

Industrial Technology	Outcomes	INT 101 Intro to Industrial Technology	INT 102 Intro to PLC's	ELE 103 Analog and Digital Electronics	ELE 110 Fundamentals of Electricity	ELE-140 Introduction to Robotics	ELE 158 Circuits Schematics and Test Equipment	ELE 203 PLC Applications	ADM 201 Lean Manufacturing and Quality Assurance	ADM 258 Advanced Motors, Machines and Devices	ADM269 Internship	CSC 132 Introduction to C and C++ Programming	EGT 235 Fluid Power Hydraulics and Pneumatics
Outcome #1	Identify principles of machines and robotics for set up, maintenance and troubleshooting.	Identify mechanical fasteners, power transmission, bearing and coupling components				Identify degrees of freedom, safety, and applications.		Students will be able to design and program an intermediate automated industrial production line or process.		Identify the different types of motors used in industry and their applications.			
Outcome #2	Understand the principles of AC and DC electricity and connect, operate, and measure analog and digital electrical circuits using industry standards.	Use VOM on DC electrical circuit board.	Students will understand timers, counter, and other intermediate programming concepts and functions		Apply knowledge of Ohms law, power law, networks of resistors and basic electromagnetics. Measure common devices to troubleshoot.		Demonstrate best practices for circuit measurements.			Collect, monitor, and manipulate data required to effectively control an industrial process			
Outcome #3	Understand the principles, concepts, techniques, and application of Lean Manufacturing and Quality Assurance in today's advanced manufacturing and technology-based businesses.	Role play to understand the interaction of operations, technologists, and engineering in a plant.	Students will demonstrate a basic programming knowledge for entry-level PLC applications						Demonstrate use of TQM techniques through scenario descriptions and data use and interpretation.				
Outcome #4	Understand the ways in which computers control manufacturing machines including Instrumentation and Process Control, PLC, CNC, C++.		Students will understand basic PLC inputs and outputs.			Program the robot application.		Students will be able to explain the concept and use of digital electronics and data manipulation. Students will be able to understand and use timer.				Demonstrate knowledge of C code by writing working programs.	
Outcome #5	Demonstrate an understanding of Fluid Power and its applications.	Simulate, construct, and test pneumatic and hydraulic circuits. Understand limitations and benefits of each.											Calculate, build and test hydraulic and pneumatic systems to evaluate and demonstrate fluid energy.
Outcome #6	Read industrial control symbols and diagrams, apply test equipment and troubleshoot advanced manufacturing equipment.	Understand drawings of components, systems and assemblies, Identify GD&T annotation,	Students will learn the concepts of electrical ladder logic and its relationship to programmed PLC instruction.		Recognize standard schematic symbols for common electrical and electronic components.			Students will be able to explain Special Instructions such as Structured text programming, Sequential function chart programming, and Function block programming.					Follow diagrams to build and test.