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| Arch-Const. Cluster Area Description: | Design & Drafting |
| Module Title / #: | Technical Drawing |

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| Standards: | 1. Demonstrate Knowledge of the drafting and design industry. |
| Performance | <ol style="list-style-type: none"> 1. Describe the nature of work in drafting and design. 2. List and describe the related occupations in the design and drafting. 3. Identify and describe the training, qualifications, and advancement opportunities in the drafting and design industry. 4. Describe the job outlook, projections and earnings for workers in the design and drafting occupations. |

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| Standards: | 2. Demonstrate Knowledge Regarding the Essential Components of Sustainable Design and Construction |
| Performance | <ol style="list-style-type: none"> 1. Define the key principles of Green Building. 2. Define various components of energy consumption in buildings. 3. Identify the key benefits of Green Building. 4. Establish a site plan for protecting trees and managing water and erosion. 5. Establish an on-site recycling and waste management plan. 6. Incorporate and identify Universal Design Standards into the design and construction. 7. Identify local geographical, climatic, and meteorological data 8. Describe the concept and purpose of a pre-construction design coordination meeting 9. Describe the basic physical principles that apply to the built environment |

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| Standards: | 3. Demonstrate Knowledge Regarding the interpretation of information from drawings. |
| Performance | <ol style="list-style-type: none"> 1. Describe the impact of globalization on drafting and design. 2. Identify and describe the drafting and design processes that relate to the function of construction systems. 3. Utilize English Language Arts skills to read and interpret drawings and technical specifications. 4. Utilize a combination of measurement and mathematical processes to solve lineal and solid shape problems related to drafting and design. |

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| Standards: | 4. Understand and use basic drafting techniques. |
| Performance | <ol style="list-style-type: none"> 1. Use and maintain basic drafting equipment and machines. 2. Use architectural, metric, civil, and mechanical engineer's scales and demonstrate scaling techniques. 3. Employ correct mathematical operations in order to solve measurement, scale, and other related mathematical problems. 4. Communicate in writing and verbally as required. 5. Identify and draw the various line types. 6. Demonstrate correct lettering techniques (freehand or CAD) 7. Reproduce drawings (e.g., blueprints and plots). 8. Prepare drawings/designs using appropriate media 9. Perform basic geometric constructions 10. Construct and bisect lines, arcs, and angles. 11. Construct perpendicular and parallel lines 12. Construct geometric shapes (e.g., pentagon, hexagon, octagon) 13. Construct drawings of tangent lines, arcs, and ellipses. 14. Draw orthographic views and transfer features. 15. Freehand sketch orthographic and pictorial views. 16. Apply basic dimensioning techniques. 17. Construct basic sectional views. 18. Construct axonometric, oblique and one and two point perspective drawings. 19. Construct drawings of primary and secondary auxiliary views. 20. Solve mathematical problems related to drafting (e.g., conversion of units). 21. Use drafting references and standards. 22. Identify common manufacturing and construction materials. 23. Identify and select types of fasteners, bearings, seals, springs, keyways, and piping components (e.g., pipe schedules, fillings, etc.) 24. Construct object intersections and developments. 25. Identify appropriate manufacturing processes. 26. Use precision measuring instruments. 27. Calculate tolerances and fits. 28. Construct and interpret geometric dimensioning and tolerancing symbols. 29. Read and interpret a variety of drawings. |

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| Standards: | 5. Use computer and peripheral devices to aid in the documentation for design projects. |
| Performance | <ol style="list-style-type: none"> 1. Demonstrate basic CAD operations. 2. Demonstrate proper care and maintenance of CAD equipment and software. 3. Demonstrate proficiency in creating two-dimensional CAD drawings. 4. Demonstrate proficiency in creating three-dimensional CAD drawings. 5. Demonstrate proficiency in three-dimensional CAD modeling. 6. Follow National CAD Standards for CAD Layers, organization of drawing sets, drawing sheets and schedules, drafting conventions, terms and abbreviations, graphic symbols, notations, code conventions, and plotting. |

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| Standards: | 6. Apply technical drawing skills to actual projects. |
| Performance | <ol style="list-style-type: none"> 1. Construct keyway and keyseat drawings. 2. Construct spline and gear drawings. 3. Construct cam and follower drawings. 4. Construct fastener head drawings. 5. Construct schematic and simplified thread drawings. 6. Interpret and construct welded assembly drawings. 7. Construct casting drawings. 8. Construct drawings of molded plastic parts. 9. Construct sheet metal or flat pattern drawings. 10. Construct exploded and orthographic assembly drawings. 11. Construct an architectural presentation drawing with site plan (i.e., landscape symbols), floor plans, building elevations and wall sections. 12. Construct various section and detail drawings (i.e., stairs, walls, roofs). 13. Construct interior and exterior elevation drawings. 14. Construct framing plans. 15. Develop, construct and dimension a residential floor plan layout. 16. Construct foundation/basement plans. 17. Prepare window, door and finish schedules. 18. Construct a building perspective drawing. 19. Construct drawings of electrical diagrams (i.e., schematic, connection, interconnection). 20. Prepare a building material list. 21. Construct drawings for heating, ventilation, and air conditioning (HVAC). 22. Prepare drawings for plumbing fixtures and piping layout. |