

# APPLIED INDUSTRIAL TECHNOLOGY (MILLWRIGHTING)(ATMW)

## ATMW-1320 Introduction to Millwrighting 2 Credits

Study of basic millwrighting concepts. Topics include hand and precision tool recognition and use, drilling and tapping, belt drive installation and application, and chain drive installation and application.

*Lecture: 2 hours*

*Prerequisite(s): Acceptance to any Applied Industrial Technology program, and ATCT-1301 Introduction to Carpentry or concurrent enrollment; or departmental approval.*

## ATMW-1330 Print Reading for Millwrights 2 Credits

Study of print reading as applied to activities of millwrights. Topics include related math concepts, machine print components including orthographic views, line types, scale, exploded views, installation prints, revision information, optical tooling, and specifications.

*Lecture: 2 hours*

*Prerequisite(s): Acceptance to any Applied Industrial Technology program, and ATCT-1301 Introduction to Carpentry or concurrent enrollment; or departmental approval.*

## ATMW-1340 Introduction to Pile Driving 2 Credits

Study of pile driving basics. Topics include history, definition of industry specific terms, blueprint reading, types and uses of pile driving tools and equipment, types of piling, skills and duties of pile drivers, safety equipment, and review of OSHA standards relevant to pile driving.

*Lecture: 2 hours*

*Prerequisite(s): Acceptance to any Applied Industrial Technology program, and ATCT-1301 Introduction to Carpentry or concurrent enrollment; or departmental approval.*

## ATMW-1350 Hydraulics/Centrifugal Pumps 2 Credits

Covers the operation and the maintenance of overhung centrifugal pumps and mechanical seals. Disassembly, inspection, checking clearances and rebuilding these pumps to industry standards will be an integral part of this course.

*Lecture: 2 hours*

*Prerequisite(s): Departmental approval: admission to any Applied Industrial Technology program.*

## ATMW-1450 Heavy Rigging 2 Credits

Study of rigging hardware and equipment required to lift equipment and material. Topics include mobile, fixed, tugger, and hand rigging cranes, formulating a safe lifting plan through the use of applicable calculations, weight estimation, sling loads, signaling, crane limitations, and implementing OSHA safety regulations.

*Lecture: 2 hours*

*Prerequisite(s): Acceptance to any Applied Industrial Technology program, and ATCT-1301 Introduction to Carpentry or concurrent enrollment; or departmental approval.*

## ATMW-1490 Millwright Pile Driver Weld I 2 Credits

Study of basic concepts and implementation of shielded metal arc welding. Topics include theory of arc welding, operation of welding equipment, safety practices, electrode characteristics and selection, identification of weld joint types, and personal protective equipment (PPE).

*Lecture: 2 hours*

*Prerequisite(s): Acceptance to any Applied Industrial Technology program, and ATCT-1301 Introduction to Carpentry or concurrent enrollment; or departmental approval.*

## ATMW-1600 Rotating Equipment 2 Credits

Study of rotating equipment. Topics include precision equipment and tools and terminology, bearing type installation and application, math concepts, shaft alignment, reverse dial alignments, laser alignment application and interpretation, and safety measures.

*Lecture: 2 hours*

*Prerequisite(s): Acceptance to any Applied Industrial Technology program, and ATCT-1301 Introduction to Carpentry or concurrent enrollment; or departmental approval.*

## ATMW-1720 Machinery Installation 2 Credits

Introduction to layout, leveling, and installation of heavy industrial equipment. Topics include hand rigging techniques, proper forklift operations, shoring, heavy timber, false work, and installation of equipment according to OSHA regulations.

*Lecture: 2 hours*

*Prerequisite(s): Acceptance to any Applied Industrial Technology program, and ATCT-1301 Introduction to Carpentry, or departmental approval.*

## ATMW-2120 Shaft Alignment 2 Credits

In-depth study of concepts related to shaft alignment. Topics include rim and face alignment procedures, indicator set up and use, soft foot identification and elimination, correction methods, mathematical alignment concepts, and coupling installation and application.

*Lecture: 2 hours*

*Prerequisite(s): Acceptance to any Applied Industrial Technology program, and ATCT-1301 Introduction to Carpentry; or departmental approval.*

## ATMW-2130 Shaft Alignment II 2 Credits

Review of rim and face alignment procedures. Covers reverse dial indicating. Application of mathematical formulas used to solve alignment problems and graphing techniques will be covered. Laser alignment systems and all of their functions will also be included.

*Lecture: 2 hours*

*Prerequisite(s): Departmental approval: admission to any Applied Industrial Technology Program.*

## ATMW-2230 Millwright Pile Driver Weld II 2 Credits

In-depth study of multi-pass horizontal and vertical-up groove welds using the shielded metal arc welding process. Topics include blueprint reading for welders, introduction to D1.1 structural weld code requirements, welding safety practices, and guided practice time.

*Lecture: 2 hours*

*Prerequisite(s): ATMW-1490 Millwright Pile Driver Weld I or concurrent enrollment; or departmental approval.*

**ATMW-2330 Precision Optics**

**2 Credits**

In-depth study of concepts related to precision optics. Topics include operational theory, operation of tilting level and jig transit, interpretation and application of a Whytface® scale, peg testing, measurement theory, and mirror usage.

*Lecture: 2 hours*

*Prerequisite(s): Acceptance to any Applied Industrial Technology program, and ATCT-1301 Introduction to Carpentry or concurrent enrollment; or departmental approval.*

**ATMW-2350 Floor Conveyor**

**2 Credits**

Study of floor conveyor systems used to transfer materials in assembly line operations and related manufacturing facilities. Topics include blueprint reading, layout procedures, component installation, proper use of an aerial lift, and OSHA safety requirements.

*Lecture: 2 hours*

*Prerequisite(s): Acceptance to any Applied Industrial Technology program, and ATCT-1301 Introduction to Carpentry or concurrent enrollment; or departmental approval.*

**ATMW-2400 Steam Turbines**

**2 Credits**

Covers the various types of steam turbines currently in use. Students will learn how a turbine operates and will identify the various components of a turbine. Students will disassemble a steam turbine and determine the millwrights' responsibilities while working on a steam turbine.

*Lecture: 2 hours*

*Prerequisite(s): Departmental approval: admission to any Applied Industrial Technology program.*

**ATMW-2500 Combustion Turbine**

**2 Credits**

In-depth study of combustion turbine use, installation, and repair. Topics include turbine safety concepts, component identification, maintenance, rigging procedures, installation, and fuel nozzle installation and repair.

*Lecture: 2 hours*

*Prerequisite(s): Acceptance to any Applied Industrial Technology program, and ATCT-1301 Introduction to Carpentry or concurrent enrollment; or departmental approval.*

**ATMW-2520 Millwright PileDriver Weld III**

**2 Credits**

Study of advanced topics in millwright and pile driver welding. Topics include multi-pass vertical-up groove, technical review of material presented in ATMW 1490 Weld I and ATMW 2230 Weld II, carbon arc process, non-destructive testing, alloy welding, safety practices, guided practice time, and preparation for the American Welding Society (AWS) D1.1 vertical-up unlimited thickness certificate test.

*Lecture: 2 hours*

*Prerequisite(s): ATMW-2230 Millwright Pile Driver Weld II or concurrent enrollment, or departmental approval.*

**ATMW-2530 Advanced Welding IV**

**2 Credits**

Course covers the welding techniques and skills required for welding certification in wire feed and standard shielded metal arc welding (SMAW) or stick welding. Included are techniques required for machine set-up for Tungsten Inert Gas (TIG) welding and its welding processes.

*Lecture: 2 hours*

*Prerequisite(s): Departmental approval: acceptance to any Applied Industrial Technology program.*

**ATMW-2700 Monorail**

**2 Credits**

Study of monorail systems used to transfer materials in assembly line operations and related manufacturing facilities. Topics include blueprint reading, layout procedures, component installation, and screen guard installation.

*Lecture: 2 hours*

*Prerequisite(s): Acceptance to any Applied Industrial Technology program, and ATCT-1301 Introduction to Carpentry; or departmental approval.*