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| <ul style="list-style-type: none"> • Self-instructional • Self-paced • Self-scoring <p>Each course is designed for initial and refresher training. Both quiz and the test are automatically scored and records kept in ASCII format for ease of manipulation by any spread-sheet or data management software.</p> | <p align="center"><i>Computer-Based Training at Its Best</i></p> <p align="center">Interactive CD-ROMs</p> <p align="center">for training in Plant Operations <i>and</i> Safety</p> <p align="center">Created by:  Warren-Forthought, Inc, USA</p> | <p>Training On Demand:</p> <p>The modules are short and to the point – so your people can take them <i>on shift, as part of the job</i>, instead of in classrooms on overtime.</p> |
| <p>Training is accomplished in four modes:</p> <ul style="list-style-type: none"> • The pre-Test • The Course • Study Quiz • For Self-Evaluation • Post-Test for certification purposes. | <p align="center">Distributed by Multi Media HRD Pvt. Ltd. Maker Bhavan 2, Ground Floor, 18 New Marine Lines, Mumbai - 400020 Tel: 2203 2281 / 82 / 83 • Fax: 2205 8062 e-mail: info@multimediahrd.com</p> <p align="center"></p> <p align="center">Price: Rs.5,000/- per module + 10% Sales Tax + Shipping</p> | <p>Record Keeping:</p> <p><i>These modules do the record keeping you need to satisfy any auditor –</i></p> <ul style="list-style-type: none"> • An exact copy of the test taken by every individual • Summary information for each person • A list of all modules and tests taken by all people • All records are in plain text files you can review with your word processor, or import into any database. |

INDUSTRIAL PROCESS FUNDAMENTALS

211 **How Process Operators Can Reduce Costs** | Module

Develops Operator awareness of major cost areas and how to control waste of fuel, steam, heat loss and utilities, relief line leaks and preventative maintenance.

212 **Process Control Tests and Their Significance** | Module

Introduces process control tests such chemical and physical properties, impurities and product composition and quality. Also discusses spot and composite samples, test identification, tagging and reporting.

214 **Plant Fire Fighting: Fuels & Combustion** | Module

Discusses principles of fighting class B fires, including extinguishing, flammability of typical liquid and vapor fuels, sources of oxygen and ignition, and causes and effects of various explosions and detonations.

215 **Plant Fire Fighting: Use of Water** | Module

Using water to control or extinguish fires and protect personnel and equipment. Explains the use of small and large handlines, monitors, and fixed spray systems.

216 **Plant Fire Fighting: Use of Heat Extinguishers & Foam** | Module

Preparation of chemical and air foam extinguishers and how to use them in large area flat fires. Construction of CO₂ and dry chemical extinguishers and application to small fires.

217 **Plant Fire Fighting: Tactics and Strategy** | Module

Covers basic hose knowledge including: preventing damage, positions, small hose and large hose tactics. Also supplemental streams, interior fires, dry chemical tactics, tank fire fighting and strategy.

218 **About Heat Pt 1: Temperature and Heat** | Module

Heat as energy, what heat does, measurement of temperature, the differences between temperature and heat, BTU defined and a final test.

219 **About Heat Pt 2: Principles of Heat Transfer** | Module

Heat transfer principles of radiation, conduction and convection. Three lessons are presented: principles of heat transfer, heat transfer in a furnace, and heat exchanger equipment. A final test is included.

220 **About Heat Part 3: Combustion and Fuel** | Module

Covers the process of combustion, analysis and control of fuel combustion (including liquid, solids, fuel gases and flammability) and a final test.

221 **Fluid Mechanics Pt 1: An introduction to Fluids** | Module

Presented in two major lessons: the nature of fluids, including phase change and the instruments and units of measuring fluid pressure, temperature, density and viscosity and a final test.

222 **Fluid Mechanics Pt 2: How Gases Behave** | Module

Predict the pressure, temperature and volume changes while compressing and storing gases. Recognize hazards in gas handling and hazard avoidance precautions.

223 **Fluid Mechanics Pt 3: Statics** | Module

Static pressure, its nature, calculation and uses; including instruments which operate on static pressure principles, nature and hazards of vacuum, static pressure uses in handling and transporting fluids.

224 **Fluid Mechanics Pt 4: The Motion of Fluids** | Module

Factors affecting flow rate and how to control them, basic principles and instruments of flow measurement, control of flow rate through valves and through pumping.

225 **Introduction to Compression in Industry** | Module

Covering the basics of compression in section titled: Gas pressure, heat, the gas laws, compressor operations and a final test.

226 **Centrifugal Pumps in Industry** | Module

Principles, parts, and general operation of centrifugal pumps, pump efficiency defined, how head and pressure are calculated.

INDUSTRIAL PROCESS FUNDAMENTALS contd.

- 227 **Positive Displacement Pumps Part 1** 1 Module
Operating principles, capacity, pressure, horsepower and efficiency, how NPSH is calculated, and performance characteristics.
- 228 **Positive Displacement Pumps Part 2** 1 Module
Basic types of reciprocating and rotary pumps, including piston, plunger, diaphragm, direct-acting, rotary lobe, vane gear and screw pumps. How these pumps differ in design and performance.
- 229 **Process Control Instruments for Operators** 1 Module
Designed to introduce operators to process control instruments, this module is broken down into three lessons: process control, transmission of signals, alarms and shutdown devices, plus a final test.
- 236 **Plant Accident Control Techniques** 1 Module
Designed as an introduction to plant accident prevention safety, this module presents four lessons: what is safety, personal protective equipment (PPE), safe procedures and safety hazards.
- 231 **Furnace Operation Part 1: Furnace and Combustion/Air Control** 1 Module
Explains basic principles/ use of furnaces to promote safe, cost efficient operation. Gives definition of combustion in relation to a furnace and explains importance of air control for maintenance of steady combustion and furnace efficiency.
- 232 **Furnace Operation Part 2: Start-up/Shutdown/Other Furnace Situations** 1 Module
Detailed start-up procedure to help prevent explosions. Reasons for shutdown. Possible causes of problems, as well as step to gathering facts and charting the course for correction.
- 233 **Practical Distillation Part 1: What Are Hydrocarbons/How Do They Act?** 1 Module
An introduction to distillation divided into four lessons: properties of hydrocarbons, physical processes, distillation basics and fractionation.
- 234 **Practical Distillation Part 2: Fractionating Equipment and Its Use** 1 Module
A focus on fractionating equipment divided into four lessons: towers – part 1, towers – part 2, related equipment and operation.
- 235 **Practical Distillation Part 3: Normal Operations** 1 Module
Provides a basic thought pattern for controlling the normal operation of a fractionating tower; provides five problem situations typically encountered during normal operation of the fractionating tower.

PROCESS OPERATIONS

- 812 **Distillation** 5 Modules
The distillation process in industry. Covering distillation process; types of distillation; distillation column components; operation; distillation problem.
- 816 **Reading P&IDs and PFDs** 1 Module
Symbols; common abbreviations; legends; differences between them; title blocks; practice identifying symbols.
- 817 **Centrifugal Pumps** 2 Modules
Covering 9 lessons: introduction to centrifugal pumps, types of seals, pump parts, pump preferences, pump control, pump installation procedure, historical troubleshooting, analytical troubleshooting, and pump safety.
- 818 **Heat Exchangers** 1 Module
Types of heat exchangers; components; how they work; conduction; convection; radiation; control; troubleshooting; safety.
- 823 **Valves** 1 Module
The basics of industrial valves, divided into five lessons: introduction, control valves, quick opening valves, other valve types, and maintenance tips.
- 824 **Cooling Towers** 2 Modules
Industrial cooling towers, consisting of 8 lessons: introduction, cooling tower equipment components, how it works, the cooling tower addition system, controlling the cooling tower and troubleshooting.
- 825 **Reciprocating Compressors** 1 Module
Basics of reciprocating compressors in industry, in 5 lessons: introduction, equipment description, how these compressors work, controlling the compressor installation, operating procedure.
- 830 **Process Chemistry** 4 Modules
Chemistry basics in twelve areas: elements, electrons, formulas, compounds, chemical bonds, chemical reactions, acids, bases and pH valves, hydrocarbons, alkanes (paraffins), alkenes (olefins), alkynes (acetylenes) and arenes (aromatics).
- 831 **Cargo Truck Loading and Unloading** 2 Modules
Based on 49 CFR Parts 171-177 this module includes two lessons covering: procedures for training for the safe transportation of hazardous materials via cargo trucks and loading and unloading of cargo trucks.
- 832 **Tank Car Loading and Unloading** 2 Modules
Based on 49 CFR this module is an indoctrination to working safely while loading/ unloading rail tank cars.
- 834 **Reactors** 1 Module
The chemical reactor as a producer of products from raw materials. Factors affecting chemical reaction rates. Safety issues. Tubular, fired-tube, and batch reactors compared and contrasted. Definition of the terms exothermic, endothermic, agitation, catalyst.

OPERATOR PERFORMED MAINTENANCE

- 306 **Cleaning A Gage Glass** 1 Module
Definition, need for cleaning, blowdown operation described, safety aspects.
- 302 **Cleaning Filters, Strainers, and Lines** 1 Module
Role in process, needing for cleaning, replacing filter elements, blowdown, hand cleaning, flushing.
- 303 **Connecting Flanges** 1 Module
Identification of types, connecting, gaskets, leak checking.
- 304 **Installing Blinds** 1 Module
Identification of types, opening a flange connection, installing a blind reconnecting.
- 305 **Stopping Pipe & Flange Leaks** 1 Module
How to stop leaks at flange connections and stopping pipe wall leaks.
- 309 **What Is A Manway?** 1 Module
Identification of manways, entry precautions, safety precautions.
- 322 **Wrenches** 1 Module
Identify common wrenches used for running maintenance and recognize correct applications for each.
- 316 **Common Tools** 1 Module
Identify common tools (screwdrivers, cutters, hammers, scrapers, hacksaws, etc.) found in an operator's toolbox and recognize the correct applications for each
- 307 **Friction & Lubrication Basics** 1 Module
Description of different types of friction, role of heat, description of different classifications of lubricants.
- 308 **Monitoring Natural-Feed Lubrication Systems** 1 Module
Periodic checks of level, temperature, foaming; adding oil, contamination and deterioration
- 310 **Natural-Feed Lubrication Systems** 1 Module
Identification of a natural-feed lubrication system and explanation of the functions of these systems
- 301 **Maintaining Adequate Lubrication of Natural Feed Lubrication Systems** 1 Module
Proper methods for changing oil and maintenance of proper grease levels in these systems.
- 312 **Pipe Fitting Basics** 1 Module
Identify the various types of piping and tubing and describe the function of each of the different fittings
- 313 **Introduction and Construction of Pipes** 1 Module
Description of the different types and how they are used
- 315 **Small Threaded Pipe Basics** 1 Module
Determining replacement pipe length, threading pipe by hand or by machine, installing pipe
- 311 **Replacing Pressure and Temperature Gages** 1 Module
Remove and replace both pressure and temperature gauges safely
- 317 **Tube Fittings** 1 Module
Identifying a flareless fitting and its components, installing a flareless fitting
- 318 **Tube Installation** 1 Module
Installing tubing and tubing fittings
- 314 **Tube Cutting** 1 Module
Identifying parts of a tubing cutter and cutting tubing with a tubing cutter and a hacksaw.
- 319 **Valve Identification** 1 Module
Identifying of valves types, major components and functions (including steam traps).
- 320 **Installing Valves** 1 Module
Readying the line, removing and installing valves, both by hand and with the aid of a hoist.
- 321 **Stopping Valve Leaks** 1 Module
How to stop valve leaks using lubrication and the stuffing box.

GENERAL MAINTENANCE

- 352 **Aerial Lifts** 1 Module
Inspection and Safety Practices: conduct operator inspections of aerial lifts; move and stabilize the lift and do a site evaluation. Evaluation and Operator Responsibilities: recognize hazards of operation, recognize and use ways to avoid hazards of operation.
- 354 **Forks Lifts: Basics, Operations and Safety** 2 Modules
Basic Operations and Safety: Describe fork lift classifications, identify components of a lift assembly; maneuvering concepts, effects of gravity; operating safety techniques and precautions, safely loading, moving and unloading cargo.
Inspections and Safety Checks: How to perform the pre-startup inspection and all necessary safety checks.
- 357 **Operator Communication (Hand Signals)** 1 Module
Types of signals used to communicate with mobile crane operators. Communications methods. Power line and other safety procedures. Resolving conflicting signals. Each hand signal displayed.
- 382 **Introduction to Hand Tools** 5 Modules
Wrenches, screwdrivers, pliers, files, drifts, torque multipliers, cable cutters, nut splitters, keyseat rules, tape measures, miscellaneous gauges, vices, hand tool safety, selection and use, inspection.
- 383 **Introduction to Power Tools** 4 Modules
Pneumatic vs. electrical power tools, chucks, keys, and dogs, drills and boring tools, saws and abrasive cut-offs, milling machines, grinders and sanders, planing machines, abrasive blasters, power tool safety, selection and use, maintenance
- 384 **Basic Rigging** 4 Modules
Crane hand signals, common rope knots, cranes and derricks, lifting hardware, slings and cables, block and tackles, chain hoists, come-alongs, jacks, togggers, reading lift capacity charts, load balancing, selecting lift points, safety, inspection, maintenance.
- 385 **Slings** 1 Module
Procedures and standards of sling inspection. Visual and verbal identification of sling defects. Identifying sling load capacity.
- 386 **Scaffolds** 1 Module
Standards of scaffold construction, including the footing, guardrails, and platform. Checklist tag requirements. Platform planking and cheats. Procedures of safe operation.

Price: Rs. 5,000/- per module.

+ Sales Tax@ 10% + Shipping

MILLWRIGHT

108 Cutting and Fitting Gaskets

2 Modules

Gaskets types, gasket materials, oval rings, gasket layout and cutting, gasket installation.

112 Lubrication

2 Modules

Lubricant types, theory of lubrication, lubricant additives, lubricant classifications and designations, lubricant storage, lubrication equipment, selecting lubricants, lubrication charts, lubrication safety.

113 Bearings

6 Modules

Theory of lubrication and friction, plain bearings, roller bearings, ball bearings, thrust bearings, guide bearings, flanged bearings, pillow block bearings, take-up bearings, tapered bearings, bearing inspection and evaluation, bearing materials, bearing designations, bearing removal, bearing installation.

117 Packing – Types & Installation

2 Modules

Purpose of packing, operating principles of compression vs. lip packing, types of packing, packing materials, stuffing box, packing gland, packing ring, packing removal, installation of compression packing, installation of lip type packing.

120 V-Belt & Positive Drive Belts

2 Modules

Identification, characteristics, code numbers, selection, installation, inspection, and maintenance of V-belt drives and positive drive belts.

122 Mechanical Seals

6 Modules

Purpose of mechanical seals, how mechanical seals work: inside, outside, single, double and tandem seals; dynamic vs. static seals; O-rings, installation of seals; pressure balancing.

124 Basic Hydraulics & Pneumatics

8 Modules

Pascal's law, Boyle's law, principals of hydraulics and pneumatics, cylinders, hydraulic motors, hydraulic and pneumatic pumps, inspection and troubleshooting of hydraulic equipment, pneumatic transmission of energy, gas compression.

125 Chain Drives

1 Module

Identification of chain drive components; roller and silent chain drives; numbering and identification of chain drives; inspection, installation, removal and maintenance of chain drives.

129 Pumps

6 Modules

Identification and operating principles of centrifugal pumps, rotary pumps, reciprocating pumps, vacuum pumps; head and pressure; maintenance.

133 Conventional Alignment

4 Modules

Types of misalignment, use of feeler gauge and straight edge for coupling alignment, adjusting face and outside diameter alignment, use of dial indicator, elimination of coupling stress.

INSTRUMENT SPECIALIST

417 Control Valves and Actuators

2 Modules

Construction, theory of operation, application

432 Pressure Leak Testing of Pipe and Tubing

2 Modules

Halogen leak testing, pneumatic leak testing, hydrostatic testing, selection of gauges, determination of test pressure

448 Calibration of Controllers

2 Modules

Identification of equipment calibration requirements, set-up for calibration and use of calibration equipment, technical specifications for calibration, calibration records.

611 AC Motors

1 Module

How a motor changes electrical energy to mechanical power, the relationship between electric current and magnetism, starting and running characteristics, speeds and horsepower, starting and stopping mechanisms, protective and safety devices. Procedures for starting, running and stopping motors. Also covered is lubrication and maintenance procedures and motor enclosures.

PIPEFITTER

704 Fabrication of Threaded Piping

Types of threaded and screwed fittings, making threaded pipe connections, breaking threaded pipe connections, teflon tape and thread compounds.

712 Pipe Hangers and Supports

2 Modules

Pipe clamps, pipe hangers/ supports, pipe shoes, pipe spring supports, pipe guides, dead legs and dummy legs

715 Valves

6 Modules

Identification, operating principles, and applications of globe valves, check valves, gate valves, slide valves, orienting and installing valves, valve handwheel requirements, valve packing glands, stuffing boxes, and packing compression rings, valve stem O-rings, bonnet gaskets, valve trim. Valve inspection and maintenance.

723 Steam Traps

2 Modules

Purpose of steam traps; mechanical traps; thermostatic traps; thermodynamic traps; strainers.

Distributed by



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SAFETY, HEALTH & ENVIRONMENT

323 Electrical Safety – Part 1

5 Modules

Safety policies, procedures and basics of electricity; selection and use of work practices (29 CFR 1910.333); use of equipment (29 CFR 1910.334); training and safeguards for personnel protection (29 CFR 1910.332 and .335). Includes modules titled: basics of electrical safety, lockout and tagging, exposed energized parts, use of equipment and safety training.

331 Heat Stress 1 Module

Definition of heat stress; adverse health effects; heat disorders due to excessive heat exposure; pregnancy and heat stress; control methods; understanding heat stress and recognition of symptoms.

353 Field Hazard Recognition

1 Module

Preventing accidents and recognizing hazards. Ways to protect yourself against potential hazards through the use of signs, lockout/tagout, and personal safety devices; identifying ground hazards, storage hazards, and improperly tagged equipment.

356 Office Hazard Recognition

1 Module

Office hazard identification; slips and falls; lifting techniques; fire hazards.

801 Back Safety

1 Module

Consisting of three parts; the anatomy of the human back, back care at work (including protection from injury), and various exercises for the back, including bending properly and shoulder, neck and abdomen exercises.

802 Ergonomics

1 Module

Introduces the science of ergonomics. Explores the risk factors for developing cumulative trauma disorders and injury awareness and prevention.

803 Waster Water Treatment – Overview of Activated Sludge

1 Module

Introduces the activated sludge wastewater process, microorganisms, how organic matter is removed, aeration, flocculation and the role of filamentous bacteria.

811 Confined Space Entry

1 Module

Procedure for permit-required confined space entry as defined by 29 CFR 1910.146 including seven lessons: introduction, authorized entrant, attendant, entry supervisor, entry procedure, entry permit, rescue and emergency services. Ventilation.

813 Hearing Conservation

1 Module

Based on 29 CFR 1910.95 this module includes: physiology of hearing; definitions; audiometric testing; audiograms; hearing protection equipment; controls.

814 Fire Extinguisher Basics

1 Module

Classifies fuels and defines their corresponding fires. Types of fire extinguishers and their effectiveness with various fires. Describes the use of fire extinguishers. An acronym is presented to aid recall of the sequence of fire extinguisher operation. Fire prevention.

815 29 CFR 1910.119

1 Module

Based on the Process Management Safety regulation, this module gives you the opportunity to read the regulation, provides a 'point and click' index to the sections, and gives a test on its contents.

819 Personal Protective Equipment

1 Module

Based on 29 CFR 1910, 29 CFR 1926, and generally accepted practice including: Purpose for wearing PPE, examples of PPI; engineering and administrative controls; definition of recognized hazards, potential hazards, and emergencies; PPI; Standards by ANSI, MSHA, NIOSH, USCG, NFPA.

829 Hazards of Hydrogen Sulfide

1 Module

Potential sources of H₂S; characteristics of H₂S; first aid procedures; emergency response procedures; effect of exposure.

833 Ladder Safety

1 Module

Types of ladders and their uses; materials of construction; safe use.

835 Hazards of Butadiene

1 Module

A three-part course: what is butadiene?, federal (OSHA) regulations and safe work practices, including prevention of contact with the body. A post-test is included.

820 Lockout/Tagout/Try

1 Module

Based on 29 CFR 1910.147 and includes: purpose of isolating equipment; definition of authorized and affected employee; definition of owner; six steps in a lockout/tagout procedure, blinding. Two lessons: lockout/tagout overview, lockout/tagout procedures.

821 Respiratory Equipment

1 Module

Covers the content of 29 CFR 1910.134 including: engineering controls; types of respirators (positive/negative, canister types and cartridges); SCBA; maintenance of equipment; supplied air quality specifications; ventilation.

822 Hazcom

1 Module

Covers 29 CFR 1910.1200 including the hazard communication standard; the hazard communication program; material safety data sheets.

826 Hazards of Benzene

1 Module

Based on 29 CFR 1910.119 and covers: purpose of a benzene medical surveillance program; benzene container labeling; location and availability of benzene exposure monitoring and medical records.

827 Bloodborne Pathogens

1 Module

Based on 29 CFR 1910.1030, this module includes 4 lessons: Introduction: How do I reduce risk of exposure?; What can I do in case of an emergency?; and What are the possible results of exposure?

828 Hazardous Materials Transportation HAZMAT (DOT)

5 Modules

Covers the Department of Transportation regulations of hazardous materials transportation in these areas: hazardous materials; shipping papers; marking of bulk and non-bulk shipments; labeling requirements; placarding requirements.

Price: Rs. 5,000/- per module.

+ Sales Tax@ 10% + Shipping



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