

Program Number 31-462-2 Technical Diploma • Two Terms

ABOUT THE PROGRAM

Machines are important in our lives—directly or indirectly. Broken or inefficient machines slow the pace of manufacturing and, ultimately, profits. To remain competitive in today's fast-paced industrial/manufacturing environment, equipment needs to be maintained to run at peak performance. If you like to troubleshoot problems, put theory to work hands-on, and have interests in math and mechanical processes, a career in industrial maintenance may be your key to success.

PROGRAM OUTCOMES

- Demonstrate safe work procedures.
- Install industrial equipment and systems.
- Maintain industrial equipment.
- Troubleshoot industrial equipment and systems.
- Repair industrial equipment and systems.
- Communicate technical information.

ADMISSIONS STEPS

- Work with Admissions Specialist to:
 - Submit application and \$30 fee.
 - Complete an assessment for placement (Accuplacer or ACT).
 - Submit official transcripts (high school and other colleges).
- Meet with program advisor/counselor to discuss program details.

APPROXIMATE COSTS

- \$132 per credit (resident)
- \$198 per credit (out-of-state resident)
- Other fees vary by program (books, supplies, materials, tools, uniforms, health-related exams, etc.) Visit gotoltc.edu/financial-aid/tuition-and-fees for details.

PLACEMENT SCORES

Accuplacer/ACT scores will be used to develop your educational plan. Contact your program advisor/counselor for details.

SPECIAL NOTE

Students need to supply their own safety glasses and welding gloves.

CAREER & EDUCATION ADVANCEMENT OPPORTUNITIES

LTC credits transfer to over 30 universities. For more information visit gotoltc.edu/future-students/transfer.

RELATED PROGRAMS

- Millwright Apprenticeship
- Maintenance Technician
- Electro-Mechanical Technology

CONTACT

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Catalog No.	Class Title	Credit(s)
Term 1		
31457318	Trades Math Industrial Maintenance	2
31462309	Industrial Maintenance Introduction	1
31457388	Industrial Maintenance Print Reading	1
10620120	Basic Tools and Measurement	1
10620122	Industrial Controls Introduction	2
31420394	Industrial Maintenance Machine Tool Introduction	2
31442346	Industrial Maintenance Introduction to Welding	1
31462311	Industrial Maintenance Introduction to Fabrication	1
31801359	Communication Skills for the Workplace	2
31809362	Psychology for Life	1
		14
Term 2		
10620155	Industrial Maintenance Hydraulics and Pneumatics	3
31420395	Industrial Maintenance Machine Tool Lathes and Mills	2
31462310	Industrial Maintenance Bearings and Lubrication	2
31462305	Industrial Maintenance Power Transmission	3
31462308	Industrial Maintenance Pumps, Fluid/Air Handling	2
31462314	Troubleshooting/Machine Repair	3
		15
		TOTAL 29

Curriculum and Program Acceptance requirements are subject to change. Program start dates vary; check with your advisor/counselor for details.



BASIC TOOLS AND MEASUREMENT...prepares the learner to use hand tools, precision measuring instruments, and torque tools.

COMMUNICATION SKILLS FOR THE WORKPLACE...prepares the student to develop paper job-search tools and job-related writing skills to increase job stability; introduces the students to team-building skills to resolve organizational problems; introduces the student to the skills of effective listening; prepares the student to respond to workplace criticism and praise; and introduces the student to interpersonal relationship skills, including effective interviewing skills, customer relations, and management/employee relations.

INDUSTRIAL CONTROLS INTRODUCTION...prepares the learner to follow safety procedures; maintain a safe and healthy work environment; construct electrical circuits; measure electrical quantities using a VOM and/or DVM; analyze measured values using electrical circuit laws; construct typical industrial control circuits; and analyze typical industrial control circuits.

INDUSTRIAL MAINTENANCE BEARINGS AND LUBRICATION...prepares the learner to properly identify, remove, install, and maintain both plain and rolling element bearings used with either a radial or axial load, including ball, cylindrical roller, tapered roller, linear, and thrust bearings; use manufacturers' resources for proper usage and life of bearings; and look at proper types, properties, and application methods of lubrication. PREREQUISITE: 31462309 Ind Mtn Intro and 10620120 Basic Tools and Measurement. COREQUISITE: 31457318 Trades Math Industrial Maintenance or 31457318T1 Trades Math Industrial Maintenance I and 31457318T2 Trades Math Industrial Maintenance II or 31457320 Machine Tool Math

INDUSTRIAL MAINTENANCE HYDRAULICS AND PNEUMATICS...prepares the learner to identify hydraulic and pneumatic component symbols and terms, adjust a pressure relief valve, analyze the operation of a pilot operated relief valve; analyze Pascal's law; evaluate flow, velocity, work and power in industrial hydraulic and pneumatic circuits; analyze meter-in, meter-out, and bypass flow control circuits; identify basic hydraulic and pneumatic control valves; and assemble hydraulic circuits. PREREQUISITE: 31457318 Trades Math IM or 10804118 Intermed College Algebra or COREQUISITE: 10804115 College TechMath or 31457318T1 Trades Math IM 1 and 31457318T2 Trades Math IM 2

INDUSTRIAL MAINTENANCE INTRODUCTION...prepares the learner to apply basic safety, mechanics, force, friction, work, and energy; introduction to basic single phase and three phase wiring. Participants will obtain lift truck operation certification upon successful completion

INDUSTRIAL MAINTENANCE INTRODUCTION TO FABRICATION...introduces the learner to various types of structural steel, sheet metal, and pipe, and prepares the learner to perform fabrication from assembly prints, including cutting, welding, bending, straightening, and repair. PREREQUISITE: 31462309 Ind Mtn Intro, 10620120 Basic Tools and Measurement, 31457388 Ind Mtn Print Rdg and 30442300 Wldg Intro or 31442300 Wldg Intro or 30442300 IN Wldg Intro or 31462301 Ind Mtn Wldg or COREQUISITE: 31442346 Ind Mtn Wldg

INDUSTRIAL MAINTENANCE INTRODUCTION TO WELDING...introduces the learner to the welding field, including practicing safety and care of equipment and supplies used in common arc welding processes, practice in setup and technique for basic SMAW, GTAW, and GMAW equipment in common positions and on common joints; introduces oxy-fuel and plasma arc cutting.

INDUSTRIAL MAINTENANCE MACHINE TOOL INTRODUCTION ...prepares the learner with the skills to identify basic types of machining processes, follow standard shop safety rules, use semi-precision and precision measuring tools, perform workpiece layout procedures, identify metal composition and classification, follow cutoff machine safety rules, operate vertical and horizontal cutoff machines, follow sensitive drill press safety rules, identify drill press components, interpret attributes of hole-producing tools, and operate a sensitive drill press.

INDUSTRIAL MAINTENANCE MACHINE TOOL LATHES AND MILLS...prepares the learner to identify the characteristics and attributes of turning tools, apply engine lathe and milling machine safety rules, identify engine lathe and milling machine components, perform facing, turning, and cutoff operations, select and use various workholding devices and cutting tools, perform hole-producing operations, set up a vertical milling machine, mill square surfaces, precision steps and slots, and mill keyseats on a shaft. PREREQUISITE: 31420394 Ind Maint Machine Tool Introduction

INDUSTRIAL MAINTENANCE POWER TRANSMISSION...introduces the learner to belt, chain, and gear drives used in industrial maintenance applications, including v-belts, flat belts, timing belts, conveyor chains, roller chains, bevel gears, worm gears, helical gears, spur gears, couplings, and alignment with emphasis on identification, installation, repair, and maintenance. PREREQUISITES: 31462309 Industrial Maintenance Introduction and 10620120 Basic Tools and Measurement and 31462310 Industrial Maintenance Bearings and Lube

INDUSTRIAL MAINTENANCE PRINT READING...prepares the learner to read prints; make sketches; interpret orthographic projections to include sections, auxiliary views, threads, and fasteners; and to solve problems in metal trades, fabrication, and troubleshooting.

INDUSTRIAL MAINTENANCE PUMPS, FLUID/AIR HANDLING ...prepares the learner to identify, install, repair, and maintain common pumps and plumbing applications, including centrifugal pumps, diaphragm pumps, packing and seals, tubing, and installing hose and piping used with fluid and air handling. PREREQUISITE: 31462309 IM Intro, 10620120 Basic Tools/Measure, 31457388 IM Print Rdg and COREQUISITE: 10620155 IM Hyd/Pneum, 31457318 Trades Math IM or 31457318T1 Trades Math IM1 and 31457318T2 Trades Math IM 2 or 31457320 Mach Tool Math

PSYCHOLOGY FOR LIFE...prepares the learner to select behavior modification techniques, demonstrate techniques for enhancing memory, analyze expressions of emotion, use conflict for common good, employ techniques to reduce conflict/frustration, use several methods to reduce stress, interpret personality types, ascertain contributors to perception, and apply methods of problem-solving.

TRADES MATH INDUSTRIAL MAINTENANCE...provides the learner with the necessary skills to use scientific calculators for the application of pre-algebra, algebra, geometry, and trigonometry. The course is designed for individualized student needs and can be taken in one-credit increments. Please refer to the class listing for specific one-credit class offerings.

TROUBLESHOOTING/MACHINE REPAIR...prepares the learner to perform essential troubleshooting, repair, and preventive maintenance of various machine tools and installations used in industrial maintenance and to integrate the skills learned in the other maintenance courses to perform complete repair of machine tools. PREREQUISITE: 31462309 IM Intro, 10620120 Basic Tools/Meas, 31462302 IM Layout/Rig; COREQUISITE: 31462305 IM Pwr Trans or 10620122 Ind Ctrls Intro, 31462308 IM Pmps, Fld/Air Hndlg and 31462310 IM Bearings/Lube