



What is the Industrial Technology Program?

The Industrial Technology (INT) Program is designed to prepare students for entry into the industrial and commercial areas of manufacturing, assembly, and distribution. In the INT program students can earn progressive levels of certificates that can be applied towards employment or advanced degrees.

Why choose the Industrial Technology Program?

Industry has changed and the global market now demands higher-level base skills than previously required. Jobs that once required manpower have now been replaced with automation, many of which are microprocessor and computer-based. The need for skilled workers to operate and maintain this equipment has increased with the development of new technologies, thus increasing job opportunities for skilled workers as a result.

The type of students who excel in this program are those with good communication and people skills, excellent critical thinking and problem-solving skills, and those who enjoy working with tools and hands-on applications.

What types of jobs do the industrial technicians perform?

INT technicians can perform a variety of tasks in the industrial and commercial field such as operating, maintaining, installing, and repairing sophisticated equipment. INT technicians often work closely with engineers and managers and through additional education can enhance their skills in order to enter a career in management or engineering.

What is the employment outlook for industrial technology jobs?

Average employment growth is expected. Job growth and the need to replace those who will retire should result in excellent job opportunities, especially for those with experience in maintenance and related fields. Job opportunities should be excellent, especially for those with experience in maintenance or related fields. Those who obtain certification will also face excellent opportunities. General maintenance and repair is a large occupation, generating many job openings due to growth and the need to replace those who leave the occupation (source: www.bls.gov/ooh).

What are the average earnings?

Earnings vary by education, industry, and geographic location. Examples of jobs in the industrial technology field include industrial machinery mechanics and heating, air-conditioning, and refrigeration mechanics and installers.

Median annual wages of industrial machinery mechanics was \$45,840 in May 2012. The lowest 10 percent earned less than \$29,020, and the top 10 percent earned more than \$69,990.

Median annual wages in the industries employing industrial machinery mechanics include:

Industrial Maintenance Technician	\$41,000
Electrical Maintenance Technician	\$45,000
Maintenance Manager.....	\$81,000
Freight Conductor	\$45,000

(source: www.indeed.com)

Median annual wages of heating, air-conditioning, and refrigeration mechanics and installers was \$43,640 in May 2012. The lowest

10 percent earned less than \$27,330, and the top 10 percent earned more than \$68,990.

What do the industrial technology students learn?

INT students learn all the necessary skills to perform in today's technical environment. These include PLC (Programmable Logic Control), CNC programming, electricity, mechanics, precision measurement, fluid power, pneumatics, motors, drives, CAD 1, safety, lean manufacturing concepts, advanced machine concepts, automation, and networking.

Why should I choose HCC?

As a state-wide designated program, out-of-county and out-of-state students may be eligible for in-county tuition. HCC's continued investment in facilities and state-of-the-art teaching tools also offers students a competitive edge.

For more information about HCC graduation rates, the median debt of students who completed the program, and other important information, visit www.hagerstowncc.edu/industrial-tech.

What other industries does the program support?

HCC offers a certificate in facilities maintenance technology. This certificate provides students with the knowledge required to enter the commercial and industrial arena as a skilled maintenance technician. Completion of the certificate will provide the worker with entry-level skills in preventive maintenance, work order systems, mechanical systems, HVAC, plumbing, electricity, boilers, air compressors and dryers, welding, safety, organizational skills, and problem solving.

HCC also offers a letter of recognition in HVAC and Plumbing with an introduction to electricity.

A.A.S. Degree

Industrial Technology

General Education Requirements 21-22 credits Arts/Humanities

Select from approved General Education course list 3

Behavioral/Social Sciences

SOC 101 Introduction to Sociology..... 3

Biological/ Physical Science—

Students intending to transfer should take the General Physics course.

PHY 112	Applied Physics.....	3
OR		
PHY 201	General Physics I.....	(4)
Diversity		
SOC 106	Race and Ethnic Relations in the United States.....	3
English		
ENG 101	English Composition.....	3
OR		
ENG 112	Technical Writing I.....	(3)
Mathematics		
MAT 101	College Algebra.....	3
OR		
MAT 114	Introduction to Applied Algebra.....	(3)
MAT 102	Trigonometry.....	3

Program Requirements	30 credits	
BUS 145	Customer Service.....	1
CAD 152	Computer-Aided Design I.....	3
EGT 150	Introduction to CNC Programming....	3
EGT 235	Fluid Power.....	3
INT 101	Introduction to Industrial Technology...	3
INT 102	Introduction to PLCs.....	3
INT 104	Facilities Safety and Compliance.....	3
INT 105	Plumbing and Pipefitting.....	3
INT 107	Heating, Ventilation, Air Conditioning and Refrigeration (HVAC/R).....	3
INT 110	Fundamentals of Electricity.....	4
INT 240	Industrial Technology Capstone Project.....	1

Restricted Electives	8-9 credits	
Select 8-9 credits from the following list:		
EGT 136	Mechanics.....	(3)
ENG 112	Technical Writing I.....	(3)
INT 103	PLC Applications.....	(3)
INT 106	Welding.....	(3)
INT 113	Instrumentation and Process Control I.....	(3)
INT 158	Advanced Motors, Machines, and Mechanical Devices.....	(3)
INT 269	Internship I.....	(1-3)
IST 102	Introduction to Information Technology.....	(3)
IST 154	Networking Basics.....	(3)
Degree Requirement.....	60	

Certificate

Industrial Technology

This certificate is for students interested in a sequence of courses which provide the technical skills as maintenance technicians in today's modern industrial manufacturing environment. Completion of this certificate will provide the worker with entry-level skills in maintaining and repairing production equipment or motor control circuits; building electrical, electronic and mechanical devices and equipment; or testing and evaluating pneumatic/hydraulic systems and devices.

Program Requirements	19 credits	
EGT 235	Fluid Power.....	3
INT 101	Introduction to Industrial Technology...	3
INT 102	Introduction to PLCs.....	3
INT 110	Fundamentals of Electricity.....	4
INT 111	Pump and Motor Operation and Maintenance.....	3
MAT 114	Introduction to Applied Algebra.....	3

Restricted Electives 6 credits

Select 6 credits from the following courses:		
CAD 152	Computer-Aided Design I.....	(3)
EGT 150	Introduction to CNC Programming.....	(3)
INT 103	PLC Applications.....	(3)
INT 104	Facilities Safety and Compliance.....	(3)
INT 105	Plumbing and Pipefitting.....	(3)
INT 106	Welding.....	(3)
INT 107	Heating, Ventilation, Air Conditioning and Refrigeration (HVAC/R).....	(3)
INT 113	Instrumentation and Process Control I.....	(3)
IST 102	Introduction to Information Technology.....	(3)

Certificate Requirement 25

Certificate

Industrial Technology Facilities Maintenance Technology

This certificate is for students interested in a sequence of courses which provide the technical skills required by maintenance technicians in small commercial operations such as apartment complexes and malls. Completion of this certificate will provide the worker with entry level skills in maintaining and repairing equipment in a commercial setting.

Program Requirements	22 credits	
INT 101	Introduction to Industrial Technology...	3
INT 104	Facilities Safety and Compliance.....	3
INT 105	Plumbing and Pipefitting.....	3
INT 107	Heating, Ventilation, Air Conditioning and Refrigeration (HVAC/R).....	3
INT 110	Fundamentals of Electricity.....	4
INT 111	Pump and Motor Operation and Maintenance.....	3
MAT 114	Introduction to Applied Algebra.....	3

Restricted Electives 3 credits

Select 3 credits from the following courses:		
EGT 150	Introduction to CNC Programming....	(3)
ENG 112	Technical Writing I.....	(3)
INT 102	Introduction to PLCs.....	(3)
INT 106	Welding.....	(3)
INT 113	Instrumentation and Process Control I.....	(3)
IST 102	Introduction to Information Technology.....	(3)

Certificate Requirement 25

Letter of Recognition

HVAC and Plumbing

Students completing this program will have the skills to enter an entry-level or apprentice-level position in the field of HVAC and plumbing.

Program Requirements	9-10 credits	
INT 101	Introduction to Industrial Technology...	3
OR		
INT 110	Fundamentals of Electricity.....	(4)
INT 105	Plumbing and Pipefitting.....	3
INT 107	Heating, Ventilation, Air Conditioning and Refrigeration (HVAC/R).....	3

Letter of Recognition Requirement..... 9-10

Letter of Recognition

Welding and Fabrication

Students completing this program will be well prepared to enter various industries that require welding skills as all or part of their business. This program focuses extensively on hands-on practice and quality control.

Program Requirements	9	
INT 106	Welding.....	3
INT 116	Welding Layout and Fabrication.....	3
INT 206	AWS Welding Certification Preparation.....	3

Letter or Recognition Requirement 9



Contact Information:

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Recommended Professional Organizations

The American Society of
Heating, Refrigerating and Air-Conditioning
Engineers (ASHRAE):
www.ashrae.org

American Welding Society (AWS):
www.aws.org

Institute of Electrical and
Electronics Engineers (IEEE):
www.ieeeusa.org