

Catalog of Courses

MATH101 - Applied Insulator's Math I - 10 hrs --Problem solving techniques that are needed for circulator geometric functions for Mechanical Insulation Industry applications. Topics include, pipe sizes, miter determination and basic geometric operations such as circumference and diameters relationships. Algebraic functions up to two step calculations.

MATH212 - Applied Insulator's Math II - 50 hrs – This Insulator advanced math course will prepare the Insulator to be able to accurately estimate, order and distribute material needed on a jobsite. Estimating material for pipe, ductwork and tanks (equipment) accurately enhances the effectiveness and professionalism of the jobsite. Advanced levels of geometry will also be used for Parallel Line Development techniques.

SAFE501 - Construction Safety I - 10 hrs – The introductory Construction Safety class offers basic safety instructions to entry-level workers. The OSHA 10-hour certification is given. The OSHA course incorporates the following topics:

- Introduction to OSHA
- Tool Safety
- PPE
- Fire Safety
- Ergonomics
- Confined Space
- Scaffolds
- Ladders and Stairways
- Hazard Communications
- Rigging
- Electrical Safety
- Fall Protection

SAFE502 - Construction Safety II - 48 hrs This safety course is intended to certify the students in Scaffolds. **Scaffold Erector** and **Scaffold User** are two major certifications that the student will receive. Mold remediation is also taught, which is the operation, handling and disposing mold-infected materials. This course includes expanded training on Fall Protection and Confined Spaces. Adult CPR and First Aid certification training is taught as well.



SAFE503 - Construction Safety III - 30 hrs – The Construction Safety class offers detailed safety instructions to Supervisory-level workers. The OSHA 30-hour certification is given. The OSHA course incorporates the following topics:

- Introduction to OSHA
- Fall Hazards
- Struck-By Hazards
- Caught –In or – Between
- Electrocutation
- Material Handling
- Excavation Hazards
- Health Hazards
- Tool Safety
- PPE
- Fire Safety
- Ergonomics
- Confined Space
- Scaffolds
- Ladders and Stairways
- Hazard Communications
- Rigging

INSP101 - Fundamental Insulation I - Piping - 80 hrs –**This course includes a wide range of basic skills the Insulator will use when insulating piping. The apprentice will learn to apply many types of insulation, finishes, and coverings to straight pipe, fittings, valves, and other applications. It also covers virtually every major type of insulation material and its characteristics, attachment method, device, sealing and finishing materials that is used on pipe in the thermal range, from low temperature to hot. Basic protective jacketing (metal) techniques are introduced with advanced levels of applications. The course is broken into several modules:**

MODULE A: MATERIALS AND METHODS OVERVIEW

- A.1. General Insulation Principles
- A.2. General Insulating Methods
- A.3. Items to be Insulated

- A.4. Insulation Materials
- A.5. Coverings, Finishes and Sealants
- A.6. Application Materials

MODULE B: INSULATE STRAIGHT PIPING

- B.1. Measure and Field Cut Flexible Sheet, Roll and Blanket Insulations
- B.2. Apply Pipe Covering with Factory-Applied Laminated or Cloth Jacketing
- B.3. Apply Pipe Covering with Factory-Applied Metal Jacketing



- B.4 Apply Unjacketed Pipe Covering
- B.5 Apply Blanket Insulation
- B.6 Create Expansion/Contraction Joints

MODULE C: INSULATE IRREGULAR SURFACES

- C.1 Apply Insulation at Hangers and Supports
- C.2 Cover Tracers
- C.3 Insulate Fittings, Connectors, and Valves Using Pipe Covering
- C.4 Insulate Fittings, Connectors, and Valves Using Other Materials

MODULE D: SEAL AND FINISH INSULATED PIPE

- D.1 Prepare Unjacketed Insulation on Piping for Final Covering
- D.2 Finish Insulated Pipes and Fittings Using Cloth Jacketing or Reinforced Mastic
- D.3 Finish Insulated Pipe Using Plastic Jacketing
- D.4 Finish Insulated Pipe Using Metal Jacketing

INSE212 - Fundamental Insulation II - Equipment - 88 hrs – Fundamental Insulation Skills II: Cylindrical Shapes, Air Handling Systems, Underground, and Cryogenic includes a wide range of basic skills the insulator will use in insulation work. In this course the student will learn to apply insulation, finishes, and coverings to tanks, vessels, and equipment; HVAC ducts, plenums, and breechings; underground pipe; and equipment for cryogenic service. The course is broken into several modules:

..... **MODULE A: MATERIALS AND METHODS OVERVIEW**

- A.1 General Insulation Principles and Methods
- A.2 Items to Be Insulated
- A.3 Insulation Materials
- A.4 Coverings, Finishes, and Sealants
- A.5 Application Materials

MODULE B: CRYOGENIC

- B.1 Insulate Pipes and Equipment for Cryogenic Service

MODULE C: INSULATE PIPING FOR UNDERGROUND SERVICE

- C.1 Insulate, Seal, and Finish Underground Piping Using Pipe Covering
- C.2 Insulate Underground Lines with Loose Fill

MODULE D: INSULATE CYLINDRICAL TANKS, VESSELS AND EQUIPMENT

- D.1 Insulate Vertical Cylinders with Rigid Insulation
- D.2 Insulate Vertical Cylinders with Flexible Insulation
- D.3 Insulate Horizontal Cylinders with Rigid or Flexible Insulation
- D.4 Finish Heads
- D.5 Finish Bodies

MODULE E: INSULATE AIR – HANDLING SYSTEMS

- E.1 Insulate Rectangular Duct with Fibrous Board
- E.2 Insulate Duct Fittings with Fibrous Board
- E.3 Insulate Straight Duct with Duct Wrap
- E.4 Insulate Duct Fittings with Duct Wrap
- E.5 Insulate Duct Using Flexible Sheet
- E.6 Insulate Interior Surfaces of Plenums or Large Ducts
- E.7 Insulate Breechings, Flues, and Precipitators
- E.8 Seal and Finish Ducts and Breechings



METL311 - Advanced Metal Jacketing I - Piping - 124 hours - This course is designed to teach the Insulator the many aspects of metal jacketing used to protect the insulation. Fittings and many other unusual shapes must have templates and patterns developed. This course uses a tremendous amount of geometry to be able to develop such templates. The course uses a traditional manual, **Shop Fabrication - Layout and Pattern Making**, as well as an interactive CD that clearly illustrates the many complex layouts for piping applications. The course is broken into several modules:

- Module A - Geometric Constructions
- Module B - Layouts for Tees and Valves
- Module D - Layouts to Flanges and End Caps
- Metal Layout – Supplemental CD-ROM

METL312 - Advanced Metal Jacketing II - Equipment - 76 hours This course is designed to teach the Insulator the many aspects of metal jacketing used to protect the insulation. Equipment and many other unusual shapes must have templates and patterns developed. This course uses a tremendous amount of geometry to be able to develop such templates. The course uses a traditional manual, **Shop Fabrication - Layout and Pattern Making**, as well as an interactive CD that clearly illustrates the many complex layouts for equipment applications. The course is broken into several modules:

- Module A - Geometric Constructions
- Module C - Layouts for Cones, Bevels, and Tank Heads
- Metal Layout – Supplemental CD-ROM

PADS401 - Removable Insulation Design and Engineering - 56 hours – This course is designed to teach the Insulator about the removable and reusable insulation technology. The student will experience all of the design, production and installation. Selection of materials, layout and assembly including use of sewing machine.

ARCH411 – Blueprints, Codes and Specifications - 56 hours - This course is designed to offer the Insulator an in-depth approach and understanding of how to receive information and detailed specifications from a set of plans. Understanding a set of plans on a construction jobsite is important to the foreman and/or journeypersons for coordination and Planning. The completion of the course will increase the skill level and confidence to read and comprehend a set of plans.

SPVN411 – Effective Supervision – 16 hours – This very unique course teaches effective supervision for construction jobsites. Dealing with and understanding employee motivation is key for any labor-management relationship. Controlling, rewarding and disciplining the workforce in a proper manner will enhance the organizational management, and offer a productive environment.

LABR501 - Labor History - 44 hours – The course offers a explanation of the Union labor movement as well as local labor issues. Structure of a labor union and challenges that it faces are heavily discussed. Organizing concepts are presented as well.



ASBS501 – Supervisor Asbestos Abatement – 40 hours – This Federal EPA Training Model (40 CFR part 763) certification course is required training for workers and supervisors to be involved with the abatement of asbestos.

FDEX101 – Field Experience I – 1800 hours – This is the first year of field experience for the apprentice. The apprentice will learn, under strict supervision, basic instructions and practices on an insulation industry construction jobsite. All hours are documented and verified by the mentoring supervisor. All apprentices must comply with two forms of evaluation to verify learned outcomes. Foreman’s evaluation and a journal kept by the apprentice are completed on a weekly basis.

FDEX212 – Field Experience II – 1800 hours – This is the second year of field experience for the apprentice. The apprentice’s work responsibilities will increase as the supervision feels that the apprentice can handle more than basic applications. All hours are documented and verified by the mentoring supervisor. All apprentices must comply with two forms of evaluation to verify learned outcomes. Foreman’s evaluation and a journal kept by the apprentice are completed on a weekly basis.

FDEX312 – Field Experience III – 1800 hours – This is the third year of field experience for the apprentice. The apprentice will be able to advance themselves to some complex insulation situations while under supervision from mentoring journey persons and supervisors. All hours are documented and verified by the mentoring supervisor. All apprentices must comply with two forms of evaluation to verify learned outcomes. Foreman’s evaluation and a journal kept by the apprentice are completed on a weekly basis.

FDEX412 – Field Experience IV– 1800 hours – This is the fourth and final year of field experience for the apprentice. The apprentice is given projects and tasks that are very similar to that those of a journey person’s responsibility, still within a supervisory mentoring process. All hours are documented and verified by the mentoring supervisor. All apprentices must comply with two forms of evaluation to verify learned outcomes. Foreman’s evaluation and a journal kept by the apprentice are completed on a weekly basis.

FDEX512 – Field Experience V– 1800 hours – This is the fourth and final year of field experience for the apprentice. The apprentice is given projects and tasks that are very similar to that those of a journey person’s responsibility, still within a supervisory mentoring process. All hours are documented and verified by the mentoring supervisor. All apprentices must comply with two forms of evaluation to verify learned outcomes. Foreman’s evaluation and a journal kept by the apprentice are completed on a weekly basis.

VABR501 – Vapor Barriers – 16 hours – This introductory course will address the need and application of vapor barriers to piping and mechanical insulation applications. The science of condensation and dew points will be examined to fully explain why vapor barriers are so important.

COMP501 – Computer Labor Management – 16 hours – This introductory course is designed to offer the apprentice a basic understanding to today’s common and popular programs so that the apprentice can apply basic computer skills in a Labor Management situation possibly even job-site record keeping. The programs discussed are Microsoft Outlook, Windows, Excel and Word.



DSRP502 – Disaster Response – 16 hours – This course is designed to offer a worker some basic health and safety skills when/if working on either a man-made or natural disaster site. Regular construction training fully does not prepare someone to work and experience the numerous uncommon situations associated with a disaster. This course also is an OSHA certifiable training course, OSHA #7600.

FTOP101 – Firestop and Smoke Seal Penetrations – 16 hours – This course was developed so that each student will understand the Firestop and Smoke Seal industry and develop the required skill of selecting and applying recognized approved Firestop and Smoke seal systems

ORNT101 – Orientation – 6 Hours - This course is designed to acquaint students with the school, the program, the requirements of apprenticeship and their job requirements and benefits. All students must complete the orientation program.

CRVW503 – Curriculum Review – 80 Hours – This course was designed to enhance individual student skill sets. Each student is evaluated on their skills and a series of individual lesson plans is developed for their specific needs.

LSKL501 – Life Skills – 2 Hours – This course was designed to address the importance in preparing for financial stability. Students will be introduced to:

- Savings plans
- Investment Plans
- Retirement Plans

WELD501 – Introduction to Welding – 8 Hours – This introductory course is designed to offer the student with some basic welding skills. Upon completion students will be able to:

- Identify welding types, joint design and positions used in welding.
- Identify common welding symbols.
- Identify and demonstrate the proper use of personal protective equipment for use in welding.
- Identify and demonstrate the proper and safe use of welding machinery and equipment.

