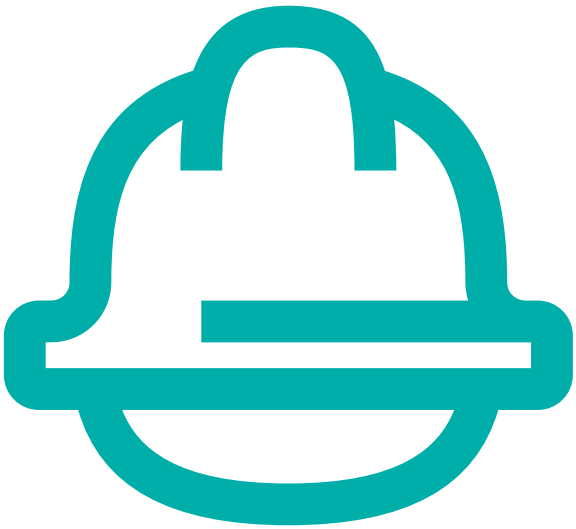
NOCTI

Teacher Credential Blueprint



Technical Drafting

Code: 5178 / Version: 01

General Assessment Information

Blueprint Contents

General Assessment Information
Written Assessment Information
Specific Competencies Covered in the Test
Sample Written Items
Performance Assessment Information
Sample Performance Job

Test Type: The Technical Drafting assessment is included in NOCTI's Teacher assessment battery. Teacher assessments measure an individual's technical knowledge and skills in a proctored proficiency examination format. These assessments are used in a large number of states as part of the teacher licensing and/or certification process, assessing competency in all aspects of a particular industry. NOCTI Teacher tests typically offer both a written and performance component that must be administered at a NOCTI-approved Area Test Center. Teacher assessments can be delivered in an online or paper/pencil format.

Revision Team: The assessment content is based on input from subject matter experts representing the following states: Illinois, Kentucky, Maine, Ohio, Pennsylvania, and South Carolina.

CIP Code

15.1301- Drafting and Design Technology/Technician, General

Learning that works for America CTE™

Career Cluster 2- Architecture and Construction

o*net™ in*it

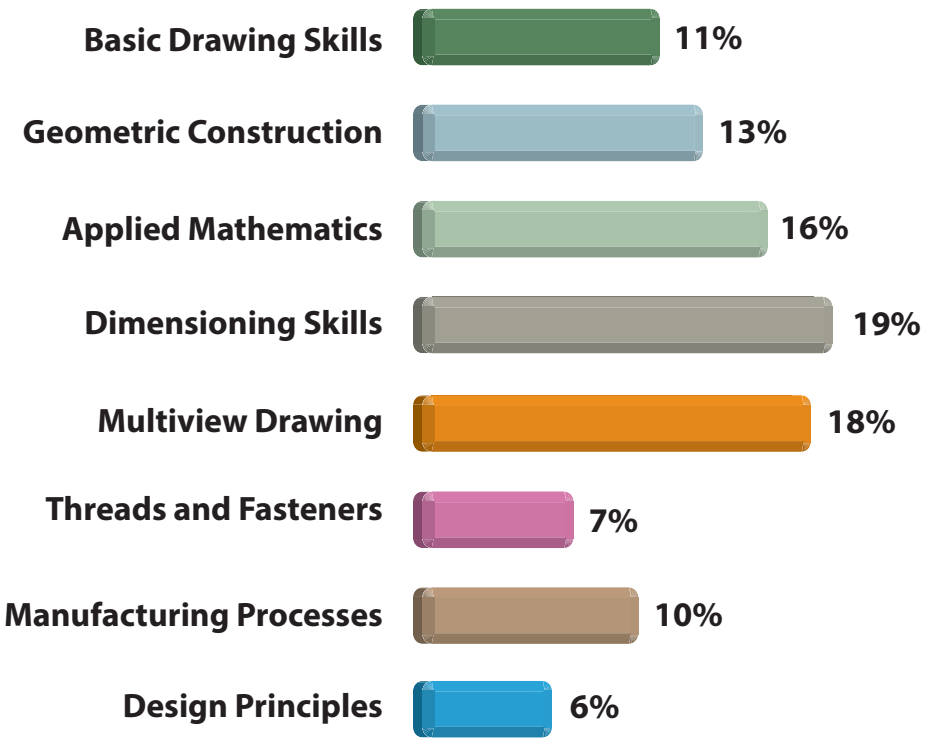
17-3013.00- Mechanical Drafters

Written Assessment

NOCTI written assessments consist of questions to measure an individual's factual theoretical knowledge.

Administration Time: 3 hours
Number of Questions: 194
Number of Sessions: This assessment may be administered in one, two, or three sessions.

Areas Covered



Specific Standards and Competencies Included in this Assessment

Basic Drawing Skills

- Identify and demonstrate appropriate use of drafting tools, materials, and equipment
- Demonstrate knowledge of the use of CAD as a drafting tool
- Drawing standards and conventions
- Utilize appropriate drawing layout and scale
- Complete annotation on drawings
- Complete a title block
- Demonstrate sketching skills and techniques

Geometric Construction

- Identify geometric terms and constructions
- Produce basic geometric constructions
- Construct lines at any given angle
- Construct irregular curved lines
- Construct geometric shapes and plane figures
- Draw lines
- Draw curved elements

Applied Mathematics

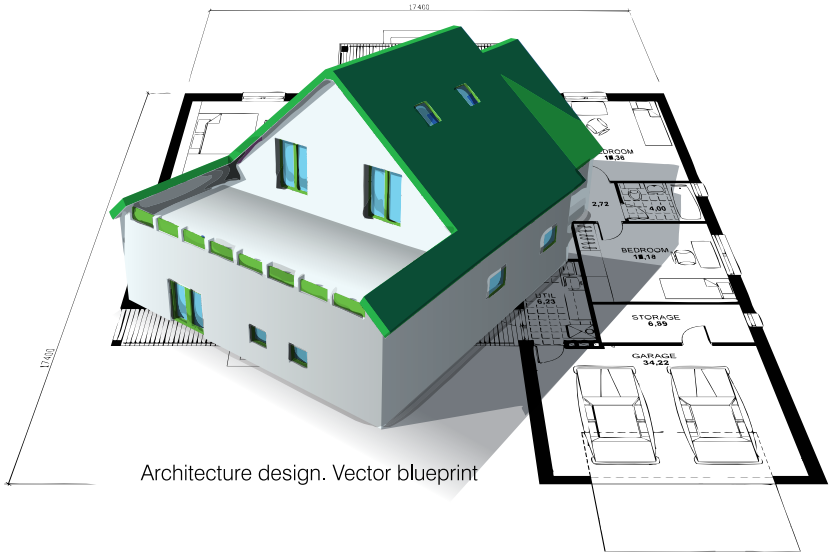
- Basic mathematic operations
- Apply methods of measurement
- Calculate distance, area, and volume
- Calculate fractions and decimals
- Demonstrate conversion skills
- Calculate taper/slope
- Demonstrate knowledge of algebraic equations
- Demonstrate knowledge of geometry
- Demonstrate knowledge of trigonometry

(Continued on the following page)

Specific Standards and Competencies (continued)

Dimensioning Skills

- Dimension basic features
- Apply local and general notes
- Interpret abbreviations and symbols
- Demonstrate metric dimensioning
- Demonstrate dual dimensioning
- Demonstrate tabular/charted dimensioning
- Demonstrate baseline dimensioning
- Demonstrate tolerancing practices
- Identify finished surfaces
- Demonstrate geometric dimension and tolerancing (GD&T)



Architecture design. Vector blueprint

(Continued on the following page)

Specific Standards and Competencies (continued)

Multiview Drawing

- Produce basic orthographic views
- Produce auxiliary views
- Produce section views
- Produce intersections and developments
- Produce schematic drawings
- Produce pictorial drawings
- Produce detail working drawings
- Produce assembly drawings
- Demonstrate drawing revisions
- Produce modified part drawings

Threads and Fasteners

- Identify and apply fastener terminology and symbols
- Identify and apply screw thread terminology and symbols
- Produce threaded fastener drawings
- Produce common fasteners and applications

Manufacturing Processes

- Demonstrate knowledge of machining operations
- Demonstrate knowledge of welding
- Demonstrate knowledge of various manufacturing processes
- Demonstrate knowledge of various materials
- Identify standard shop tools and equipment
- Demonstrate knowledge of mechanical components

Design Principles

- Explain design guidelines (form, function, repetition, etc.)
- Identify steps of the design process/cycle
- Research and design a project
- Use reference materials

Sample Questions

Drawing a line from the previous point is a type of _____ input in the Cartesian coordinate system.

A. linear
B. angular
C. absolute
D. relative

To complete a line starting at point 14,11 drawn vertically in a positive direction, the second point will be

A. 0,14
B. 11,14
C. 14,10
D. 14,20

The minimum attainable angle increment by using a combination of 45 degree/90 degree and 30 degree/60 degree triangles is

A. 5 degrees
B. 10 degrees
C. 15 degrees
D. 20 degrees

Show finish mark symbols on orthographic views of finished surfaces when they appear as

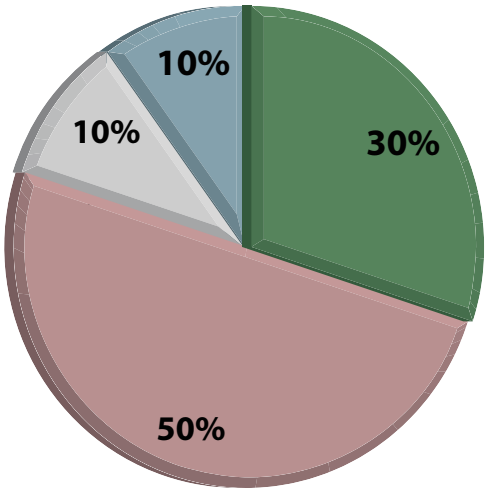
A. shapes
B. foreshortened planes
C. edges
D. auxiliary views

Inside corners on a casting have

A. rounds
B. fillets
C. curves
D. beads

Performance Assessment

NOCTI performance assessments allow individuals to demonstrate their acquired skills by completing actual jobs using the tools, materials, machines, and equipment related to the technical area.



Administration Time: 3 hours and 15 minutes
Number of Jobs: 4

Areas Covered:

30% Visualization
Participants will sketch isometric sketches, missing top view, and missing right side view sketches.

50% Orthographic Drawing
Participants will correctly dimension, scale, represent line type, cut plane line, orientation and location, hatch appropriate areas, place views, present features, use lines types and geometric dimensioning, and present drawing information.

10% Development
Participants will accurately develop the pattern in a timely manner.

10% Assembly- Bill of Material
Participants will develop a bill of material correctly and in a timely manner.

Sample Job

Assembly

Maximum Time: 15 minutes

Participant Activity: The participant will examine the pictorial drawing and develop a bill of material with all appropriate information from the supplied assembly drawing.