



# **Alabama Department of Postsecondary Education**

## **Representing the Alabama Community College System**

### **STATEWIDE CAREER/TECHNICAL EDUCATION COURSE ARTICULATION REVIEW MINUTES**

Articulation Agreement Identifier: DDT 124 (2005-1) Identifier is the postsecondary course prefix followed by Plan-of-Instruction version number (e.g.; INT 100 (2005-1)).

Applicable CIP code(s): 15.1301

Postsecondary course prefix, number, and title: DDT 124 Intro to Technical Drawing

Secondary Course(s) of Study: 430110/410005 - Introduction to Drafting Design + 431001/430010 - Intermediate Drafting

Initial Review: October 15, 2009 Annual DPE Review: February 15, 2012

Effective date: **Fall Semester 2011.**

Course Content Analysis (all postsecondary course objectives must be sufficiently addressed in the secondary courses):

#### **Notes:**

- 1 Skills and knowledge contained in the postsecondary course objectives must be present in the corresponding secondary objectives for a “match” to occur.**
- 2. Postsecondary and Secondary objectives must reflect similar content and performance levels before the course articulation agreement will be recommended to the TEDAC Oversight Committee.**
- 3. More than one Secondary course may be used in order to articulate to a Postsecondary course.**

Postsecondary Course Objectives	Secondary Course(s) and Location(s)	TEDAC Comments								
<p><b>Competency:</b> Operate drafting tools properly and safely</p> <p><b>Course Objectives:</b> Select the proper tools for use with the lab assignment</p> <p>Operate manual drafting tools to produce drawings</p> <p>Use tools safely</p> <p><b>Competency:</b> Create drawings</p> <p><b>Course Objectives:</b> Create drawings applying the theories of sectioning</p> <p>Create drawings applying auxiliary views</p> <p>Create drawings applying basic space geometry</p> <p><b>Learning Objectives</b></p> <ul style="list-style-type: none"> <li>• Identify drafting lab safety rules</li> <li>• Identify drafting lab safety procedures</li> <li>• Explain lab safety rules</li> <li>• Explain lab safety procedures</li> <li>• Explain concepts of auxiliary view and space geometry</li> <li>• Explain concepts of space geometry</li> <li>• Identify basic sectioning techniques</li> <li>• Explain basic sectioning methods</li> <li>• Define the concepts of developments</li> <li>• Define intersections</li> <li>• Define revolutions</li> </ul> <p>Determine lines, points, and planes in true length</p>	<p><b>Intermediate Drafting and Design, Unit 1, Section Views</b></p> <p><b>Content Standards</b></p> <p>1. Demonstrate the proper use of sectional view concepts to create a full section, half section, broken-out section, offset section, revolved section, and a removed section.</p> <ul style="list-style-type: none"> <li>• Utilizing cutting planes</li> <li>• Applying section lining</li> </ul> <p><b>Learning Objectives</b></p> <ol style="list-style-type: none"> <li>1. Describe the purpose of a sectional view.</li> <li>2. Select the appropriate type of sectional view to show the hidden features.</li> <li>3. Show ribs, webs, fasteners, and similar features in section.</li> <li>4. Rotate selected features into the cutting plane.</li> <li>5. Describe and use conventional breaks and symbols.</li> <li>6. Prepare a drawing with sectional views using both board drafting techniques and CAD.</li> <li>7. Demonstrate the proper use of sectional view concepts.</li> </ol> <table border="0" style="width: 100%;"> <tr> <td>Cutting planes</td> <td>Section lining and/or hatching</td> </tr> <tr> <td>Full section</td> <td>Half section</td> </tr> <tr> <td>Broken-out section</td> <td>Offset section</td> </tr> <tr> <td>Revolved section</td> <td>Removed section</td> </tr> </table> <p><b>Intermediate Drafting and Design, Unit 2, Auxiliary Views</b></p> <p><b>Content Standards</b></p> <ol style="list-style-type: none"> <li>2. Create drawings of inclined surfaces.             <ul style="list-style-type: none"> <li>• Constructing primary auxiliary views</li> </ul> </li> </ol> <p><b>Learning Objectives</b></p>	Cutting planes	Section lining and/or hatching	Full section	Half section	Broken-out section	Offset section	Revolved section	Removed section	
Cutting planes	Section lining and/or hatching									
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	<p>1. Determine when a full auxiliary view is required.                      2. Determine when a partial auxiliary view is required.                      3. Develop a primary auxiliary view using board drafting or CAD techniques.                      4. Develop revolutions using board drafting or CAD techniques.                      5. Use the concept of revolutions to determine the true size and shape of an inclined surface.</p> <p>1. Describe the purpose of a sectional view.                      2. Select the appropriate type of sectional view to show the hidden features.                      3. Show ribs, webs, fasteners, and similar features in section.                      4. Rotate selected features into the cutting plane.                      5. Describe and use conventional breaks and symbols.                      6. Prepare a drawing with sectional views using both board drafting techniques and CAD.                      7. Demonstrate the proper use of sectional view concepts.</p> <p>Cutting planes                      Section lining and/or hatching                      Full section                          Half section                      Broken-out section                  Offset section                      Revolved section                    Removed section</p> <p><b>Intermediate Drafting and Design, Unit 3, Threads and Fasteners</b>  <b>Content Standards</b></p> <p>3. Create drawings illustrating detailed, schematic, and simplified thread representations.                      • Identifying common thread terms</p> <p><b>Learning Objectives</b></p>	

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	<p>1. Identify and describe various types of fasteners.                      2. Define common screw-thread terms.                      3. Specify threads and fasteners on a technical drawing                      4. Draw detailed, schematic, and simplified thread representations.                      5. Name and describe common thread series.                      6. Describe and specify classes of thread fits.                      7. Draw various types of thread fasteners using board drafting and CAD techniques.</p> <p><b>Intermediate Drafting and Design, Unit 4, Pictorial Views Content Standards</b></p> <p>4. Utilize pictorial concepts to produce an isometric drawing.                      • Identifying oblique, trimetric, diametric views</p> <p><b>Learning Objectives</b></p> <p>1. List various uses of pictorial drawings.                      2. Select and draw the most practical type of pictorial for a specific purpose.                      3. Create isometric drawings with the isometric axes in normal and reversed positions.                      4. Explain the basic differences in the three types of axonometric projection.</p> <p><b>Intermediate Drafting and Design, Unit 5, Dimensioning Content Standards</b></p> <p>5. Apply dimensions, notes, and other relative information to a drafting design project.                      Examples: dimensions-angular, linear, tolerances</p>	

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	<ul style="list-style-type: none"> <li>• Utilizing American Standards Institute (ANSI) dimensioning standards</li> <li>• Identifying dimensioning symbols and tolerances</li> </ul> <p><b>Learning Objectives</b></p> <ol style="list-style-type: none"> <li>1. Apply measurements, notes, and symbols to a technical drawing.</li> <li>2. Use ANSI and ISO standards for dimensions and notes.</li> <li>3. Differentiate between size dimensions and location dimensions.</li> <li>4. Specify geometric tolerances using symbols and notes.</li> <li>5. Designate appropriate surface finishes.</li> <li>6. Use board drafting techniques to add dimensions, notes, and geometric tolerances to a technical drawing.</li> <li>7. Use a CAD system to add dimensions, notes, and tolerances to a technical drawing.</li> </ol> <p><b>Introduction to Drafting and Design, Unit 2, Safety</b></p> <p><b>Content Standard</b></p> <ol style="list-style-type: none"> <li>2. Demonstrate the safe handling of drafting design tools according to classroom and environmental practices, procedures, and regulations.</li> </ol> <p><b>Learning Objectives</b></p> <ol style="list-style-type: none"> <li>1. Follow general safety procedures.</li> <li>2. Adjust equipment for maximum comfort and usability.</li> <li>3. Describe ergonomic considerations.</li> </ol> <p><b>Introduction to Drafting and Design, Unit 4, Drafting Instruments and Techniques</b></p>	

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	<p><b>Content Standard</b>                      4. Demonstrate proper usage of drafting instruments.                      Examples: architectural scales, graphite, lead holders                      • Utilizing computer software for drafting applications                      • Reproducing drafting originals                      Examples: print, plot, blueprint, photocopy</p> <p><b>Learning Objectives</b>                      1. Identify basic drafting tools, use and care for various drafting tools.                      2. Distinguish among the types of drafting media and leads.                      3. Use drafting equipment in a safe and efficient manner.                      4. Demonstrate basic drafting skills in the proper use of drafting tools, equipment, supplies, and materials                      5. Illustrate technical techniques for drawing lines.</p> <p><b>Introduction to Drafting and Design, Unit 5, Lettering and Drawing Techniques</b></p> <p><b>Content Standard</b>                      5. Demonstrate drafting techniques for freehand sketching, lettering, geometric figures, and the alphabet of lines to create a drawing.</p> <p><b>Learning Objectives</b>                      1. Apply sketching knowledge and techniques to solve the problem identified by the technical committee according to ANSI standards.                      2. Explain the importance of lettering, the purpose of guidelines, basic stroke techniques, and correct proportioning and spacing techniques.                      3. Letter clear, neat freehand notes and dimensions on a technical</p>	

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	<p>drawing or sketch</p> <ol style="list-style-type: none"> <li>4. Illustrate techniques for technical lettering.</li> <li>5. Produce lettering using various drafting instruments.</li> <li>6. Identify different styles of lettering.</li> <li>7. Demonstrate how the various linetypes and line weights are used on drawings.</li> <li>8. Make freehand drawings to solve problems and convey ideas.</li> <li>9. Illustrate Technical Techniques to Construct Basic Geometric Forms.</li> <li>10. Identify the types of sketches.</li> <li>11. Make freehand drawings to solve problems and convey ideas.</li> <li>12. Sketch a diagram to correct proportional sizes.</li> <li>13. Select the appropriate scale for the given drawing problem according to ANSI standards.</li> <li>14. Derive proper scaling and dimensions acceptable to industrial requirements on each assigned drawing.</li> <li>15. Explain the different types of scales utilized in technical drafting and how they are used for measurements.</li> </ol> <p><b>Introduction to Drafting and Design, Unit 6, Multi-View Drawings</b></p> <p><b>Content Standard</b></p> <p>6. Construct basic multi-view two-dimensional drawings, including visualizing principle views, creating third-angle projection, selecting proper drawing scale, and organizing layout of primary views.</p> <p><b>Learning Objectives</b></p> <ol style="list-style-type: none"> <li>1. Explain what a multi-view drawing is.</li> </ol>	

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	<ol style="list-style-type: none"> <li>2. Define orthographic projection.</li> <li>3. Explain the relationship of orthographic projection to multi-view drawing.</li> <li>4. Identify the views necessary to make a multi-view drawing.</li> <li>5. Construct basic multi-view two-dimensional drawings.                             <ul style="list-style-type: none"> <li>• Visualization of views</li> <li>• Third-angle projection</li> <li>• Layout and balance of views</li> </ul> </li> <li>6. Describe the difference between first-angle and third-angle projection.</li> <li>7. Determine the number of views needed to describe fully the shape and size of an object.</li> <li>8. Locate multiple views on a drawing according to accepted principles of drafting.</li> <li>9. Create the various views of an object.</li> <li>10. Develop a multi-view drawing from the initial idea to a finished drawing using board drafting.</li> </ol>	