

# Heating, Refrigeration and Air Conditioning

Program A5800  
CIP 150501

## Associate in Applied Science Degree

The Heating, Refrigeration and Air Conditioning program prepares a student for such positions as service representative, service supervisor, estimator, system designer, and laboratory technician. Graduates assume supervisory, management and technical responsibility.

The HRA courses are part of a joint program between Mercer County Community College and the Mercer County Technical Schools.

The successful graduate is awarded an Associate in Applied Science degree and will be able to:

- perform all of the service functions of a graduate of the certificate program;
- communicate effectively by oral, written, or graphic means;
- produce basic mechanical drawings and sketches needed to communicate concepts and designs;
- understand the laws of physics as they apply to the subject field;
- perform computations necessary to solve basic load sizing problems;
- apply the fundamental laws of thermodynamics and the basic principles of heat flow as they apply to HRAC;
- determine proper air distribution in HRAC systems.

The program may be pursued part-time or full-time, but most required courses are available only in the evening.

Admission to the program requires a high school diploma or its equivalent with one year of algebra or applied mathematics.

### A.A.S. Curriculum

Code	Course (lecture/lab hours)	Credits
HRA 101	Principles of Refrigeration/ Air Conditioning I (1/2)	2
EET 130	Fundamentals of Electronics (2/2)	3
ENG 101	English Composition I (3/0)	3
MAT 110	Elementary Technical Mathematics (3/0) <sup>1</sup>	3
ENT 116	Engineering Graphics (1/2)	2
HPE 110	Concepts of Health and Fitness (1/2)†	2
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HRA 102	Principles of Refrigeration/ Air Conditioning II (1/2)	2
ENG 112	English Composition II with Speech (3/0)	3
— —	General Education elective <sup>3</sup>	3
— —	General Education elective <sup>4</sup>	3
— —	Electives	5-6
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HRA 103	Refrigeration/Air Conditioning Electrical Controls (2/4)	4
HRA 104	Domestic Refrigeration/ Air Conditioning Systems (2/4)	4
PHY 111	Physical Science Concepts (2/2)	3
— —	Technical electives <sup>2</sup>	5-6
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HRA 201	Concepts of Heating and Cooling Systems (3/3)	4
HRA 202	Light Commercial Systems I (1/2)	2
HRA 203	Light Commercial Systems II (1/2)	2
HRA 205	Heavy Commercial Systems (1/4)	4
— —	General Education elective <sup>4</sup>	3
		62-64

NOTE: Electives should be selected in consultation with an academic advisor in order to assure maximum transfer of credits.

<sup>1</sup> Or approved higher-level mathematics course.

<sup>2</sup> Select technical electives in consultation with an academic advisor.  
Recommended electives: DRA 190, 216; HRA 227; IST 101.

<sup>3</sup> Select course from either Social Science or Humanities general education categories.

<sup>4</sup> Select course from the following general education categories: Social Science, Humanities, Historical Perspective, Diversity and Global Perspective.

†HPE 111 is an acceptable alternative.

