

Drafting and Design Program Standards Criticality Survey 2015

1. Personal Qualities and People Skills				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
Demonstrate a positive work ethic by coming to work every day on time, a willingness to take direction, and motivation to accomplish the task at hand.	0	3	41	2.93
Demonstrate integrity by abiding by workplace policies and laws and demonstrating honesty and reliability.	1	4	39	2.86
Demonstrate teamwork skills by contributing to the success of the team, assisting others, and requesting help when needed.	2	14	28	2.59
Demonstrate positive self-representation skills by dressing appropriately and using language and manners suitable for the workplace.	1	13	30	2.66
Demonstrate diversity awareness by working well with all customers and co-workers.	6	16	22	2.36
Demonstrate conflict-resolution skills by negotiating diplomatic solutions to interpersonal and workplace issues.	4	19	21	2.39
Demonstrate creativity and resourcefulness by contributing new ideas and working with initiative.	5	19	20	2.34
Answered				44
Skipped				0

2. Professional Knowledge and Skills				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
Demonstrate effective speaking and listening skills by communicating effectively with customers and employees and following directions.	1	13	30	2.66
Demonstrate effective reading and writing skills by reading and interpreting workplace documents and writing clearly.	2	16	26	2.55
Demonstrate critical-thinking and problem-solving skills by analyzing and resolving problems that arise in completing assigned tasks.	1	18	25	2.55
Demonstrate healthy behaviors and safety skills by following safety guidelines and managing personal health.	4	17	23	2.43
Demonstrate understanding of workplace organizations, systems, and climates by identifying "big picture" issues and fulfilling the mission of the workplace.	7	18	19	2.27
Demonstrate lifelong-learning skills by continually acquiring new industry-related information and improving professional skills.	5	17	22	2.39
Demonstrate job acquisition and advancement skills by preparing to apply for a job and seeking promotion.	8	22	13	2.12
Demonstrate time, task, and resource management skills by organizing and implementing a productive plan of work.	3	22	19	2.36
Demonstrate mathematical skills by using mathematical reasoning to accomplish tasks.	3	20	21	2.41
Demonstrate customer service skills by identifying and addressing the needs of all customers and providing helpful, courteous, and knowledgeable service.	8	18	18	2.23
Answered				44
Skipped				0

3. Technology Knowledge and Skills				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
Demonstrate proficiency with job-specific technologies by selecting and safely using technological resources to accomplish work responsibilities in a productive manner.	4	15	25	2.48
Demonstrate proficiency with information technology by using computers, file management techniques, and software/programs effectively.	2	12	30	2.64
Demonstrate proper Internet use and security by using the Internet appropriately for work.	8	14	22	2.32
Demonstrate proficiency with telecommunications by selecting and using appropriate devices, services, and applications.	12	16	16	2.09
Answered				44
Skipped				0

CONTENT STANDARD 1.0: CAREER EXPLORATION				
Performance Standard 1.1: Careers in Drafting				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
1.1.1 Investigate careers in drafting, training, and associated opportunities.	8	24	11	2.07
1.1.2 Describe the differences between drafting disciplines and job functions.	8	23	12	2.09
1.1.3 Explore career opportunities and list educational requirements for a given drafting field.	9	19	15	2.14
1.1.4 Identify safety risks and preventative measures in the office, at the construction site, and production site.	7	18	18	2.26
Answered				43
Skipped				1

CONTENT STANDARD 2.0: DRAFTING FUNDAMENTALS				
Performance Standard: Geometric Constructions				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
2.1.1 Define geometric terms and recognize various geometric shapes by name.	4	16	22	2.43
2.1.2 Use lines, circles, and arcs to construct regular and irregular geometric shapes.	4	9	29	2.60
2.1.3 Construct angles, to include acute, obtuse, and right angles.	3	13	26	2.55
2.1.4 Divide lines and bisect angles and arcs.	3	15	24	2.50
2.1.5 Construct tangent, concentric, and perpendicular geometric relationships.	3	11	28	2.60
2.1.6 Calculate area, perimeter, and volume of geometric shapes to include circle, square, rectangle, and triangle.	1	12	29	2.67
Answered				42
Skipped				2

Performance Standard 2.2: Measuring and Scaling Techniques				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
2.2.1 Explain the concept of scaling of objects.	0	12	30	2.71
2.2.2 Determine appropriate engineering, architectural, and metric scales.	1	15	26	2.60
2.2.3 Measure object size, area, and volume utilizing appropriate industry devices.	2	13	27	2.60
2.2.4 Construct drawings utilizing metric and customary (i.e., SI, Imperial) measurement systems.	3	13	26	2.55
2.2.5 Transcribe drawings accurately using ratios and proportions.	7	14	21	2.33
2.2.6 Determine and apply the equivalence between fractions and decimals.	1	13	28	2.64
2.2.7 Convert between customary (i.e., SI, Imperial) and metric systems.	9	14	19	2.24
Answered				42
Skipped				2

Performance Standard 2.3: Conventional Drafting Practices				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
2.3.1 Identify and select appropriate drafting media.	8	14	20	2.29
2.3.2 Produce title blocks.	8	14	20	2.29
2.3.3 Utilize appropriate drawing composition and layout.	2	15	25	2.55
2.3.4 Identify and utilize industry standard object properties (i.e., line weight, line type).	4	13	25	2.50
2.3.5 Produce drawings from sketches.	4	10	28	2.57
2.3.6 Apply appropriate annotations to drawings according to industry standards.	2	15	25	2.55
2.3.7 Demonstrate drawing revision control.	7	11	24	2.40
Answered				42
Skipped				2

Performance Standard 2.4: Multi-View Drawings Using Orthographic Projection				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
2.4.1 Determine the principle view of an object.	5	14	23	2.43
2.4.2 Identify, create, and arrange multi-view drawings..	6	8	28	2.52
2.4.3 Identify, create, and arrange sectional views.	4	11	27	2.55
2.4.4 Identify, create, and arrange primary auxiliary views.	7	12	23	2.38
2.4.5 Identify multiple projection theories (first angle, third angle).	8	13	21	2.31
2.4.6 Apply appropriate units of measurement.	2	10	30	2.67
Answered				42
Skipped				2

Performance Standard 2.5: Dimensions and Annotations				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
2.5.1 Differentiate appropriate dimension standards.	5	14	23	2.43
2.5.2 Arrange dimensions and annotations using appropriate standards.	1	15	26	2.60
2.5.3 Use various dimensioning styles.	10	13	19	2.21
2.5.4 Construct bill of materials or schedule of materials.	11	12	19	2.19
Answered				42
Skipped				2

Performance Standard 2.6: Pictorial Drawings				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
2.6.1 Create oblique drawings.	15	13	14	1.98
2.6.2 Create isometric drawings.	9	14	19	2.24
2.6.3 Create perspective drawings.	20	9	13	1.83
Answered				42
Skipped				

Performance Standard 2.7: Hand Sketching Techniques				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
2.7.1 Develop design ideas using freehand sketching.	13	13	16	2.07
2.7.2 Create pictorial and multi-view sketches.	13	13	16	2.07
2.7.3 Utilize hand lettering techniques.	14	17	11	1.93
2.7.4 Utilize the alphabet of lines.	15	9	18	2.07
2.7.5 Utilize line weights, shading, and color to communicate sketch ideas.	17	11	14	1.93
Answered				42
Skipped				2

CONTENT STANDARD 3.0: FUNDAMENTAL CADD SKILLS				
Performance Standard 3.1: Basic Computer and IT Skills				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
3.1.1 Use and maintain computer hardware and input/output devices.	10	15	17	2.17
3.1.2 Apply basic commands of an operating system and software.	8	13	21	2.31
3.1.3 Apply file management techniques using various storage media.	5	17	20	2.36
3.1.4 Import and export data files using various formats.	5	15	22	2.40
3.1.5 Use industry reliable media to acquire information to complete drafting problems.	9	11	22	2.31
Answered				42
Skipped				2

Performance Standard 3.2: Drawing Environment				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
3.2.1 Select appropriate existing title blocks.	6	16	20	2.33
3.2.2 Set drafting settings.	4	14	24	2.48
3.2.3 Determine and apply scaling factors, including plotting and printing.	4	12	26	2.52
3.2.4 Assign line weights, line types, and colors.	5	12	25	2.48
3.2.5 Utilize template files.	4	17	21	2.40
3.2.6 Utilize sheets/layouts for plotting/printing.	4	15	23	2.45
Answered				
Skipped				

Performance Standard 3.3: Geometric Shapes and Objects using Cartesian Coordinate System				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
3.3.1 Describe and utilize the Cartesian Coordinate System to create geometric shapes and objects (x, y, z).	7	13	22	2.36
3.3.2 Calculate input coordinates.	11	12	19	2.19
3.3.3 Manipulate and utilize coordinate systems.	8	13	21	2.31
Answered				42
Skipped				2

Performance Standard 3.4: CADD Commands				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
3.4.1 Utilize multiple entry methods to invoke CADD commands (i.e., hot keys, icons, and menus).	8	17	16	2.20
3.4.2 Utilize geometric relationships to ensure accuracy (i.e., endpoint, midpoint, and center.	4	10	27	2.56
3.4.3 Utilize CADD commands to create and modify objects.	1	15	25	2.59
3.4.4 Assign property styles to objects.	2	20	19	2.41
3.4.5 Access and integrate help resources to solve problems.	8	14	18	2.25
Answered				41
Skipped				3

Performance Standard 3.5: Annotations				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
3.5.1 Define, create, and modify industry standard text styles.	10	11	21	2.26
3.5.2 Arrange text based on industry standards.	7	16	19	2.29
3.5.3 Create and modify dimension styles.	8	10	24	2.38
3.5.4 Arrange dimensions based on industry standards (may include dual dimensioning).	3	14	25	2.52
3.5.5 Use industry standard symbols to annotate drawings.	2	14	26	2.57
Answered				42
Skipped				2

CONTENT STANDARD 4.0: 3-D CADD SKILLS AND TECHNIQUES				
Performance Standard 4.1: Three-Dimensional Models				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
4.1.1 Interpret and define the right-hand rule for the x, y, and z-axes.	11	10	21	2.24
4.1.2 Develop three-dimensional models (i.e., wireframe, surface, solid, or parametric).	12	9	21	2.21
4.1.3 Manipulate the x-y plane in three-dimensional space.	12	11	19	2.17
4.1.4 Edit the shape and configuration of solid models.	12	10	20	2.19
4.1.5 Display objects as shaded or hidden lines removed.	15	9	17	2.05
4.1.6 Create working and presentation drawings from three-dimensional models.	9	10	23	2.33
Answered				42
Skipped				2

CONTENT STANDARD 5.0: ARCHITECTURAL DRAFTING AND DESIGN				
Performance Standard 5.1: Architectural Design				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
5.1.1 Identify and describe different architectural styles.	17	10	14	1.93
5.1.2 Identify construction terminology, materials and building codes.	6	13	22	2.39
5.1.3 Identify architectural annotation standards.	7	14	20	2.32
5.1.4 List and describe construction drawings.	8	13	20	2.29
5.1.5 Prepare a floor plan from an existing plan or sketch.	2	12	27	2.61
Answered				41
Skipped				3

Performance Standard 5.2: Architectural Views and Details Related to Design Criteria				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
5.2.1 Apply architectural design concepts to plan views.	4	18	19	2.37
5.2.2 Create an exterior elevation from an existing floor plan.	4	10	27	2.56
5.2.3 Create interior elevations.	8	9	24	2.39
5.2.4 Create building sections and details.	3	11	27	2.59
5.2.5 Produce schedules.	8	10	23	2.37
5.2.6 Understand and apply green building/sustainable design principles to project design.	17	8	16	1.98
Answered				41
Skipped				3

CONTENT STANDARD 6.0: MECHANICAL DRAFTING AND DESIGN				
Performance Standard 6.1: Drafting Concepts Related to Basic Manufacturing Processes				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
6.1.1 Describe the basic engineering design process.	12	12	16	2.10
6.1.2 Describe standard machine processes.	15	11	14	1.98
6.1.3 Utilize standard welding/machining symbols per ANSI and ASME.	9	12	19	2.25
6.1.4 Identify common stock forms.	12	15	13	2.03
6.1.5 Create scaled working drawings using dimensions, tolerances, and other specifications for machine tool, fabrication, and/or welding processes.	4	15	21	2.43
6.1.6 Create thread and fastener representations and utilize thread designations.	12	7	21	2.23
6.1.7 Create assembly drawings including a bill of materials.	9	10	21	2.30
Answered				40
Skipped				4

Performance Standard 6.2: Geometric Dimensioning and Tolerancing (GD&T)				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
6.2.1 Understand datums utilized for tolerancing.	10	8	21	2.28
6.2.2 Utilize basic dimensioning for toleranced features.	8	9	22	2.36
6.2.3 Utilize GD&T for assembly fits.	13	7	19	2.15
Answered				39
Skipped				5

Performance Standard 6.3: Drafting Concepts Related to Pattern Development				
Answer Choices	Nice to Know	Need to Know	Critical to Know	Rating Average
6.3.1 Define developments.	17	9	13	1.90
6.3.2 Identify the major types of developments.	16	9	14	1.95
6.3.3 Construct parallel line development.	16	9	14	1.95
Answered				39
Skipped				5