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**ARIZONA CTE CAREER PREPARATION STANDARDS & MEASUREMENT CRITERIA**

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**MECHANICAL DRAFTING, 15.1300.40****STANDARD 1.0 – APPLY MEASUREMENT AND SCALE CONCEPTS IN DESIGN DRAFTING**

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| 1.1 | Identify types of measurement used in design drafting                       |
| 1.2 | Explain the use of measurement tools (e.g., mechanical scale, metric scale) |
| 1.3 | Determine and apply appropriate scale                                       |

**STANDARD 2.0 – INTERPRET DESIGN DRAFTING DOCUMENTS**

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| 2.1 | Interpret dimensions, symbols, legends, and scales                         |
| 2.2 | Analyze how content and information are communicated in technical drawings |
| 2.3 | Analyze technical drawings for clarity, completeness, and accuracy         |
| 2.4 | Perform cross-referencing on technical views                               |
| 2.5 | Identify and describe mechanical, civil, and architectural drawings        |
| 2.6 | Check prints' dimensions and notation detail for accuracy and completeness |

**STANDARD 3.0 – APPLY INDUSTRIAL STANDARDS TO CREATE TECHNICAL DRAWINGS**

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| 3.1 | Identify, select, and use fundamental drafting techniques for drawings   |
| 3.2 | Compare and contrast manual and computer drafting techniques   |
| 3.3 | Classify line type and line weight   |
| 3.4 | Create and identify elements of title blocks and borders   |
| 3.5 | Apply notes and dimensions   |
| 3.6 | Draw geometric constructions   |
| 3.7 | Determine correct drawing scale and layout based on output requirements (e.g., hard copy, electronic delivery) |
| 3.8 | Organize and maintain drawings and supporting documents  |
| 3.9 | Prepare detail and assembly working drawings   |

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<b>STANDARD 4.0 – UTILIZE BASIC COMPUTER CONCEPTS, OPERATIONS, AND INFORMATION TECHNOLOGY APPLICATIONS</b>	
4.1	Use computer hardware and input/output devices for design drafting problems
4.2	Apply file and disk management techniques
4.3	Import and export data files using different formats (e.g., dxf, pdf, jpeg)
4.4	Prepare and access drawings for file management and transfer
<b>STANDARD 5.0 – USE A CADD SYSTEM AND PROCEDURES</b>	
5.1	Explore and determine applicability of CADD
5.2	Use CADD software to set up drawing (e.g., scale, format, dimensioning)
5.3	Determine and apply CADD commands and techniques (e.g., layers, colors, line types, editing commands, properties)
5.4	Employ available libraries and templates
5.5	Utilize coordinate systems
<b>STANDARD 6.0 – CONSTRUCT DETAIL VIEWS AND DRAWINGS</b>	
6.1	Determine views for projection (e.g., plan, top, front)
6.2	Identify, create, and place views for orthographic features
6.3	Identify, create, and place auxiliary views to determine true size, shape, and location of non-orthogonal features
6.4	Identify, create, and place appropriate section views
6.5	Construct full, half, offset, aligned, revolved, and removed views
6.6	Utilize various material hatch patterns in section views
6.7	Draft an assembly
6.8	Draft intersections
6.9	Draft developments
6.10	Draft patterns, including radial and parallel line patterns
<b>STANDARD 7.0 – COMPARE AND CONTRAST BASIC MANUFACTURING PROCESSES</b>	
7.1	Identify types of parts to be detailed (cast, machined, forged, sheet metal, welded)
7.2	Incorporate manufacturing process symbols in mechanical drawings (e.g., welding, machine, foundry, sheet metal)

These technical knowledge and skill standards were validated by a Skill Standards Validation Committee on February 12, 2015. First testing date using the new standards will be Fall 2015.

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7.3	Identify fasteners used in manufacturing processes
<b>STANDARD 8.0 – INCORPORATE DIMENSIONING STANDARDS</b>	
8.1	Apply dimensioning rules correctly and in compliance with ASME Y14 standards
8.2	Apply metric and/or dual dimensions to drawing in compliance with ASME Y14 standards
8.3	Select/set/draw appropriate dimension features (i.e., arrowhead, text sizes, extension lines)
8.4	Draw/select appropriate dimensioning practices (e.g., conventional, tabular, datum, ordinate, aligned, rectangular coordinate, polar systems)