



COURSE OUTLINE

MTF101

Prepared: Dave Holley Approved: Corey Meunier

Course Code: Title	MTF101: APPLIED BLUEPRINT READING				
Program Number: Name	4051: METAL FABRICATION				
Department:	IRONWKR APPR./WELDING RELATED				
Semester/Term:	17F				
Course Description:	Perform drawings, common views, and basic drafting and sketching operations as applied to the welder/fabricator programs. 				
Total Credits:	3				
Hours/Week:	3				
Total Hours:	45				
This course is a pre-requisite for:	MTF130, MTF140				
Essential Employability Skills (EES):	#3. Execute mathematical operations accurately. #11. Take responsibility for ones own actions, decisions, and consequences.				
Course Evaluation:	Passing Grade: 50%, D				
Other Course Evaluation & Assessment Requirements:	<p>1. Late hand in penalties will be -10% per day.</p> <p>2. If a student misses a test he/she must have a valid reason (i.e. medical or family emergency documentation shall be required). In addition, the instructor MUST be notified PRIOR to the test sitting. If this procedure is not followed the student will receive a mark of zero on the test with no make-up option.</p> <p>3. Re-writes are NOT allowed for any written assignment, quiz or test.</p> <p>4. Course attendance is mandatory. One percent (1 %) per hour will be deducted from the final course grade for unexcused* absence.</p> <p>Valid reasons would include: Doctors note Family Death or Serious Illness supported by a written note.</p>				
Evaluation Process and Grading System:	<table border="1"> <thead> <tr> <th>Evaluation Type</th> <th>Evaluation Weight</th> </tr> </thead> <tbody> <tr> <td>Drawing Assignments</td> <td>80%</td> </tr> </tbody> </table>	Evaluation Type	Evaluation Weight	Drawing Assignments	80%
Evaluation Type	Evaluation Weight				
Drawing Assignments	80%				



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Tests	20%
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Course Outcomes and Learning Objectives:

Course Outcome 1.

Perform drawings, common views and basic drafting and sketching operations as applied to the welder/fabricator programs and explain the features of joint types, positions and welding symbols as applied to welder/fabricator programs.

Learning Objectives 1.

Upon successful completion of this course, the student will demonstrate the ability to:

1. Basic Lines and Views

1. Identify and describe the usage for the common line types which are:

- Object Line
- Hidden Line
- Center Line
- Extension Line
- Dimension Line
- Leader Line
- Cutting Plane Line
- Section Line
- Chain Line
- Short Break Line
- Long Break Line
- Phantom Line

2. Identify two different methods in which an object is represented on a print.

3. Identify the proper orientation of the views used in an orthographic projection.

4. List the different views used in an orthographic projection.

2. Sketching

1. Discuss the purpose of sketching and its importance.

2. Sketch a straight line.

3. Sketch Arcs and Circles.

- Create an arc using two different methods
- Create a circle using the right angle method
- Create a circle using the square method



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- Create a circle using the triangle method
- 4. Create an orthographic sketch.
- 5. Create an oblique sketch.
- 6. Create an isometric sketch.
- 7. Create an isometric circle.
 - Use the angle method to create an isometric circle
 - Use the triangle method to create an isometric circle
 - Use the rectangle method to create an isometric circle
- 3. Notes and Specifications
 - 1. Identify the standard paper sizes used in mechanical drawing.
 - 2. Identify the typical information contained within a drawing's title block.
 - 3. Describe the difference between general notes and local notes.
 - 4. Identify the proper location for a specification.
- 4. Dimensions
 - 1. Define the following terms:
 - Common Fraction
 - Inclined Angle
 - Land
 - Feather Edge
 - Dual Dimensioning
 - Base Size
 - Actual Size
 - Nominal Size
 - 2. Identify the following types of dimensions:
 - Angular Dimensions
 - Linear Dimensions
 - Radius and Arc Dimensions
 - Drilled Hole Dimensions
 - Countersunk and Counterbored Holes Dimensions
 - Spotface Dimensions
 - 3. Discuss the importance of tolerances.
 - 4. Identify the following elements of a tolerance:
 - Minimum
 - Maximum
 - 5. Understand the importance of a drawings scale.
 - 6. Understand the following dimensioning methods:
 - Conventional Dimensioning
 - Baseline Dimensioning
- 5. Bill of Materials
 - 1. Discuss the importance of a bill of materials.



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2. Identify the size and quantity of a particular part by looking at a bill of materials.
3. Specify a particular type of steel used in a bill of material.
4. Identify a project summary worksheet and describe its purpose.
5. Define the following terms:
 - Sheet Metal
 - Metal Plate
 - Flat Bar
 - Long
 - Flat
6. Structural Shapes
 1. Define the following terms:
 - Hot-Rolled
 - Cold-Rolled
 - Weight
 - S-beams
 - I-Beams
 2. Identify many of the common structural shapers used.
 - Square Bar
 - Rectangular Bar
 - Sheet
 - Strip or Band
 - Plate or Flat Bar
 - Round Bar
 - Half Oval Bar
 - Hexagon Bar
 - Octagon Bar
 - Angle
 - o Equal Legs
 - o Unequal Legs
 - Tee
 - Channel
 - Zee
 - Standard S-Beam
 - Wide Flange Beam
 - Square and Rectangular Tubing
 - Pipe
 - o Standard
 - o Extra Strong
 - o Double Strong



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- Round Tubing
 - o Standard
 - o Thin wall
- 3. Specify pipe size by using schedule numbers.
- 4. Identify the common schedule number used for pipe sizes.

- 7. Other Views
 - 1. Define the following terms:
 - Break Symbol
 - Revolved Section
 - Auxiliary Views
 - Enlarged Detail
 - Developed View
 - Revolved View
 - Untrue Projection
 - 2. Identify an auxiliary view and describe when they are typically used.
 - 3. Determine when it is necessary to use both a “Right” and “Left” side to describe the detail associated with a part.
 - 4. Determine when it is necessary to locate a side view in an alternate position from the norm.
 - 5. Determine the proper location for an enlarged view.
 - 6. Discuss the purpose of a development (developed view).
 - 7. Determine when it is necessary to use a revolved view.

- 8. Sections
 - 1. Define the following terms:
 - Cutting Plane
 - Section
 - 2. Identify the following sections:
 - Full Section
 - Half Section
 - Revolved Section
 - Assembly Section
 - Phantom Section
 - Aligned Section
 - Break-Out Section
 - Offset Section
 - Removed Section
 - 3. Determine when the following sections are to be used
 - Full Section



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- Half Section
 - Revolved Section
 - Assembly Section
 - Phantom Section
 - Aligned Section
 - Break-Out Section
 - Offset Section
 - Removed Section
9. Detail, Assembly, and Subassembly Prints
1. Define the following terms:
 - Detail Drawing
 - Assembly Print
 - Subassembly Print
 2. List the components that makeup a detail drawing.
 3. List the components that makeup an assembly print.
10. Welding Symbols and Abbreviations
1. Define the following terms:
 - Reference Line
 - Arrow
 - Tail
 - Arrow Side
 - Other Side
 2. List the components that makeup a standard welding symbol.
 3. Identify the proper location of a weld symbol.
 4. Identify additional welding symbols elements.
 5. Identify field weld and weld-all-around symbols.
 6. Identify supplementary contour and finish symbols.
 7. Identify multiple weld symbol information.
 8. Identify bevel information.
 9. Understand multiple reference lines.
 10. Understand welding abbreviations.

Date:

Friday, September 1, 2017

Please refer to the course outline addendum on the Learning Management System for further information.