

The HVEM degree addresses designing, retrofitting, testing, and balancing on a problem-solving level and prepares the HVEM engineering technologist to fill a wide technological gap between the service technicians and engineers. Challenging careers abound on a national level with firms who look for trained HVEM engineering technicians for a variety of positions: application and/or project engineering, systems control, estimating, engineering, field technician, systems reps, marketing, control systems training, and HVEM in-plant engineering.

**Communication Competency Requirements**

FSU Course	FSU Course Title	FSU Cr. Hrs.	MMC Equiv.	MMC Course Title	MMC Cr. Hrs.
ENGL 150	English 1	3	ENG 111	Freshman English Composition	3
ENGL 250	English 2	3	ENG 222	Expository Writing & Research	3
COMM 121	Fundamentals of Public Speaking	3	SPE 101 or SPE 257	Fundamentals of Communication or Public Speaking	3
ENGL 311	Advanced Technical Writing	3	No Equivalent	No Equivalent	No Equivalent

**Quantitative Literacy Requirements**

FSU Course	FSU Course Title	FSU Cr. Hrs.	MMC Equiv.	MMC Course Title	MMC Cr. Hrs.
MATH 115	Intermediate Algebra	3	MAT 105 or MAT 107	Intermediate Algebra or College Algebra	3
MATH 120	Trigonometry	3	No Equivalent	No Equivalent	No Equivalent
MATH 130	Adv. Algebra-Analytical Trig.	4	MAT 124	Precalculus	5

**OR**

FSU Course	FSU Course Title	FSU Cr. Hrs.	MMC Equiv.	MMC Course Title	MMC Cr. Hrs.
MATH 126	Algebra & Analytical Trig.	4	No Equivalent	No Equivalent	No Equivalent

Students are required to reach the Ferris MATH 126 or MATH 130 level. The path to MATH 126 is Ferris MATH 116 and MATH 126. The path to Ferris MATH 130 is MATH 115, MATH 120, and MATH 130.

**Natural Sciences Competency Requirements** - Select courses from the following subject areas: Astronomy, Biology, Chemistry, Geology, Physical Science - 1 course must have a lab

FSU Course	FSU Course Title	FSU Cr. Hrs.	MMC Equiv.	MMC Course Title	MMC Cr. Hrs.
Varies	FSU General Education - Natural Sciences Electives	6	Varies	Varies	Varies

**Self and Society Competency Requirements** – Minimum 9 credits from 2 different disciplines with 1 at 200 level or higher

FSU Course	FSU Course Title	FSU Cr. Hrs.	MMC Equiv.	MMC Course Title	MMC Cr. Hrs.
Varies	FSU General Education – Self and Society Competency	6	Varies	Varies	Varies
ECON 221	Principles of Macroeconomics	3	ECO 201	Principles of Economics- Macro	3

**Culture Competency Requirements** - Minimum 9 credits from 2 different disciplines with 1 at 200 level or higher – Consult advisor for assistance

FSU Course	FSU Course Title	FSU Cr. Hrs.	MMC Equiv.	MMC Course Title	MMC Cr. Hrs.
Varies	FSU General Education - Culture Electives	9	Varies	Varies	Varies

**Ferris State University General Education Program**

Students are encouraged to work with an advisor to select appropriate general education courses

**General Admission Criteria**

To be admitted to this degree, students must have completed the Associate of Applied Science Degree in an HVACR Engineering or related technical area or equivalent with a minimum GPA of 2.5 (on a 4.0 scale), and completion or competency in the following Ferris courses or their direct equivalents: ENGL 150, ENGL 250 or ENGL 211, MATH 115 or MATH 116, and four credit hours in a science course (lab or non-lab). Official transcripts from all accredited colleges/universities must be submitted with the Ferris application. Financial aid is available and may include concurrent enrollment at both institutions.

## Major Requirements

FSU Course	FSU Course Title	FSU Cr. Hrs.	MMC Equiv.	MMC Course Title	MMC Cr. Hrs.
HVAC 285	HVAC System Design using BIM	2	No Equivalent	No Equivalent	No Equivalent
HVAC 312	Control Theory & Application	4	No Equivalent	No Equivalent	No Equivalent
HVAC 321	HVAC Air Side System Select Design	4	No Equivalent	No Equivalent	No Equivalent
HVAC 325	HVAC Hydronic System Select Design	4	No Equivalent	No Equivalent	No Equivalent
HVAC 342	Load Calculation and Energy Code	4	No Equivalent	No Equivalent	No Equivalent
HVAC 350	Contracting Issues in HVACR	4	No Equivalent	No Equivalent	No Equivalent
HVAC 393	Summer Internship	4	No Equivalent	No Equivalent	No Equivalent
HVAC 415	Direct Digital Control	4	No Equivalent	No Equivalent	No Equivalent
HVAC 451	Energy Audit and Analysis	4	No Equivalent	No Equivalent	No Equivalent
HVAC 462	HVAC Primary HVAC Equipment Selection	4	No Equivalent	No Equivalent	No Equivalent
HVAC 499	Commercial HVAC System Design	4	No Equivalent	No Equivalent	No Equivalent
HVAC	Associate's Degree - approved	42	AAS	Associate of Applied Science Degree in an HVACR Engineering or related technical area or equivalent	Varies

<b>Total Credits Required for Degree</b>	<b>124</b>
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### Program Contact Information:

#### Main Campus, Big Rapids

#### College of Engineering Technology

(231) 591-2890 | (231) 591-2608 | [Ferris HVACR Website](#)

#### Ferris Online

(800) 562-9130 | (231) 591-2340 | [Ferris Online Email](#)

[Transfer Partnerships Website](#)

### Advising Notes

It is recommended that potential applicants meet with an advisor to review the degree, course schedule, and have any questions answered prior to completing an application. 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 course work may reduce the chance of completing a course that will not apply toward the selected degree. Once admitted, students must continue to meet with an advisor as they work toward graduation.

### Transfer Student Orientation

All new students to Ferris State University are required to complete an orientation.

### Ferris State University Residency Requirement

- Earn a minimum of 120 total credits for a bachelor's degree
- Earn a minimum of 30 credits from Ferris State University for a bachelor's degree

### Reverse Transfer Agreement

The Community College and Ferris have entered into a partnership in order to work collaboratively and creatively to increase student completion of associate and bachelor degrees. The partners work together to provide a seamless transfer experience and increase student retention and completion at both the community college and Ferris.

### 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.

Students must work with their Ferris advisor to declare a Minor or Concentration and for selection of Directed Electives.

### Disclaimer

This is a guide for students who plan to transfer to Ferris State University. This guide is not intended to be a contract with Ferris. The information on this guide is subject to change. Students should contact their community college or Ferris to keep informed of changes. Final responsibility for verifying all transfer information lies with the student. Please refer to effective and/or revised date on the bottom of this guide.