NOCTI CTE®
Measuring What Matters in

Job Ready Assessment Blueprint

CAD

Test Code: 4973/ Version: 01

General Assessment Information

Blueprint Contents

Test Type: The CAD 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 Kentucky, Missouri, Pennsylvania, and South Carolina.

CIP Code

15.1302- CAD/CADD Drafting and/or Design Technology/Technician

Learning that works for America CTE™

Career Cluster 2- Architecture and Contruction

o*net™ in*it

17-3013.00- Mechanical Drafters

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 Computer Aided Drafting, or Design Technology

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General Assessment Information (continued)

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!

INTERNATIONAL SIGN ASSOCIATION

www.signs.org

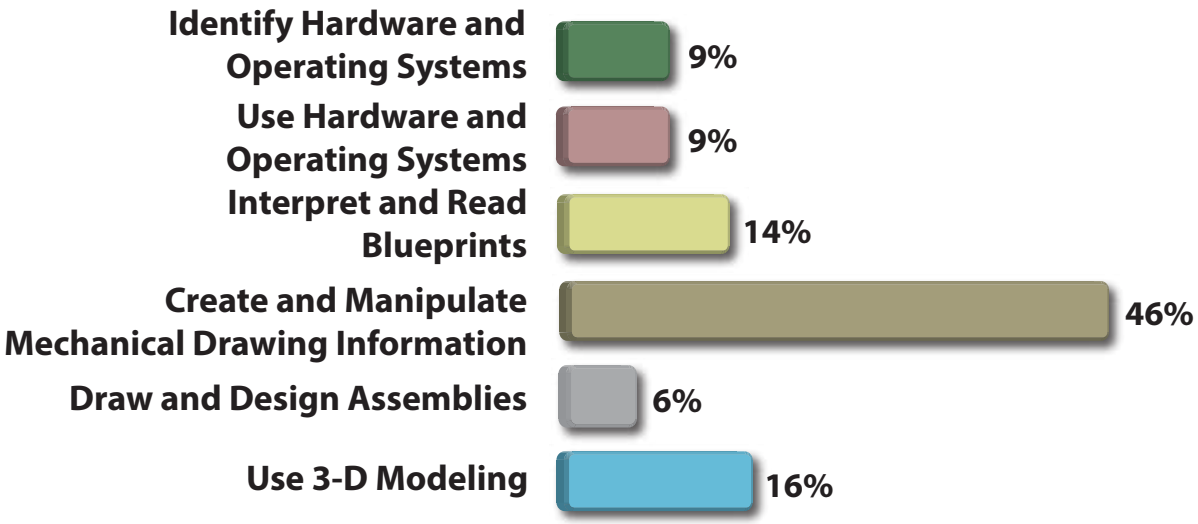
The International Sign Association (ISA) represents manufacturers, suppliers and users of on-premise signs and sign products from all 50 states and around the globe. The sign and visual communications industry is a $37.5 billion business that employs more than 200,000 individuals. One of ISA's long term goals is to showcase and promote the many exciting and diverse career opportunities that exist within the sign and visual communications industry and to apprise students of the abundant employment opportunities that are present to skilled and qualified candidates. ISA strongly encourages and supports students that work to enhance their educational achievements by completing NOCTI assessments.

Written Assessment

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

Administration Time: 3 hours
Number of Questions: 114
Number of Sessions: This assessment may be administered in one, two, or three sessions.

Areas Covered



Specific Standards and Competencies Included in this Assessment

Identify Hardware and Operating Systems

- Identify hardware and software
- Identify operating system components
- Identify and apply computer terminology

Using Hardware and Operating Systems

- View file names of a storage device
- Store, copy, move, and retrieve information to/from various drives
- Rename and backup files

Interpret and Read Blueprints

- Interpret basic views and dimensions in a working drawing
- Interpret bilateral, unilateral, and limit dimensions
- Identify geometric tolerance symbols
- Interpret drawings, pictures, and symbols

Create and Manipulate Mechanical Drawing Information

- Understand Cartesian Coordinate System
- Create and modify drawing geometry
- Create and manipulate line types and layers/levels
- Create and edit basic geometry by inputting coordinates
- Insert and manipulate text and fonts
- Create single and multiple auxiliary views of surfaces and objects
- Create and insert blocks
- Create and modify dimensions
- Specify geometric tolerancing on a drawing
- Generate a 2-D multiview drawing
- Generate a pictorial drawing
- Scale and print hard copy on output device

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Specific Standards and Competencies (continued)

Draw and Design Assemblies

- Create an assembly in 2-D geometry
- Create a bill of materials

Use 3-D Modeling

- Create and manipulate construction planes
- Generate and modify geometric components on construction planes
- Identify and utilize precision measurement techniques
- Create a 2-D drawing from a 3-D model
- Create a 3-D model

Sample Questions

The acronym, CAM, stands for

A. Computer Aided Manufacturing
B. Computer Assisted Measuring
C. Concise Analog Machining
D. Coordinate Aided Machining

Use hatching in an assembly section drawing to

A. indicate materials
B. clarify dimensions
C. shade pictorial drawings
D. clarify manufacturing process

Isometric axes are positioned at _____ apart.

A. 90 degrees
B. 120 degrees
C. 180 degrees
D. 270 degrees

When creating 3-D geometry, the scale factor should always be 1:1 because it

A. simulates reality
B. will reduce file size
C. will reduce distortion
D. ensures clarity

CAD files sizes are measured in

A. inches
B. pixels
C. bytes
D. ram

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Sample Questions (continued)

The smallest acceptable diameter of a shaft when dimensioned as 1.0625±.0004 is

A. 1.0615
B. 1.0620
C. 1.0621
D. 1.0630

Coordinates for a drawing may be entered by

A. using the drop and drag method
B. inputting the values directly from the keyboard
C. inputting values using the stretch command
D. inserting values through the use of the offset command

If the XY plane is designated as the front view, the _____ plane would be a profile plane.

A. XZ
B. isometric
C. YZ
D. construction

Three non-linear points on a plane, connected by a single line, result in a _____ line.

A. skewed
B. curved
C. parallel
D. non-isometric

The generation of a 2-D drawing from a 3-D model requires

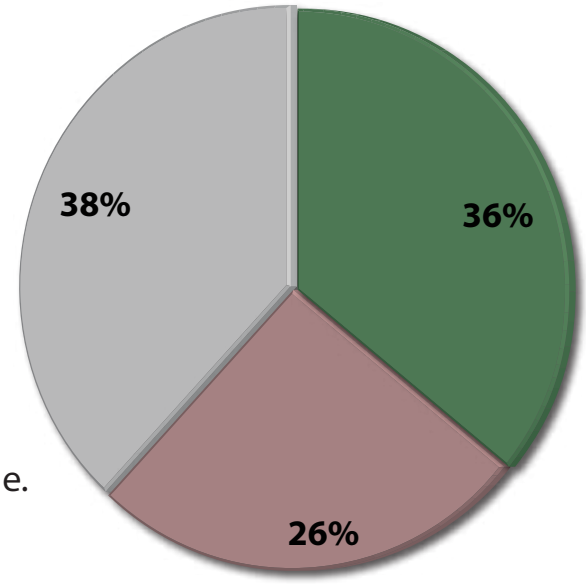
A. a valid 3-D model
B. preset view ports
C. a valid isometric view
D. preset line types and layers

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: 2 hours
Number of Jobs: 3

Areas Covered:



36% Create a 2-D Orthographic Drawing with a Section View
Participants will print and plot to scale, write the correct title block, draw the hatch, views, dimensions and placement correctly and save the file.

26% Create a 3-D Solid Model
Participants will build correct radius corners and holes with the correct mass properties and save the file.

38% Create Two Parts to be Mated and Mate the Parts
Participants will create two parts with the correct feature geometry and volume properties and mate the two parts and save the file.

Sample Job

Create Two Parts to be Mated and Mate the Parts

Maximum Time: 1 hour

Participant Activity: The participant, using the CAD system provided, will create complete 3-D solid models from the parts as shown, determine and print out the volume of Part A and Part B, mate Part A and Part B, and save the complete job to CD or equivalent storage media with the file name.