

DACUM Research Chart for Industrial Maintenance Technician

Produced for



DACUM Panel

Kevin Dillon, Project Manager
City of Roswell
Roswell, NM

Angelo Gurule, Fire and Safety Services Director
Chaves County
Roswell, NM

Jon Hardin, Training Specialist
Hollyfrontier Navajo Refining
Artesia, NM

Robert Spencer, Subject Matter Expert
Hollyfrontier Navajo Refining
Artesia, NM

Produced by



THE OHIO STATE UNIVERSITY

COLLEGE OF EDUCATION
AND HUMAN ECOLOGY

DACUM Facilitators

Kim Childress
Larry Hittle
Annemarie Oldfield
Kim Purcell
Tina Wagner, Team Leader

DACUM International Training Center
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DACUM Research Chart for Industrial Maintenance Technicians

| DUTIES | TASKS | | | |
|---|--|---|---|--|
| A. Maintain Customer Satisfaction | A.1 Collect customer feedback | A.2 Review customer feedback | A.3 Prepare customer solutions | A.4 Resolve customer issues |
| B. Perform Professional Development Activities | B.1 Maintain trade-specific certifications | B.2 Maintain trade-specific CEU credits | B.3 Participate in internal training | B.4 Participate in external training |
| | B.10 Supervise maintenance interns | | | |
| C. Perform Mechanical Activities | C.1 Review mechanical work authorization/work order | C.2 Validate mechanical work authorization/work order | C.3 Review equipment repair manuals | C.4 Troubleshoot mechanical issues |
| | C.10 Perform compressor repairs (e.g., piston, screw, centrifugal) | C.11 Perform turbine repairs | C.12 Perform mechanical equipment shaft alignment | C.13 Complete mechanical work authorization/work order |
| D. Perform Welding Activities | D.1 Review welding work authorization/work order | D.2 Validate welding work authorization/work order | D.3 Select welding parts and materials | D.4 Determine welding tools required for job |
| | D.10 Perform MIG welding repairs | D.11 Perform brazing/soldering repairs | D.12 Document inspection of weld | D.13 Document post-weld heat treatment |
| E. Perform General Electrical Activities | E.1 Review general electrical work authorization/work order | E.2 Validate general electrical work authorization/work order | E.3 Review electrical repair manual | E.4 Troubleshoot electrical issues |
| | E.10 Perform testing certification of wire termination | E.11 Perform vibration analysis on rotating equipment | E.12 R/R electrical distribution system | E.13 I/R/R electrical wire |
| | E.19 I/R/R motor starter systems | E.20 I/R/R electrical motors | E.21 Perform electrical motor alignment | E.22 Document inspection of electrical system |

| | | | | |
|--|---|--|---|---|
| A.5 Participate in customer events | | | | |
| B.5 Participate in self evaluations | B.6 Participate in special assignments | B.7 Participate in professional organizations (e.g., ASSE, risk management boards) | B.8 Participate in team building events | B.9 Participate in supplier events |
| | | | | |
| C.5 Select mechanical parts/materials | C.6 Determine mechanical tools required for job | C.7 Perform engine repairs (eg., diesel, gas) | C.8 Perform pump repairs (e.g., centrifugal, positive displacement) | C.9 Perform hydro-pneumatic motor repairs |
| | | | | |
| D.5 Perform arc welding fabrication | D.6 Perform arc welding repairs | D.7 Perform TIG welding fabrication | D.8 Perform TIG welding repairs | D.9 Perform MIG welding fabrication |
| D.14 Complete welding work authorization/work order | | | | |
| E.5 Select electrical parts and materials | E.6 Determine electrical tools required for job | E.7 Perform electrical lockout/tagout procedures | E.8 Perform low voltage wire termination | E.9 Perform high voltage wire termination |
| E.14 I/R/R electrical heat tape system | E.15 I/R/R conduit | E.16 Perform ground system testing | E.17 Perform thermal image testing | E.18 Maintain lighting systems |
| E.23 Complete electrical work authorization/work order | | | | |

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DUTIES

TASKS

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|---|---|---|---|---|
| F. Perform General Plumbing/Pipefitting Activities | F.1 Review general plumbing work authorization/work order | F.2 Validate general plumbing work authorization/work order | F.3 Review plumbing repair manual/plans | F.4 Troubleshoot plumbing issues |
| | F.10 I/R/R pipe fusing | F.11 I/R/R victaulic piping | F.12 I/R/R PVC piping | F.13 I/R/R compression tubing |
| | F.19 I/R/R plumbing valves | F.20 Sterilize domestic water supply lines | F.21 Document inspection of piping | F.22 Complete plumbing/pipe fitting work authorization/work order |
| G. Perform Hydro-Pneumatic Activities | G.1 Review hydro-pneumatic work authorization/work order | G.2 Validate hydro-pneumatic work authorization/work order | G.3 Review hydro-pneumatic repair manual | G.4 Troubleshoot hydro-pneumatic issues |
| | G.10 I/R/R hydro-pneumatic valves | G.11 I/R/R hydro-pneumatic systems | G.12 I/R/R pneumatic air driers | G.13 Perform testing of hydraulic fluids |
| H. Perform HVAC Activities | H.1 Review HVAC work authorization/work order | H.2 Validate HVAC work authorization/work order | H.3 Review HVAC work repair manual | H.4 Troubleshoot HVAC issues |
| | H.10 Troubleshoot HVAC control issues | H.11 I/R/R HVAC ductwork | H.12 Maintain HVAC systems (e.g., filters, chemical levels) | H.13 Complete HVAC work authorization/work order |
| I. Perform Carpentry Activities | I.1 Review carpentry work authorization/work order | I.2 Validate carpentry work authorization/work order | I.3 Review carpentry plan | I.4 Troubleshoot carpentry issues |
| | I.10 I/R/R doors | I.11 I/R/R windows | I.12 I/R/R roofs | I.13 I/R/R concrete |

| | | | | |
|--|--|--|---|---|
| F.5 Select plumbing parts and materials | F.6 Determine plumbing tools required for job | F.7 I/R/R threaded piping | F.8 I/R/R no hub piping | F.9 I/R/R slip fit piping |
| F.14 I/R/R poly pipe | F.15 I/R/R welded pipe | F.16 I/R/R site glass | F.17 I/R/R concrete pipe | F.18 I/R/R boilers |
| | | | | |
| G.5 Select hydro-pneumatic parts and materials | G.6 Determine hydro-pneumatic tools required for job | G.7 I/R/R pneumatic compression tubing | G.8 I/R/R hydro-pneumatic threaded pipe | G.9 I/R/R high pressure hydraulic hoses/fittings |
| G.14 Document inspection of hydro-pneumatic system | | | | |
| H.5 Select HVAC parts and materials | H.6 Determine HVAC tools required for job | H.7 I/R/R HVAC systems (e.g., refrigerated, evaporative) | H.8 Perform testing and balancing on HVAC systems | H.9 Maintain HVAC controls |
| | | | | |
| I.5 Select carpentry parts and materials | I.6 Determine carpentry tools required for job | I.7 Create plans for simple carpentry | I.8 I/R/R ceilings | I.9 I/R/R walls |
| I.14 I/R/R signage | I.15 I/R/R cabinetry | I.16 I/R/R tile surfaces | I.17 Document inspection of carpentry repairs and inspections | I.18 Complete carpentry work authorization/work order |

DACUM Research Chart for Industrial Maintenance Te

DUTIES

TASKS

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|---|--|--|--|---|
| J. Perform Instrumentation and Controls Activities | J.1 Review instrumentation work authorization/work order | J.2 Validate instrumentation and work authorization/work order | J.3 Review instrumentation repair manual | J.4 Troubleshoot instrumentation issues |
| | J.10 Calibrate electronic sensors and gauges | J.11 Calibrate flow sensors | J.12 Calibrate flow gauges | J.13 Calibrate dial gauges |
| | J.19 I/R/R flow sensors | J.20 I/R/R flow gauges | J.21 I/R/R dial gauges | J.22 I/R/R level sensors |
| | J.28 Maintain DCS | J.29 Maintain PLC | J.30 I/R/R PLC | J.31 Troubleshoot DCS issues |
| K. Perform Administrative Activities | K.1 Participate in co-worker evaluations | K.2 Maintain time sheets | K.3 Maintain equipment records | K.4 Complete expense reports |

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|---|--|-------------------------------------|-------------------------------------|---|
| J.5 Select instrumentation parts and materials | J.6 Determine instrumentation tools required for job | J.7 I/R/R control valves | J.8 Calibrate control valves | J.9 Calibrate pressure transmitters |
| J.14 Calibrate level sensors | J.15 Calibrate pressure gauges | J.16 Calibrate analytical equipment | J.17 I/R/R pressure transmitters | J.18 I/R/R electronic sensors and gauges |
| J.23 I/R/R pressure gauges | J.24 I/R/R analytical equipment | J.25 I/R/R instrumentation tubing | J.26 I/R/R instrumentation fittings | J.27 I/R/R instrumentation valves |
| J.32 Troubleshoot PLC issues | J.33 Perform programming of controls | J.34 Perform programming of HMI | J.35 I/R/R HMI | J.36 Complete instrumentation work authorization/work order |
| K.5 Participate in meetings (e.g., safety, team, work assignment) | K.6 Participate in generating reports | K.7 Maintain leave requests | K.8 Approve supply invoices | |

General Knowledge and Skills

Knowledge

Read plans/blueprints
Interpret technical drawings and manuals
Read tape measure
Use of hand tools
PLC programming
Electrical theory and practice
General code (NEC, plumbing, IBC, ISC)
PPE
Basic math
Hydraulics
Pneumatics
HVAC
Plumbing
Basic chemistry
Thermal dynamics
Procurement

Skills

Problem solving
Time management
Welding
Computer
Communication (oral, written, listening)
Multitasking
Troubleshooting
Interpersonal
Technical writing
Driving
Heavy equipment operation

Acronyms

PPE Personal Protective Equipment
PLC Programmable Logic Controller
HVAC Heating, Ventilation, Air Conditioning
HMI Human Machine Interface
CEU Continuing Education Units
TIG Tungsten Inert Gas
I/R/R Install/Repair/Replace
WO Work Order
ASSE American Society of Safety Engineers
PD Positive Displacement
DCS Distributive Control Systems
TB Test & Balance
MIG Metal Inert Gas

Behaviors

Team player
Flexible
Professional
Analytical
Adaptable
Punctual
Ethical
Reliable
Dedicated
Self-starter
Engaged
Safety-oriented
Drug-free
Follows instructions
Questioning attitude

Tools, Equipment, Supplies and Materials

Hand tools
Computers
Microsoft Office
Multimeter
Micrometer
Calipers
Welder
Torch
Pipe threader/cutter
Transom
Site-specific software
Firmwear
Vibration meter

Future Trends and Concerns

Job security
Retention of key staff
Competition for market share
Rapidly changing technology
Government regulation changes
Difficult to find qualified workers
Price of oil changes
Impact of economy on industry