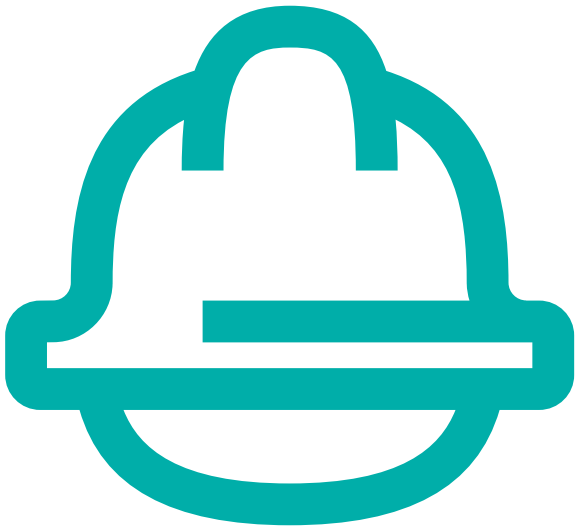
NOCTI

Job Ready Credential Blueprint



Technical Drafting

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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 industry-based credential is included in NOCTI's Job Ready assessment battery. Job Ready assessments measure technical skills at the occupational level and include items which gauge factual and theoretical knowledge. Job Ready assessments typically offer both a written and performance component and can be used at the secondary and post-secondary levels. Job Ready assessments can be delivered in an online or paper/pencil format.

Revision Team: The assessment content is based on input from secondary, post-secondary, and business/industry representatives from the states of Illinois, Kentucky, Maine, Ohio, Pennsylvania, and South Carolina.

Content Review: A content review is an independent, comprehensive review by Subject Matter Experts to evaluate content accuracy, the currency of technical material, and relevance to current industry practices.

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

Association for Career and Technical Education ACTE®

The Association for Career and Technical Education (ACTE), the leading professional organization for career and technical educators, commends all students who participate in career and technical education programs and choose to validate their educational attainment through rigorous technical assessments. In taking this assessment you demonstrate to your school, your parents and guardians, your future employers and yourself that you understand the concepts and knowledge needed to succeed in the workplace. Good Luck!

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General Assessment Information (continued)

NATIONAL COLLEGE CREDIT RECOMMENDATION SERVICE
University of the State of New York - Regents Research Fund

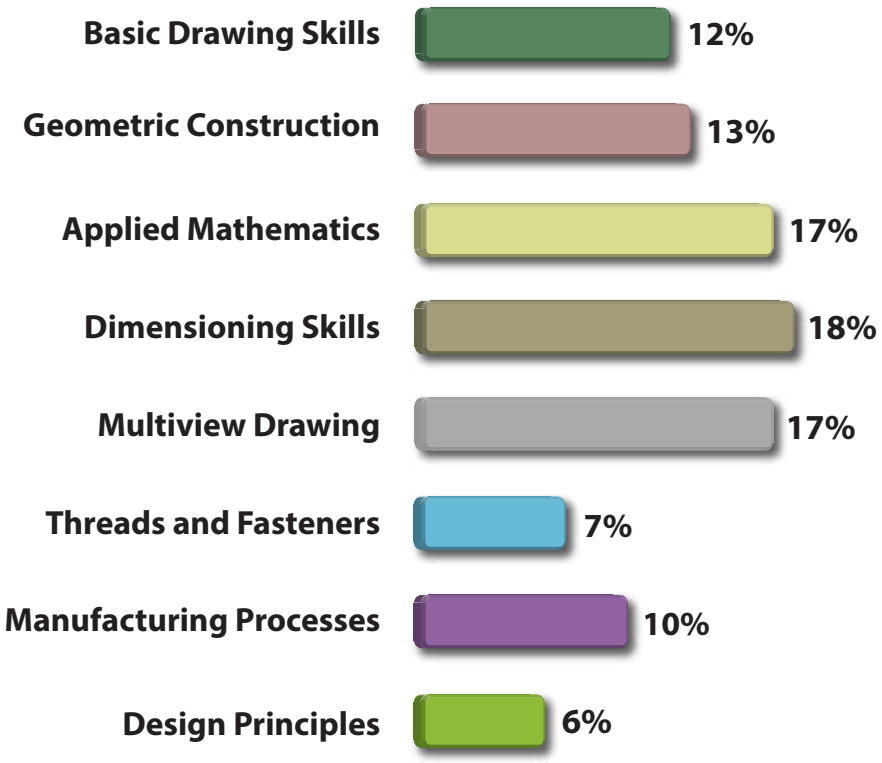
In the lower division baccalaureate/associate degree category, 3 semester hours in Technical Drafting

Written Assessment

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

Administration Time: 3 hours
Number of Questions: 201
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

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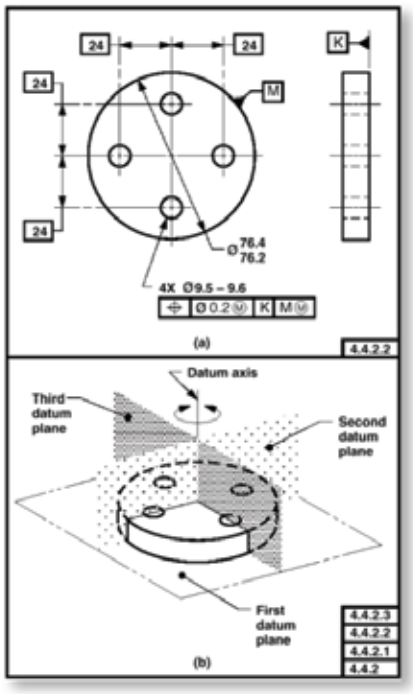
Specific Standards and Competencies (continued)

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

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)



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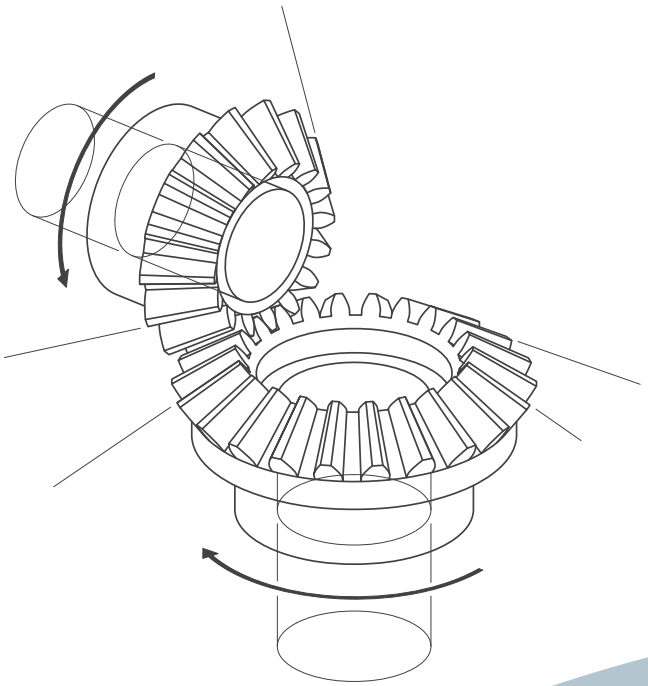
Specific Standards and Competencies (continued)

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



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Specific Standards and Competencies (continued)

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

Which of the following is a coordinate system?

A. Baseline
B. Cartesian
C. Trigonometric
D. Datum

A smooth curve created through a set of points is called a

A. straight line
B. perpendicular bisector
C. spline
D. polygon

Use _____ as metric units of measurements for dimensioning a working drawing.

A. centimeters
B. millimeters
C. meters
D. kilometers

Which type of screw thread is the most common in the United States?

A. Whitworth
B. Unified
C. Sharp
D. Worm

A part that is formed by pressing thin material down into a die block is called a

A. stamping
B. forging
C. machine part
D. weldment

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Sample Questions (continued)

The best reason to enlarge the scale is to

A. efficiently use media space
B. fit more parts on a drawing
C. better visualize the part
D. use all space on the paper

What is the minimum number of points needed to define a datum plane?

A. 2 points
B. 3 points
C. 4 points
D. 6 points

As the number of decimal places on a dimension increases, the

A. size increases
B. precision increases
C. size decreases
D. precision decreases

In manufacturing parts, jigs are used to _____ the machining tool.

A. locate the part and limit
B. hold the part and guide
C. clamp the part and hold
D. secure the part and remove it from

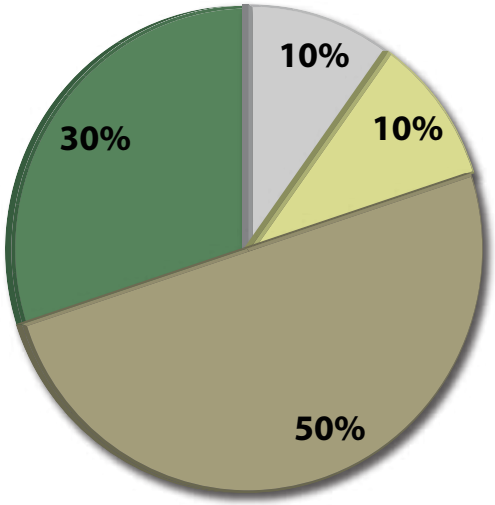
The purpose of sketching in the design process is to

A. create scaled drawings
B. present ideas
C. develop a prototype
D. estimate cost

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.

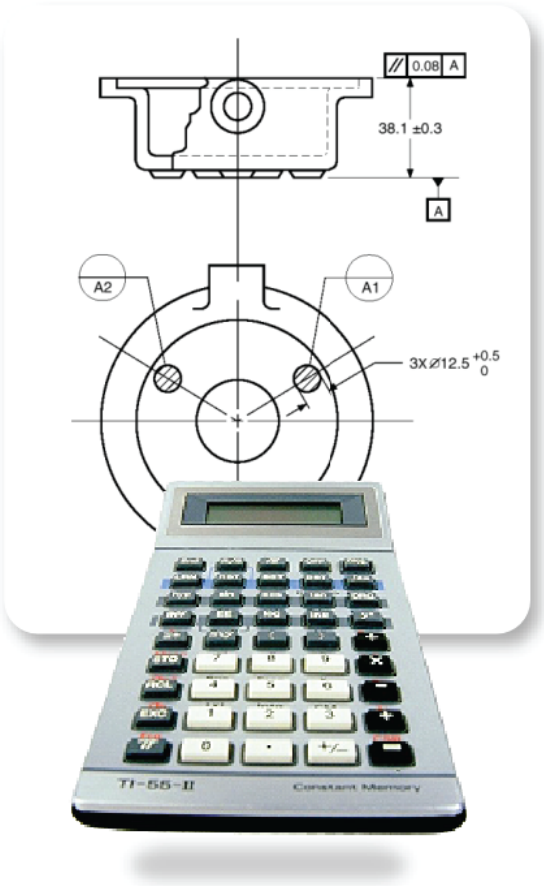
50% Orthographic Drawing
Participants will correctly dimension, scale, represent line type, cut plane line, orientation and location, hatch appropriate areas, place views, present features, use lines types and geometric dimensioning, and present drawing information.

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.