completing the MTA may have different general education course requirements for the particular degree selected.

Meeting with a Ferris advisor prior to the selection of general education or elective coursework may reduce the chance of completing a course that will not apply toward the selected degree. Students must work with their Ferris advisor to declare a Minor or Concentration and for the selection of Directed Electives.

Once admitted, students are required to complete an orientation and should continue to meet with an advisor as they work toward graduation.

To schedule an appointment or for additional transfer resources and policies see our [Transfer Resource page](#).

*Indicates an approved Ferris course substitution

FERRIS STATE UNIVERSITY

Reverse Transfer Agreement

Ferris has reverse transfer agreements with several Michigan Community Colleges. Under such agreement, Ferris will provide your official University transcript to a partner school you have attended, so that they may grant you an associate or bachelor's degree upon completion of sufficient and appropriate credit hours from both institutions. In turn, the degree-granting institution will provide Ferris with an updated transcript reflecting the newly earned credential.

Michigan Transfer Agreement (MTA)

Ferris participates in the Michigan Transfer Agreement (MTA). This agreement will facilitate the transfer of general education requirements from one Michigan institution to another. Students may complete the MTA as part of a degree program or as a stand-alone package. The MTA consists of a minimum of 30 general education credit hours as identified by the college or university.

Students transferring to Ferris with the Michigan Transfer Agreement (MTA) and entering a degree program will have met a 30-hour block of lower-level general education courses. However, this does not exempt students from completing program-specific prerequisites or higher-level general education course requirements. Students should contact their advisor regarding classes that meet the MTA.

Transfer Equivalencies Tools

The transfer equivalencies link is located in the Transfer Resources section at transfer.ferris.edu.

Disclaimer

Transfer guides are not intended to be a contract with Ferris. The information in this guide is subject to change and is aligned with the catalog year listed above. Students should contact their community college and/or Ferris to keep informed of changes. Students' final responsibility for verifying all transfer information lies with the student. Please refer to the [Ferris catalog](#) for the most current curriculum.

Partners may contact the Office of Transfer and Secondary School Partnerships with questions or updates at TransferGuidesArticulations@Ferris.edu.

Webpage Updated: 11/08/2024