



Instrumentation Process Control Technician – Certificate (CE) (2021-22 Catalog)

Developmental Education Courses (if required)			<input type="checkbox"/>	MATH020	Pre-Algebra
<input type="checkbox"/>	ACLS050	Introduction to Academic Literacy	<input type="checkbox"/>	MATH022	Elementary Algebra
<input type="checkbox"/>	ENGL027	Writing Skills Workshop	<input type="checkbox"/>	MATH026	Intermediate Algebra

SEMESTER-BY-SEMESTER PROGRAM MAP FOR FULL-TIME STUDENTS

Courses are listed in preferred order of completion

Plans can be modified to fit student needs by adding more semesters

Choose your courses with your Advisor.

										Location: B= BETH, M= MROE, S=SBTH, E= ESTN, D= DIST *subject to change
complete	Course #	Course Title	Credits	Gen Ed	Fall	Winter	Spring	Summer	Pre-requisites / Co-requisites	
Semester 1	<input type="checkbox"/>	COLS101	College Success	1		B, M, D	----	B, M, D	D	
	<input type="checkbox"/>	ELTC101	Electrical Fundamentals	4		B	----	B	B	
	<input type="checkbox"/>	EMEC125	Process Automation Diagrams – P&ID	2		B	----	B	----	
	<input type="checkbox"/>	EMEC130	Introduction to Process Control	3		B, D	----	B, D	----	
	<input type="checkbox"/>	MATH140	College Algebra	3	QL	B,M,D	----	B,M,D	B,M,D	PRE: MATH026 or MATH Placement
		Total Semester Credits:	13							
Semester 2	<input type="checkbox"/>	ENGL101	English I	3	Comm.	B,M,D	----	B,M,D	B,M,D	PRE: ENGL Placement Policy
	<input type="checkbox"/>	EMEC140	Sensors, Wiring and Troubleshooting	1		B	----	B	----	PRE: ELTC101
	<input type="checkbox"/>	EMEC240	Industrial Control Systems I	4		B	----	----	----	PRE: ELTC101; PRE or CO: EMEC140
	<input type="checkbox"/>	EMEC220	Instrumentation I	3		B	----	----	----	PRE: EMEC125 and EMEC130
		Total Semester Credits:	11							
Semester 3	<input type="checkbox"/>	EMEC225	Instrumentation II	3		----	----	B	----	PRE or CO: EMEC220
	<input type="checkbox"/>	EMEC245	Industrial Control Systems II	3		----	----	B	----	PRE: EMEC240
	<input type="checkbox"/>	PHYS101	Physics I	4	Science	B,M,D	----	B,M,D	M,D	PRE: MATH140 with C or better
		Total Semester Credits:	10							
		Total Degree Credits	34							

***It is the student's responsibility to be knowledgeable of NCC graduation requirements and to verify transfer requirements with the 4-year institution. Courses listed on the program map are based upon the assumption that prerequisites and courses taken in previous semesters will be successfully completed**

Program Narrative:

Northampton's Instrumentation Process Control program is designed to prepare you to enter a career in automated manufacturing. The Instrumentation Process Control certificate program offers coursework for a student wishing to complete their studies with three semesters or advance your current machinery repair skills to the next level. The program also provides course offerings that prepare you to work as a team player in a specialized manufacturing environment. Your studies will include state-of-the-art process control equipment and principles from the International Society of Automation (ISA). You will learn the marketable skills required to work effectively within a manufacturing environment with a strong emphasis on the development of professional attitudes, values, and ethics. As you progress through the program, you'll gain critical thinking and decision-making skills needed in today's quality-oriented business environment. Graduates of this certificate program can gain employment and then pursue NCC's Electromechanical Technology Automated Systems associate degree program. This program will be of benefit to those who are seeking a position in manufacturing process control as an instrument technician or those who are seeking to change careers. It is also useful for production technicians in need of updated skills.

Features:

This program prepares you for the responsibilities and challenges expected of a skilled tradesperson in a manufacturing setting. Students will gain the knowledge and understanding of basic instruments used to measure temperature, pressure, flow and level. Along with troubleshooting skills, you will gain knowledge of installing, calibrating, and tuning a wide array of control loops and understanding and applying Proportional-Integral-Derivative (PID) control algorithms. This is all accomplished with extensive hands-on lab activities using actual equipment that is used in the field, and computer technology to aid in the diagnostic process courses for the Instrumentation Process control certificate program including Electrical Fundamentals, Introduction to Process Control, Industrial Control Systems I & II, and Instrumentation I & II. All of the courses in the certificate can be applied to the Electromechanical Technology Automated Systems associate degree program.

Program Learning Outcomes:

Demonstrate an ability to work independently & collaboratively.
Analyze and present data in an acceptable and standardized manner.
Demonstrate a basic framework of technical vocabulary and graphics interpretation.
Demonstrate an understanding of basic principles and theories related to improving process control.
Analyze and troubleshoot mechanical and electrical problems.
Demonstrate observational, integrative and synthetic skills.
Demonstrate the proper use and care of instrumentation equipment.
Understand the mechanics and operation of equipment measuring temperature, pressure, level and flow.
Use data to analyze and avoid failures.

Career Information:

Potential employers for those following this electromechanical technology pathway include:

- Food Manufacturers
- Pharmaceutical Manufacturers
- Chemical Manufacturers

This program can be completed in the day or evening, on a full or part-time basis.

Career Potential: Chemical Equipment Maintenance, Biotech Equipment Maintenance, Electromechanical Equipment Assembler, Control Valve Installer/Repairer, Maintenance Technician, Water Waste Treatment Systems Maintenance.