Skills Compétences Canada
Winnipeg2023

SKILL SETS

Industrial Mechanic

POST-SECONDARY

1 INTRODUCTION

Industrial Mechanics Skill # 01 Skill Sets Information

2 DESCRIPTION OF SKILL SETS

Listed below are the skill sets competitors should be familiar with prior to SCNC Winnipeg 2023

2.1 Total Competition time: 15hrs

Predictive Maintenance		
		= 25marks
Laser Shaft Alignment		
Fabrication & Welding		= 7 marks
Precision Hand Layout		
Stainless Steel Tube Bending		= 43 marks
Mechanical Component Install		
Pneumatics		= 25 marks
	Total Marks:	**= 100**

2.2 Detail and Assembly Drawings will be 3rd Angle Projection.

2.3 Drawings will be dimensioned using the imperial and metric systems.

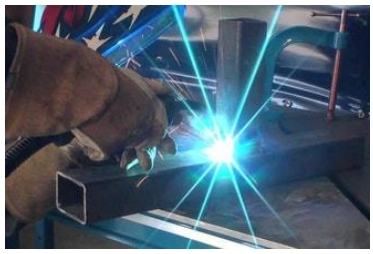
2.4 Safe Working Procedures/Practices must be always demonstrated during the competition.

Module # 1

Fabrication; Welding; Precision Layout; Tube Bending and Mechanical Assembly Build.

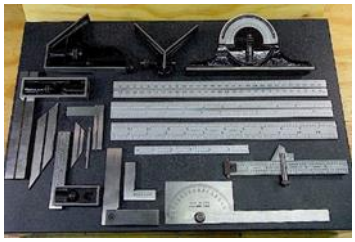
- **Fabrication:** Calculations, developments, layout and cutting.
  Tolerances +/- 1/16″ (.0625”)





- **MIG Welding:** Mild steel box section, square or rectangular.
  Wall thickness 1/8″ (.125”).

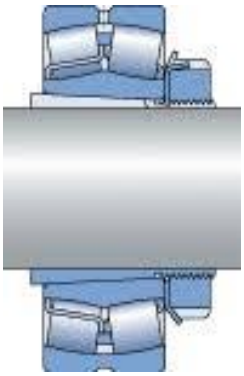
- **Precision Hand Layout/Work and Hand Tools:** Combination squares, scribers, center punches, hammers, drilling, tapping, hand tools; files, hand drills, etc.
  Tolerances +/- 1/64″ (.015”)



- **Stainless Steel Tube Bending:** Calculations and allowances, preperation for bending, reverse bending, bending to angles ranging from: 15° to 180°, perform required tube bending operations to the specifications and tolerances, stainless steel tubing will be ¼” diameter. Tolerances +/- 1/16” (.0625”).



- **Mechanical Assembly:** Installation and operation of supplied SKF bearing components as per engineering and assembly drawings.



Welding Equipment:

- Lincoln Electric MIG Welder
- (.035” diameter MIG welding wire)

Module # 2:
Fluid Power – Pneumatics – Build and Test.

- Design, build, test and troubleshoot the function of a multi cylinder Pneumatic Sequential **"OR"** Cascade circuit as per the supplied sequence, Festo components and accessories.

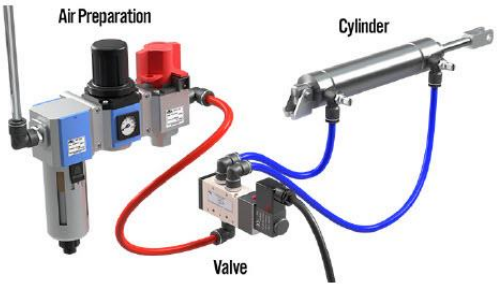
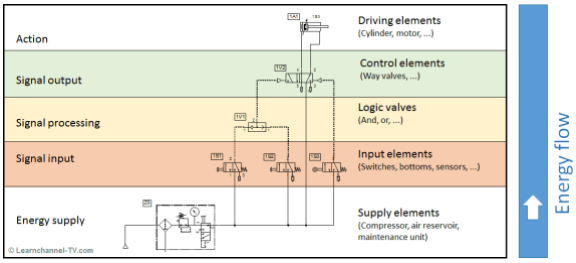


Figure 1C : Basic pneumatic system



Module # 3:

Predictive Maintenance and Laser Shaft Alignment.

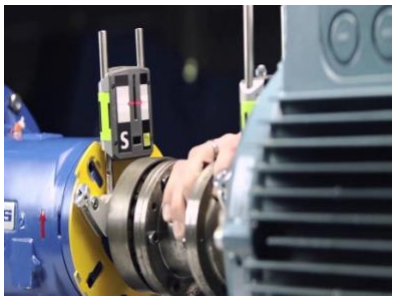
- With the supplied diagnostic equipment record and analyze the machine vibration signature.
- Using standard procedures and protocols rectify the vibration (single plane balancing) and alignment issues using calibrated weights, shims, diagnostic equipment, and tooling.

Record the following:

- The exact conditions found (before)
- What actions were performed (with documentation)
- The condition at completion

Equipment:

- SMC-Balancer http://www.fixturlaser.com/Shaft-Alignment/Fixturlaser-SMC/
- NXA Pro http://www.fixturlaser.com/Shaft-Alignment/Fixturlaser-NXA/FIXTURLASER-NXA-Pro/



Additional Training on SMC for Predictive Maintenance Project:

Fixturlaser (Nathalie Drouin) has kindly agreed to do training via “Skype” for competitors and trainers closer to the competition next year. Time and date to be announced.