**Power Standards (revised 8-13-15)**

**Metal Fabrication**

Metal Fabrication Common-MFAB

1. Demonstrate proper safety procedures

MFAB1a-Operate safely in lab

1. Technical Math

Tm1a- fractions

TM1b-Measurements

TM1c-Intergers

TM1d-Ratios

TM1e-Calculate tap drill size with formula and charts (adult)

1. Work Ethic

WE1a- Attendance, Time Management, Ethical Behavior, Personal Responsibility, and Interpersonal Skills

WE1b- Student Organization Participation

1. Pre-employment

PE1- Application

PE1b-Resume

PE1c-Interview

Machining I- MN

1. Demonstrate blueprint reading skills

MN1a-Interprep blueprints

1. Demonstrate the ability to effectively use a lathe

MN2a-Machine parts using lathe

MN2i- Machine part using a four jaw chuck (adult)

1. Demonstrate the ability to use various hand tools

MN3a-Use hand tools to manufacture/repair parts

1. Demonstrate the ability to effectively use thread cutting machine

MN4-cut thread on thread cutting machine

1. Demonstrate the ability to use Mastercam

MN5a- Design a part using Mastercam

Machining II MN

1. Demonstrate basic blueprint reading skills

MN23a-Interprep blueprints

1. Demonstrate the ability to effectively use a lathe.

MN24a- Machine part on lathe

1. Demonstrate the ability to effectively use a vertical mill

MN25a- Mill part with mill

MN25b- Align milling machine attachments (adult)

1. Demonstrate the ability to effectively use a surface grinder

MN26a- Grind part on a surface grinder

1. Demonstrate the ability to effectively use a CNC mill.

MN27a-Load a program for CNC machine

MN27b- Machine part with CNC machine

1. Demonstrate the basic use of Mastercam
2. MN28a- Program basic part from a blueprint

MN28b- Select tool path

Welding I WD

1. Demonstrate blueprint reading skills

WD1a- Read and interpret basic prints

1. Demonstrate the proper use of oxy-fuel cutting equipment

WD2a- Cut steel using oxy-fuel

1. Demonstrate the ability to effectively use shielded metal arc welding machines

WD3-Build pads of beads- flat position,1F position , 2F position ,1G position

1. Demonstrate the ability to use hand tools

WD4a-Use hand tools to manufacture/repair parts

1. Demonstrate the ability to effectively use thread cutting machine

MN5a-cut thread on thread cutting machine

1. Demonstrate the ability to use Plasmacam.

WD6a-Draw design using Plasmacam

Welding II WD

1. Demonstrate the ability to effectively use gas metal arc welding equipment

WD21-Make weld 2F, 3F, and 4F positions position on carbon steel with solid core wire (qualifies 1F position)

1. Demonstrate the ability to effectively use gas tungsten arc welding equipment

WD22a-Identify, select, shape and install tungsten

WD22b- Make welding 2F position, carbon steel GTAW (qualifies 1F position)

WD22c- Make weld in 2F position, in aluminum GTAW

1. Demonstrate the ability to effectively use plasma arc cutting equipment

WD23a-Cut metal using plasma arc equipment

1. Demonstrate the ability to effectively weld in advanced positions using welding process of their choice.

WD24a-Build pad of beads-horizontal position

WD24b- Build pad of beads-vertical position

WD24c- Build pad of beads-overhead position

1. Demonstrate the ability to operate Plasma Cam.

WD25a-Import file to Plasma Cam

WD25b-Cut design using Plasma Cam