

## **Industrial Technology Syllabus**

### Electricity:

- The students will learn about a large variety of electrical careers.
- The students will learn about electrical safety.
- The students will learn about basic house wiring codes.
- The students will learn the difference between A.C. and D.C. circuits.
- The students will learn A.C. and D.C. Ohm's Law.
- The students will learn how to wire receptacles, single pole, three way and 4 way switches.
- The students will learn how to install circuit breakers.
- The students will learn about electronics. Including the use of power supplies, multimeters, etc.
- The students will learn how to solder and will build a circuit board.

### Carpentry:

- The students will learn about general safety rules including, personal protective equipment, fall protection, ladders, tools, electrical, lifting and carrying, and more.
- The students will learn building layout. Using leveling and layout instruments.
- The students will learn about Footings and Foundations
- The students will learn about Floor, wall, ceiling, and roof framing.
- The students will learn about installing windows and doors.
- The students will learn about exterior wall finish.
- The students will learn about stair construction.
- The students will design and construct a building for someone in the community.

### Introduction to Technology:

- The students will learn how to read a tape measure.
- The students will learn how to pay attention to detail.
- The students will learn how to do simple drafting. Dimension lines, hidden lines, ect. and how to draw something to scale.
- The students will learn to work in the shop safely and the proper and safe use of the tools including power tools.
- The students will make a small cutting board and then some kind of wood working project.

### Metals:

- The students will learn about a large variety of careers involving metal.
- They will learn about the kinds and uses of metal.
- The students will learn about metal safety.
- The students will learn how to measure metal. Caliper, Micrometers and Vernier Scale.
- The students will learn about Hand tools and fasteners for metal.
- The students will learn how to bend metal using a brake and how to use a Slip rolling machine.
- They will learn how to build sheet metal projects such as boxes and shelves
- The students will learn basic welding, and do some stick and Mig and acetylene welding.

### Computer Aided Design (CAD):

- The students will be doing multiple drawings using the Solid Works program.

- The students will be using the program Chief Architect to design a home designated in the text. Then they will design their own dream house.

#### MAT104 Applied Math Topics, College Credit:

- This course is an online prerequisites for WEL157, WEL159, WEL257, WEL416, WEL256 and WEL259.
- This course will cover Measurements, Ratio, Proportion, Percentages, Basic Algebra, Practical Geometry, Solid Figures, Triangle Trigonometry and Managing Money.

#### MFG106 Workplace Safety, College Credit:

- This course is an online prerequisites for WEL157, WEL159, WEL257, WEL416, WEL256 and WEL259.
- This course will cover safety in the workplace.
- This course will go over OSHA safety requirements.

#### WEL123 Welding Symbols, College Credit:

- This course is an online prerequisites for WEL157, WEL159, WEL257, WEL416, WEL256 and WEL259.
- This course will give the student a working knowledge of the American Welding Society (AWS) Symbols for Welding EW-342 from the Hobart Institute of Welding Technologies.

#### ELE216 DC Circuit Analysis, College Credit:

- This course will cover Basic Concepts such as Work and Energy, Energy Conversion, Valence and Free Electrons, and Static Charge and Static Electricity.
- This course will cover Electrical Quantities and Units.
- It will also cover Basic Circuits, Laws, and Measurements.

- This course will also cover Circuit Components, Multiple Load Circuits, Complex-Circuits Analysis, Magnetism and Electromagnetism.

#### Welding:

- This course will cover Welding Joints, Weld Types, Weld Positions and Symbols
- The student will learn how to weld a Butt, Lap, Corner, and Tee weld.
- The students will learn how to weld using Shielded Metal Arc Welding (Stick) and Gas Metal Arc Welding (Mig).
- The students will also learn how to do Oxyacetylene Welding, Brazing and Cutting.
- The students will also learn how to use the Plasma Cutter.

#### Advanced Woods:

- This course the student will design and draft a print of a project.
- They will be working independently to build this project or projects.

#### Advanced Welding:

- This course the student will design and draft a print of a project.
- They will be required to build three different projects.
- They will be working independently to build these projects.
- They will be graded on self initiative, work ethic, clean up, and their project.

