TCAT - Murfreesboro Night Supplemental Schedule for:
Welding and Online Industrial Schedule - Spring 2018

Enrollment Deadline: December 22nd

Instructions for Enrollment:

Please acquire an "Evening Enrollment Form" from the receptionist at the front desk, or from the following link at **TCAT Murfreesboro's Website:**

https://tcatmurfreesboro.edu/programs/evening-courses

1. Submit completed enrollment form in person, via fax to 615-893-4194, or via email attachment to Ms. Valerie Scollon in the Finance Office at vscollon@tcatmurfreesboro.edu with the subject line, "Evening Enrollment."

2. Pay Ms. Scollon by check, cash, or credit card, Mon - Fri, 8:30a - 3:30p; (615) 898-8010, ext. 145. We will accept credit card by phone only *after* the enrollment form has been received.

**The Enrollment Deadline for Night Supplemental Welding and all Online classes is December 22nd, 2017. A student is not considered "enrolled" until their* enrollment form and payment have been received. Please enroll early to insure your seat in the class. Available seats will be limited.

***Please be aware of the Refund Policy BEFORE paying for a class. The Refund Policy can be found on page 12 in the Student Handbook. A link to the Student Handbook may be found on the following webpage:* https://tcatmurfreesboro.edu/programs/evening-courses

****TCAT-Murfreesboro: Smyrna Campus is now offering a Full-time Welding Program that is eligible for student aid. To sign up for the fulltime Welding Program , contact Student Services at 615-898-8010 extension 110. To sign up for the supplemental welding classes listed below on this schedule, please follow the "instructions for enrollment" above.*

*****An optional, 2-3 hour orientation for the online classes will be conducted in room 146 of TCAT-Murfreesboro: Main Campus, 1303 Old Fort Parkway, Murfreesboro, TN 37129, on January 17th, 2018, at 6:30PM. Please bring laptops if you have them.*

******Inclement weather days will be made up at the end of the trimester. No classes will be scheduled on January 15th , 2018, in honor of Martin Luther King Jr. Day, and March 12-15, for TCAT Murfreesboro's instructor In-service.*

*******Welding I, II, and Open Lab will be held on Tuesdays and Thursdays at the TCAT-Murfreesboro Main Campus at 1303 Old Fort Parkway, Murfreesboro, TN 37129.*

Welding Classes	Hours	Nights	Times	Start	End	Class Fees
Welding I, II, and Open Lab	78	T/TH	6p - 9p	9-Jan	12-Apr	$323.00

Welding I offers a basic introduction to stick, MIG, and TIG welding with carbon steel, stainless steel, and aluminum; oxyacetylene welding; cutting and braising; safety and PPE; and fundamentals of welding. Welding II offers single - and multiple-pass welding techniques on different joints in various positions. Concepts and techniques from Welding I are further developed, practiced, and refined. Students may bring in projects to work on with the instructor's approval in an "open lab"

Personal Protective Equipment (PPE) required for this class include: welding hood, safety glasses, boots, welding gloves, cuff less jeans with no tears or holes, and a long-sleeved welding jacket or long-sleeved shirt. Please bring these items on the first day of class.

Online Classes: Automation	Hours	Start	End	Class Fees	Curriculum	Total
Principles of Factory Automation	24	17-Jan	17-Apr	$224.00	$100	$324.00
Principles of factory automation introduces the types and uses of automation in manufacturing. Reviews the use of PLCs for material handling and movement, process control systems, work piece handling, and conveyors.						
Principles of Robotics IRC5 Controller	48	17-Jan	17-Apr	$288.00	$100	$388.00
Principles of robotics IRC5 controller reviews the principles of robotics, including robot applications and benefits, robot motion, configurations, and control. Using the ABB robot with an IRC5 controller as a model, the course uses 3-D graphics to allow the learner to practice automatic and manual operations.						
Robotics 1 Simulation	18	17-Jan	17-Apr	$224.00	$100	$324.00
Robotics 1 studies the basic principals of robotics, including operation, programming, interfacing, and material handling. In includes concepts in power up and shutdown, manual operation, homing, using the teach pendant and teach points, basic programming, movement and end effector commands, looping and speed commands, I/O interfacing, and material handling.						
Robotics 2 Simulation *(Robotics 1 Prerequisite)*	30	17-Jan	17-Apr	$224.00	$100	$324.00
Robotics 2 continues the study of the principals of robotics, including robot application and automation. It includes concepts in application development such as CNC machine loading, robot work cell envelope, robot application development, and basic conveyor operation. The learner also studies flexible manufacturing cells including subroutine commands and servo conveyor operation; quality control covering Cartesian coordinate programming, go no-go inspection, robot operator interface, and parts measurement; and production control including operator input interface, relational and arithmetic operators, and loop commands.						
PLC Troubleshooting -AB ControlLogix	79	17-Jan	17-Apr	$288.00	$100	$388.00
PLC Troubleshooting -AB ControlLogix introduces Programmable Controllers by describing PLC orientation, operations, and programming languages. It covers basic PLC Programming by describing numbering systems, PLC memory organization, PLC programming software and PLC program analysis. PLC motor control, discrete input and output interfacing, PLC timer and counter instructions are also discussed to give a better application of Programmable Controllers. This course also introduces PLC troubleshooting by discussing levels of PLC troubleshooting, power supply troubleshooting, input troubleshooting and output troubleshooting. Skills also discussed include PLC Systems troubleshooting, event sequencing, application development, program control instructions, and math and data move instructions.						
Pegasus Robotics Simulation	48	17-Jan	17-Apr	$288.00	$100	$388.00
Pegasus robotics simulation discusses the basic operation of the Pegasus robot. These skills include safety, power up, shutdown, manual operation, homing, end effector operation. Skills taught also include basic robot programming including movement and effector commands, interfacing and material handling, application development, flexible manufacturing cells, quality control, production control, and work cell development.						
Robotics and Computer Programming	48	17-Jan	17-Apr	$288.00	$100	$388.00
Robotics and Computer Programming 1 discusses the basic operation of a Robot. These skills include safety, power up, shutdown, manual operation, homing, end effector operation. Skills taught also include basic robot programming including movement and effector commands, interfacing and material handling, application development, flexible manufacturing cells, quality control, production control, and work cell development.						

Online Classes: Electrical	Hours	Start	End	Class Fees	Curriculum	Total
AC/DC Electrical Systems	36	17-Jan	17-Apr	$224.00	$100	$324.00
AC/DC Electrical course teaches fundamentals of AC/DC electrical systems used for power and control in industrial, commercial, agricultural, and residential applications using Amatrol's virtual training technology. Students learn industry-relevant skills included in subject areas such as Basic Electrical Circuits, Electrical measurement, Circuit Analysis, Inductance and Capacitance, Combination Circuits, and Transformers.						
Electrical Fabrication 1	18	16-May	17-Apr	$224.00	$100	$324.00
Electrical fabrication introduces electrical system wiring and develops fundamental knowledge of electrical wiring and components. Covers basic electrical system wiring, interpreting wire installation plans, handling non-metallic cable, understanding application of basic components such as switches, outlets, and lighting, and connecting electrical services.						
Electric Motor Control	60	17-Jan	17-Apr	$288.00	$100	$388.00
Electric motor control teaches electric relay control of AC electric motors found in industrial, commercial, and residential applications. Learners gain understanding of the operation, installation, design, and troubleshooting of AC electric motor control circuits for many common applications. Develops skills in interpreting schematics, system design, motor start / stop circuits, motor sequence control, reversing motor control, and motor jogging. Safety is emphasized throughout, highlighting motor safety, lockout/ tag out and safety interlocks.						
Motor Braking	6	17-Jan	17-Apr	$224.00	$100	$324.00
Motor braking teaches the common braking methods found in industrial, commercial, and residential applications. Learners acquire skills in the three of the most common braking methods: electromagnetic braking, plugging and DC injection. Troubleshooting braking problems is emphasized in the course. Creates an understanding of how an electromagnetic brake is constructed, how it works, and when to apply it in industrial situations. Stopping an electric motor via plugging is closely examined, focusing on the application of a drum switch, push-button, and timer.						
Reduced Voltage Starting	12	17-Jan	17-Apr	$224.00	$100	$324.00
Reduced voltage starting teaches methods of starting electric motors under reduced voltage and 3-phase power distribution using Delta and Wye transformer wiring configurations. Learners develop skills and knowledge in primary resistor, autotransformer, and part winding reduced voltage starting, step-up and step-down transformers, three phase power generation and distribution, and Wye and delta wiring configurations.						
Variable Frequency AC Drive	24	17-Jan	17-Apr	$224.00	$100	$324.00
Variable frequency AC drives teaches variable frequency AC solid-state control of 3-phase electric motors. Learners develop knowledge in the operation, installation, performance analysis, troubleshooting, and design of AC solid state control using 2-wire, 3-wire, manual, and open-loop speed control. Highlights motor jogging and dynamic braking as well as programmable acceleration and deceleration.						
SCR Speed Control	6	17-Jan	17-Apr	$224.00	$100	$324.00
Teaches speed control of DC electric motors using Silicon Controlled Rectifier (SCR)-based circuits. SCRs provide efficient variable speed control of DC motors and are widely used in industrial applications. Learners develop knowledge in the operation, installation, performance analysis, and troubleshooting using SCRs for various applications. Focus on full and half wave rectification and motor speed control.						
AC Electronic Drives	42	17-Jan	17-Apr	$288.00	$100	$388.00
AC Electronic Drives introduces AC Drives by discussing variable frequency drives, drive categories and levels. It also discusses the functions and operations of an Allen-Bradley PowerFlex 70 Drive by expanding on the skills of configuring, control parameters, communications, diagnostics and troubleshooting of the drive. Fundamentals of configuring and troubleshooting the A-B PowerFlex 40 Drive and Servo Drives are also explored.						
Electric Relay Control	18	17-Jan	17-Apr	$224.00	$100	$324.00
Electric Relay Control introduces the functions of relay logic control circuits used in industrial, commercial and residential applications. Describing functions and application of functions covered in control logic include logic elements such as AND, OR, NOT, NOR, and NAND. Ladder Diagrams are explained and learners connect, operate, and design a ladder diagram using one or more logic elements. Additional concepts include Electro-pneumatic solenoid valves; sequencing control including relay operation, relay application, limit switch operation and application; and timers and advanced systems including time-delay relays, multiple cylinder control, and machine modes of operation.						

Basic Electrical Machines	48	17-Jan	17-Apr	$288.00	$100	$388.00
Basic electrical Machines introduces electrical circuits and works through many industry tasks in Electrical Systems including DC Series Motors, DC Shunt and Compound Motors, Motor Speed and Torque, Motor Performance, Split-Phase AC Motors, Capacitor-Start AC Motors, Permanent-Capacitor and Two-Capacitor Motors, and Three-Phase AC Induction Motors.						
DC Generators	6	17-Jan	17-Apr	$224.00	$100	$324.00
This course teaches skill used with DC Generators commonly found in industrial, commercial, and residential applications. Students will learn industry-relevant skills including how to operate, install, analyze performance, and select DC generators for various applications. Topics covered include performance measurement, performance analysis, dc series generators, dc shunt generators, dc compound generators, installation, and operation						
Alternator / Synchronous Motor	18	17-Jan	17-Apr	$224.00	$100	$324.00
Alternator / Synchronous Motor course teaches skills with alternators and synchronous motors commonly found in industrial applications. Alternators provide a mobile source of AC electrical power while synchronous motors reduce power costs by correcting the overall power factor in a plant. Students will learn industry-relevant skills including how to operate, install, and analyze the performance alternators and synchronous motors. Topics covered include installation, operation, performance measurement, performance analysis, alternators, synchronous motors, power factor correction, synchronizing alternators, field excitation, and reversing synchronous motors						
Wound-Rotor Machines	6	17-Jan	17-Apr	$224.00	$100	$324.00
Wound Rotor Motor introduces wound-rotor motors by describing the function and operation of and giving an application to connect and operate a wound-rotor motor. This course also teaches the function of a wound-rotor motor speed controller and gives and example. Further into the course learners will describe the torque and speed characteristics of wound-rotor motors and measure the performance characteristics. Finishing up the course will walk through reversing a wound-rotor motor and describe this function as well as performing the skill.						
Industrial Electrical Wiring	18	17-Jan	17-Apr	$224.00	$100	$324.00
Industrial Electrical Wiring introduces concepts used in many industry tasks in electrical wiring. Learners will describe the function of electrical prints, panels, the wiring between panels, and wire color coding. They will also learn concepts in control system wiring fundamentals, wiring between and outside panels, panel wiring, wire bundling, and experience a project in how to wire an electrical machine.						
Electrical Power Distribution	30	17-Jan	17-Apr	$224.00	$100	$324.00
Electrical Power Distribution introduces electrical power concepts as well as covers a broad range of functions and skills used in electrical power distribution. Concepts taught start with the introduction to raceways including conduit basics, EMT conduit cutoff and preparation, conduit bodies and boxes, and conduit fittings. Basic conduit bending includes conduit benders, basic conduit bending, and offset bends. This course leads into more in depth topics such as advanced raceways including IMC conduit and flexible conduit, conductors, disconnects, and over current protection, and conduit sizing and wire pulling techniques.						

Online Classes: Fluid power and Mechanical	Hours	Start	End	Class Fees	Curriculum	Total
Basic Pneumatics	24	17-Jan	17-Apr	$224.00	$100	$324.00
Basic pneumatics prepares learners to work intelligently in industry with pneumatic applications. It introduces pneumatic power and takes learners through key topics and skills in pneumatic power & safety, pneumatic circuits, pneumatic schematics, the principles of pneumatic pressure and flow, and pneumatic speed control circuits. It covers pressure regulation, air filtration, how to connect pneumatic circuits, pneumatic cylinders, valves, and actuators, a wide array of pneumatic applications, pressure and cylinder force, pneumatic leverage, pressure and volume, and air flow resistance.						
Basic Hydraulics	30	17-Jan	17-Apr	$224.00	$100	$324.00
Basic hydraulics introduces hydraulic power use and application, allowing learners to develop skills and knowledge needed to apply hydraulics in modern industry. It takes learners through key topics and skills in hydraulic power & safety, hydraulic circuits, hydraulic schematics, the principles of hydraulic pressure and flow, and hydraulic speed control circuits. It covers pumps, fluid friction, how to connect hydraulic circuits, hydraulic cylinders and valves (including needle valves), and a wide array of hydraulic applications.						
Intermediate Pneumatics	18	17-Jan	17-Apr	$224.00	$100	$324.00
Intermediate pneumatics builds on the basic pneumatics skills to teach intermediate pneumatic components and system applications. Learners will gain industry-relevant skills related to these new topics including operation, installation, performance analysis, maintenance, and design. These topics include cam-operated valves, cylinder sequencing with cam valves, cylinder deceleration circuits, pilot operated DCVs, shuttle valves, air logic components, air logic design, air filters, filter selection, filter maintenance, water removal techniques, air dryers, after-coolers, water traps, air lubricators, and component maintenance.						
Intermediate Hydraulics	30	17-Jan	17-Apr	$224.00	$100	$324.00
Intermediate hydraulics builds on basic hydraulic skills teaching hydraulic components and system applications. Students will learn industry-relevant skills related to new topics including operation, installation, performance analysis, and design. These topics include accumulator sizing, system design, circuit applications, component operation/ installation, pilot-operated directional control valves (DCVs), 2-stage directional control valves, cam operated directional control valves (DCVs), DCV spool center types and applications, cylinder types and mountings, pressure-compensated flow control valves, pilot-operated check valves, direct-operated relief valves, non-compensated flow control valves, rapid traverse slow feed circuits, cylinder sequencing, remote pressure control, pump unloading circuits, and p-port check valves.						
Mechanical Drives I	42	17-Jan	17-Apr	$288.00	$100	$388.00
Mechanical drives introduces mechanical systems and develops fundamental knowledge of mechanical systems and practices. Covers basic safety, installation, key fasteners, power transmission systems, v-belt drives, chain drives, spur gear drives, and multiple shaft drives. Topics covered include learning how to select, install, adjust, troubleshoot, and repair a range of mechanical systems which are commonly found in both automated and manual machines used in every industry around the world						
Mechanical Drives II	42	17-Jan	17-Apr	$288.00	$100	$388.00
Mechanical Drives 2 covers heavy duty V-Belt drives including conventional, multiple, wedge, and variable speed V-Belt drives. This course describes V-Belt selection and maintenance by covering V-Belt size specification, component identification, and troubleshooting. Learners will develop fundamental knowledge of synchronous belt drives, lubrication concepts, precision shaft alignment, and coupling. Also covered is heavy duty chain drives which describes silent chain drives, multiple-strand systems, chain selection, chain lubrication, chain maintenance and troubleshooting						
Mechanical Drives III	42	17-Jan	17-Apr	$288.00	$100	$388.00
Mechanical Drives 3 includes describing lubrication, selection, maintenance and trouble shooting of plain ball bearings. It introduces anti-friction bearings by describing two types of bearing and teaching the fundamental skills of how to identify, mechanically install, and thermally install, and troubleshooting those bearings. Also covered is gasket and seals; such as O-ring seal, lip seal and mechanical seal, advance gear drives; such as helical gear drives, right angle gear drives, and speed reducers, gear drive selection and maintenance.						

Online Classes: Green Energy	Hours	Start	End	Class Fees	Curriculum	Total
Turbine Nacelle Troubleshooting	36	17-Jan	17-Apr	$224.00	$100	$324.00
Turbine nacelle troubleshooting teaches adaptive skills for wind turbine operation, adjustment, and troubleshooting in a wide variety of situations. It highlights the need for component, sub-system, and system level skills. Covers turbine safety, control functions and power, turbine hydraulics, yaw and parking brakes, rotor lock, the yaw drive, and twist box. Shows meteorological system impact, yaw system operation, safety loop operation, networking, and troubleshooting at all levels						
Solar Concepts and Site Analysis	24	17-Jan	17-Apr	$224.00	$100	$324.00
Solar concepts introduces a broad range of basic concepts in solar energy and technology, including photovoltaic and thermal solar systems. Learners explore how to translate location, sun, and technology into practical applications. Covers types of solar energy systems, AC & DC photovoltaic systems, solar industry overview, passive and active water heating, space heating and cooling, solar irradiance, peak sun, global positioning, solar time, sun path, array orientation and insolation data. Solar site analysis provides detailed information on siting a solar array. Covers site assessment, the permit process, array site evaluation, component location on the site, and overall site layout.						
Solar Thermal Troubleshooting - Open-Loop	24	17-Jan	17-Apr	$224.00	$100	$324.00
Solar thermal troubleshooting for open-loop systems teaches skills and knowledge needed for working with open loop system configurations and situations. It emphasizes connection, programming, and troubleshooting problems system wide, supporting the knowledge needed for the NABCEP (North American Board of Certified Energy Practitioners) test for certified solar thermal system installer. It covers collectors, open-loop thermal systems, output measurement, solar collector specifications, pumps, solar storage tanks, air vent and vacuum valves, check valves, system charging, freeze protection, analog controllers, drain down system operation, and overall system operation and performance.						
Solar Thermal Troubleshooting - Closed-Loop	24	17-Jan	17-Apr	$224.00	$100	$324.00
Solar thermal troubleshooting for closed-loop systems teaches skills and knowledge needed for working with the two common types of thermal closed-loop systems: drain back and pressurized. It emphasizes connection, operation, programming, and troubleshooting problems of both drain back and pressurized systems, supporting the knowledge needed for the NABCEP (North American Board of Certified Energy Practitioners) test for certified solar thermal system installer. It covers collectors, closed-loop thermal systems, output measurement, solar collector specifications, pumps, solar storage tanks, air vent and vacuum valves, check valves, system charging, freeze protection, analog controllers, drain down system operation, and overall system operation and performance.						
Solar Thermal Installation	24	17-Jan	17-Apr	$224.00	$100	$324.00
Solar thermal installation teaches how to install solar thermal applications, emphasizing working with copper tubing, considerations in tubing installation, plastic pipe assembly, and installation of the key electrical, mechanical, and fluid systems. Focuses on the preparation needed for success, key skills required like soldering and brazing, tubing selection and insulation, and plastic pipe specifications and installation.						
Solar PV Troubleshooting	42	17-Jan	17-Apr	$288.00	$100	$388.00
Solar PV troubleshooting teaches installation and maintenance of solar photovoltaic (PV) systems across the types of PV systems commonly used such as AC, DC, and grid-tie. Learners develop the specialized skills and knowledge needed for solar PV systems, including connection and operation of the many types of solar PV systems, programming or configuring inverters and charge controllers, sizing systems and components, analyzing performance, and troubleshooting problems system wide. It supports the knowledge needed for the NABCEP (North American Board of Certified Energy Practitioners) test for certified solar PV system installer. Solar PV troubleshooting covers PV module performance, PV array connection, solar batteries, DC & AC solar PV systems, charge controllers, PV inverters, grid-tie systems, energy conservation and demand, and component sizing in addition to system level problem solving.						
Solar PV Installation	24	17-Jan	17-Apr	$224.00	$100	$324.00
Solar PV installation teaches how to install solar PV applications, emphasizing working with copper tubing, considerations in tubing installation, plastic pipe assembly, and installation of the key electrical, mechanical, and fluid systems. Focuses on the preparation needed for success, key skills required like soldering and brazing, tubing selection and insulation, and plastic pipe specifications and installation.						
Solar Grid-Tie	6	17-Jan	17-Apr	$224.00	$100	$324.00
The Solar Grid-Tie course focuses on grid-tie inverters. Learners study the operation of various inverters, the interconnection codes and standards for grid connection, and the types of grid-tie systems. Skills include how to connect and operate a micro inverter, how to complete an interconnection agreement application, and how to connect and operate a grid-tie system without a battery backup.						

Online Classes: Industry Fundamentals	Hours	Start	End	Class Fees	Curriculum	Total
Principles of Advanced Manufacturing	30	17-Jan	17-Apr	$224.00	$100	$324.00
Principles of advanced manufacturing introduces advanced manufacturing through study of the technologies, processes, performance objectives, and personnel employed in modern manufacturing. Includes examination of computer technologies, such as CNC, PLC, automation, and software. The learner learns how to calculate critical performance objectives, as well as common physical plant layouts and the typical organization of manufacturing personnel and their responsibilities.						
Mathematics 1	36	17-Jan	17-Apr	$224.00	$100	$324.00
Mathematics 1 reviews the math operations and concepts commonly used on the job in the production environment. The learner hones addition, subtraction, multiplication, division, fraction, decimal, percentage, averaging, ratio, and geometry skills. Exposes the learner to basic linear problem solving and geometric operations, such as calculating surface area and volume.						
Trigonometry	36	17-Jan	17-Apr	$224.00	$100	$324.00
Trigonometry 1 provides in-depth study of right triangle trigonometry and its applications to practical manufacturing calculations. The learner studies the foundations of trigonometry, including lines, components and types of angles, and angle measurement. Topics of focus include triangles, the Pythagorean Theorem, understanding and calculating trigonometric ratios and inverse functions, and the components of circles and their relationship to angles.						
Online Classes: Lean Manufacturing	**Hours**	**Start**	**End**	**Class Fees**	**Curriculum**	**Total**
Lean Overview and Workplace Organization	42	17-Jan	17-Apr	$288.00	$100	$388.00
Lean overview and workplace organization provides understanding of the context and vocabulary of lean manufacturing, including: the history and purposes of lean manufacturing, the Toyota Production System, principles of workplace organization, and 5S workplace organization process: Sort, Straighten, Shine, Standardize, Sustain. Designed for middle school, high school, and community college learners and workforce development participants who require a basic understanding of lean manufacturing principles.						
Introduction to Lean	24	17-Jan	17-Apr	$224.00	$100	$324.00
Introduction to lean introduces the concepts, terms, and application of lean manufacturing principles and practices in the manufacturing process. Provides an overview of the history and evolution of lean, the benefits of lean process, and the role of management in the lean process.						
5S	36	17-Jan	17-Apr	$224.00	$100	$324.00
5S is the lean manufacturing technique that introduces principles and methods of workplace organization. Reviews the 5S tool for organizing and maintaining the workplace: Sort, Straighten, Shine, Standardize, and Sustain.						
Total Productive Maintenance	6	17-Jan	17-Apr	$224.00	$100	$324.00
Lean Manufacturing teaches learners ways to identify and eliminate waste in order to improve quality, reduce production time, and decrease cost: distilling down manufacturing processes to what is value added. Total Productive Maintenance takes learners through key topics and skills including the importance of total productive maintenance and describing three principles of preventative maintenance, overall equipment effectiveness, implementing the elements of an autonomous maintenance program, and maintaining equipment including cleaning the equipment, eliminating sources of contamination, training, visual control methods, equipment inspection, and developing and testing standards.						
Poka-Yoke	6	17-Jan	17-Apr	$224.00	$100	$324.00
Lean Manufacturing teaches learners ways to identify and eliminate waste in order to improve quality, reduce production time, and decrease cost: distilling down manufacturing processes to what is value added. Poka-Yoke covers key concepts such as zero quality control, terms defect and error, defect levels of a plant, types of inspection, poka-yoke systems, poka-yoke methods, poka-yoke devices, red flag conditions, contact method devices, fixed-value method devices, and motion-step method devices.						
Lean Theory	24	17-Jan	17-Apr	$224.00	$100	$324.00
Lean theory explores the concept underlying lean manufacturing theory: identifying and eliminating waste. Studies the elements, rules, and tools of lean theory and how to employ them to eliminate waste.						
Lean Process Flow	6	17-Jan	17-Apr	$224.00	$100	$324.00
Lean Manufacturing teaches learners ways to identify and eliminate waste in order to improve quality, reduce production time, and decrease cost: distilling down manufacturing processes to what is value added. Lean Process Flow covers key concepts including elements of lean production, comparing push-and-pull production systems, the Kanban System and its benefits, the Replenishment Interval and its importance, production scheduling, production balancing, and flow production and its benefits.						

Kaizen	6	17-Jan	17-Apr	$224.00	$100	$324.00
Lean Manufacturing teaches learners ways to identify and eliminate waste in order to improve quality, reduce production time, and decrease cost: distilling down manufacturing processes to what is value added. Kaizen teaches concepts to learners such as the term Kaizen and its role in manufacturing; Kaizen event planning including selection of a team, training, preparation, scheduling, and communication; Kaizen event implementation including rules, collection of data, performing a time and motion study, methods used for identifying and analyzing waste, types of reports and application; Kaizen event conclusion; and Kaizen event examples including how to perform a 5S Kaizen event, a Bottleneck Kaizen event, and a Lead Time Reduction Kaizen event.						
Online Classes: Workplace Effectiveness	**Hours**	**Start**	**End**	**Class Fees**	**Curriculum**	**Total**
Communication Skills	30	17-Jan	17-Apr	$224.00	$100	$324.00
Communication skills explains the importance of effective communication, listening skills, and feedback. Upon completion, the learner will be able to identify the roles of the sender and receiver and explain the effects of encoding and decoding. The learner also learns to identify the barriers to effective communication and appropriate types of communication to use in various situations.						
Conflict Resolution	18	17-Jan	17-Apr	$224.00	$100	$324.00
Communication skills explains the importance of effective communication, listening skills, and feedback. Upon completion, the learner will be able to identify the roles of the sender and receiver and explain the effects of encoding and decoding. The learner also learns to identify the barriers to effective communication and appropriate types of communication to use in various situations.						
Working in Groups	12	17-Jan	17-Apr	$224.00	$100	$324.00
Working in groups provides an overview of groups and group decision-making. The learner studies group types, group formation, and the components and attributes of working effectively in a group. The learner also learns about the advantages and disadvantages of group decision-making, as well as the best decision-making strategies for any situation.						

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