

# Robotics, Certificate

## BASIC SYSTEMS

### School of Technology

This Basic Systems Certificate introduces the student to basic electrical, mechanical and computerized components used in basic manufacturing systems. Topics covered include functional descriptions, physical properties and operation of electrical and mechanical components and devices. An introduction to digital logic devices, programmable logic controllers and programming these is also covered. Technical documentation such as data sheets, schematic diagrams, wiring diagrams, timing diagrams and system specifications are covered. System materials, lubrication requirements and surface properties are investigated. Students receive hands-on practical experience in the use and application of basic electrical instruments and mechanical measuring devices. An emphasis is placed on safe work habits and procedures, systematic preventive maintenance, localization and correction of malfunctions, and troubleshooting techniques.

### Career Opportunities

Manufacturing systems is a blend of mechanical, electrical, electronics and computerized technologies that together form complex automated systems. The need for skilled individuals to support these systems is ongoing. Graduates of the Basic Systems Certificate will be able to configure and troubleshoot basic manufacturing systems.

### Program Learning Outcomes

Upon successful completion of this program, students will be able to:

- Describe and apply safety rules while working on basic manufacturing systems.
- Explain the physical operation of electromagnetic and electrostatic components such as coils, solenoids, relays and various sensors used in basic manufacturing systems.
- Describe the inter-relationships of components and modules within basic manufacturing systems with a focus on electro- pneumatic and electro-hydraulic control systems.
- Describe troubleshooting, maintenance and safety issues associated with basic manufacturing systems.
- Perform as part of a team to complete a complex automated systems project.

Sugg. Term	Seq #	Course ID	Course Title	Cr.	Term Offered	Prereq(s)	Options Available
1st Fall	1	PDV 101	First Year Seminar	1	F, Sp, Su		
	3	RBT 111	Electrical Components	4	F		
	4	RBT 121	Mechanical Components & Electric Motors	4	F		
	5	RBT 135	Industrial Robotics	4	F		
	6	RBT 140	Digital Fund & Programmable Logic Controllers	4	F	Corequisite: RBT 111	

Total Program Credits

17