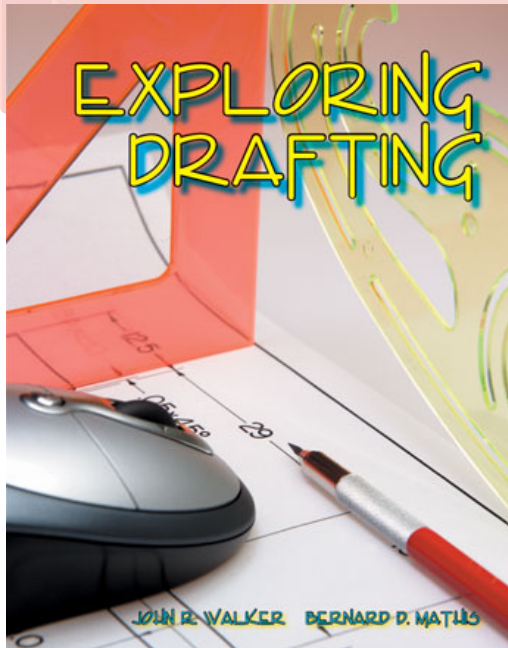




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**South Carolina Course Standards Correlation
Course: Drafting (Mechanical)**

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MECHANICAL DESIGN

COURSE CODE: 6172, 6173

Competency Number	Competency/Objective	Correlating Page Numbers
UNIT A: PERFORMING WORK SAFETY PRACTICES		
1	Apply safety policies and procedures.	86-87, 365
2	Maintain a clean, orderly, safe work area.	86
3	Operate a fire extinguisher.	
UNIT B: DEMONSTRATING FREEHAND SKETCHING SKILLS		
1	Sketch straight lines.	47-49
2	Sketch circles and arcs.	52-53
3	Sketch curved lines.	60-65, 75
4	Sketch multi-view drawings.	192-210
5	Sketch pictorial drawings.	286-308
6	Draw freehand technical lettering.	175-181
7	Indicate overall dimensions.	224
UNIT C: DEMONSTRATING BASIC DESIGN TECHNIQUES (STANDARD AND METRIC)		
1	Select proper drawing instruments and equipment to complement the design media.	68-82
2	Measure using standard scales/measuring devices.	80-82, 95-99
3	Draw straight lines and angles.	48-49, 51, 101-103

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4	Draw circles and arcs.	52-53, 105
5	Draw irregular curved lines.	75
6	Demonstrate proper use, care, and adjustment of design instruments and equipment.	86
7	Draw line symbols using alphabet of lines.	42-47
8	Draw geometric figures using straight and curved lines.	50-56, 127-130, 132, 137-139
9	Draw borderlines and title block.	45, 94, 111, 479
10	. Perform drawing setup to applicable standards (e.g., setting layers, line type, and width).	163-164
11	. Identify and use view and display commands (e.g., zoom, pan, viewports, and rotation).	169
12	. Format, enter, and edit text on a drawing.	182-183
13	. Edit, copy, and manipulate drawing entities (e.g., properties, stretch, trimming, and scaling).	165-169
UNIT D: DEMONSTRATING GEOMETRIC CONSTRUCTION SKILLS (STANDARD AND METRIC)		
1	Draw straight lines.	48-49, 51
2	Bisect lines, arcs, and angles.	125-126
3	Draw parallel lines.	55-56, 100-102
4	Divide lines and circles equally.	136

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Competency Number	Competency/Objective	Correlating Page Numbers
5	Draw tangent lines, arcs, circles, and curves.	133-135
6	Construct regular polygons.	129-130
7	Construct circles and ellipses.	52, 54, 105, 137-139
UNIT E: DEMONSTRATING DIMENSIONING SKILLS (STANDARD AND METRIC)		
1	Place dimensions on a drawing.	219-251, 294-300
2	Set and control dimensioning styles.	243-245
3	Dimension using aligned and unidirectional dimensioning systems.	221
4	Dimension using leaders for notes, arcs, and circular features.	222, 233, 298
5	Dimension using dual dimensioning skills (standard and metric).	237
6	Dimension using tolerances.	242, 437
7	Identify and apply geometric dimensioning and tolerancing.	242-243, 245
UNIT F: DEMONSTRATING ORTHOGRAPHIC PROJECTIONS (STANDARD AND METRIC)		
1	Draw regular orthographic views.	192-217
2	Draw regular, inclined, and oblique surfaces.	199-205, 293-300
3	Draw curved surfaces.	201-203
4	Draw using standard line symbols.	92-95
5	Draw surface intersections.	201, 203

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Competency Number	Competency/Objective	Correlating Page Numbers
6	Draw detailed size description.	237-241, 342-343
7	Draw to scale and dimension.	80-82, 225-228
8	Identify 1st- and 3rd-angle projection drawings.	193-197
9	Draw a 3rd-angle projection drawing.	192-217
UNIT G: DEMONSTRATING SKILLS AND KNOWLEDGE REQUIRED TO PRODUCE TECHNICAL ILLUSTRATIONS (STANDARD AND METRIC)		
1	Draw an isometric projection.	288-293
2	Draw an isometric section.	305-306
3	Draw an oblique projection.	293-294
UNIT H: DEMONSTRATING KNOWLEDGE AND SKILLS REQUIRED TO PRODUCE SECTIONAL VIEWS AND APPLYING STANDARD CONVENTIONAL DESIGN PRACTICES		
1	Demonstrate section line and symbol techniques.	255-258
2	Identify various types of sectional views.	254, 258-265
3	Draw half and full sections.	258-259
4	Draw broken-out sections.	263-264
UNIT I: DEMONSTRATING KNOWLEDGE AND SKILLS REQUIRED TO PRODUCE AUXILIARY VIEWS		
1	Demonstrate the ability to rotate a point, a line, and a surface.	274-278
2	Demonstrate the ability to determine the true length of a line.	274-275

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Competency Number	Competency/Objective	Correlating Page Numbers
3	Draw a primary auxiliary view.	274-276
UNIT J: DEMONSTRATING KNOWLEDGE AND SKILLS REQUIRED TO PRODUCE DETAILED MACHINE DRAWINGS		
1	Identify use and applications of threads and fasteners.	434, 439-444
2	Draw bolt, nut, and thread styles.	444-445
3	Draw screws, screw heads, pins, and keys.	436-440, 442-444
4	Identify a fillet and a round, and tell where and why each is used.	167
5	Produce a set of detail drawings applying standard machine fits, finishes, and tolerances.	342-343
6	Create a detailed parts list.	347-348
7	Select appropriate drawing layout and scale.	205-210, 342-343
8	Extract attribute data.	163
9	Produce a machine assembly drawing.	343, 345
10	Identify various manufacturing processes.	495-515
UNIT K: COMPUTER LITERACY		
Hardware		
1	Identify hardware components of a CAD computer system.	154
Operating System		
2	Format disks and copy, delete, rename, save, and back up files and folders.	
3	Identify, create, and use folders and directory structures.	

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Competency Number	Competency/Objective	Correlating Page Numbers
4	Identify various file formats (e.g., .wmf, .bmp, and .jpeg).	
5	Import and export data files between formats (e.g., IGES and DXF).	
6	Use software help features.	
UNIT L: DEMONSTRATING CAD-SPECIFIC SKILLS		
1	Use the graphical user interface.	154
2	Create, retrieve, edit, and use symbol libraries.	163
3	Use inquiry commands to extract drawing data (list distance and area).	294
4	Control entity properties.	161
5	Plot/Print drawing to appropriate scale.	358-359
UNIT M: DEMONSTRATING BASIC SKILLS TO PRODUCE 3-D MODELS		
1	Create solid models.	309-313
2	Modify solid models.	
3	Produce 2-D projections from 3-D models.	266