Mechanical Systems Apprentice - Suggested Courses

Companies use TPC's Training Needs Analysis to implement highly successful technical skills training for apprenticeship programs. These programs are tailored precisely to the needs of their plants/facilities and maintenance workforce. We've organized the results of these analyses into job/craft-specific apprenticeship curricula for a variety of maintenance positions. Each curriculum includes those TPC courses most frequently selected by organizations like yours to meet the performance goals for their maintenance apprentices.

The suggested curricula provide a proven starting point for planning your own apprenticeship programs. TPC can help fine-tune your program for your unique workforce requirements using our copyrighted Training Needs Analysis process—it's simple, accurate, and only takes a few hours.

Mechanical Systems Apprentice Curriculum

The suggested curriculum for Mechanical Systems Apprentices includes 61 technical skills courses. Each course contains 5-12 detailed, topic-specific lessons for a total of 436 lessons in this curriculum. The subject matter ranges from fundamental knowledge required by an entry-level apprentice to advanced competencies for your senior apprentices.

Maintenance Fundamentals

101 - Reading Blueprints
102 - Reading Schematics & Symbols
103 - Mathematics in the Plant
104 - Making Measurements
105 - Metals in the Plant
106 - Nonmetals in the Plant
107 - Hand Tools
108 - Portable Power Tools
109.1 - Industrial Safety & Health
110 - Troubleshooting Skills

Industrial Hazard Control

151 - OSHA Hazard Communication Standard

Foundations of Technology

391 - Force & Motion

Mechanical Systems

301 - Basic Mechanics
302 - Lubricants & Lubrication
303.1 - Power Transmission Equipment
304 - Bearings
305 - Pumps
306 - Piping Systems
307 - Basic Hydraulics
308 - Hydraulic Troubleshooting
309 - Basic Pneumatics
310 - Pneumatic Troubleshooting

Mechanical Maintenance Applications

341 - Mechanical Drive Maintenance
342 - Mechanical & Fluid Drive Systems
343 - Bearing & Shaft Seal Maintenance Protection
344 - Pump Installation & Maintenance
345 - Maintenance Pipefitting
346 - Tubing & Hose System Maintenance
347 - Valve Maintenance/Piping System

Rigging & Equipment Installation

318 - Industrial Rigging
319 - Equipment Installation

Material Handling Systems

331 - Bulk-Handling Conveyors

Machine Shop Practices

315 - Machine Shop Practice
316 - Machine Shop Turning Operations
317 - Machine Shop Shaping Operations
323 - Machine Shop Job Analysis
324 - Lathe — Turning Work Between Centers
325 - Lathe — Machine Work in a Chuck
326 - Basic Milling Procedures
327 - Indexed Milling Procedures
328 - Multiple-Machine Procedures

Energy Conservation

376 - Energy Conservation Basics
377 - Energy Losses in Buildings
378 - Heating/Cooling System Efficiency
379 - Mechanical Energy Conservation
380 - Electrical Energy Conservation

Welding

416 - Blueprint Reading for Welders
417 - Welding Principles
418 - Oxyfuel Operations
419 - Arc Welding Operations

Robotics

501 - Introduction to Robotics

Machine Tool Series

161 - Measurements
162 - Basic Hand Tools
163 - Work Planning & Setup
164 - Metal Cutting Fundamentals
165 - Cutting Tools I
166 - Cutting Tools II

Packaging Machinery

311 - Introduction to Packaging
312 - Packaging Machinery
313 - Casing Machinery

Ammonia Refrigeration

462 - Positive-Displacement Compressors

Additional Suggested TPC Apprentice Curricula

Electrical/Instrumentation Systems	Machinist/Tool & Die Maker
Electrical Systems	Millwright
Facility/Building Maintenance	Multi-Craft Maintenance
HVAC	Pipefitter
Instrumentation/Control Systems	Refrigeration/Utilities
Lubricator/Oiler	Welder