Arkansas CTE

Design Applications in Engineering and Technology Education I: Grade 9

Adopted 2015

Design Applications of Construction Technologies

1.1 Recognize how the engineering design process is used in construction technology

1. Illustrates ideas and concepts related to the engineering design process and construction technology. 1.1.1
2. Illustrates ideas and concepts related to construction. 1.1.2
3. Identifies appropriate measurement device. 1.1.3

1.2 Identify common construction tools and materials as well as appropriate techniques and applications

1. Draws to scale and determine quantities and measurements in English and metric units. 1.2.1
2. Visualizes a finished product 1.2.2
3. Applies construction rules and principles to a new situation. 1.2.3

1.3 Recognize the importance of building codes and standards in construction

1. Relates measurements from common measuring devices to construction standards. 1.3.1
2. Constructs models to depict basic concepts of construction and creates new design by applying specified criteria. 1.3.2

1.4 Identify, design, and construct a structure to serve a need in the community

1. Draws to scale and reads measurements from common measuring devices. 1.4.1
2. Constructs model to depict basic concept of construction. 1.4.2
3. Creates new design by applying specified criteria. 1.4.3

Design Applications of Information and Co Te

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2.1 Recognize the impact, significance, and role that information and communication systems play in our daily lives

1. Illustrates ideas and concepts related to information and communication systems. 2.1.1

2. Creates presentations based on concepts related to communication systems. 2.1.2

2.2 Recognize the format and purpose of information and communication systems

1. Illustrates ideas and concepts related to media formats used in information and communication systems. 2.2.1
2. Illustrates a mathematical ideas and concepts related to multi-media formats used in information and communication systems. 2.2.2
3. Illustrates ideas and concepts related to the use of information and communication systems used to convey a specific purpose. 2.2.3

2.3 Identify and explore the elements and principles of design in various applications and types of media

1. Constructs geometric figures using basic geometric symbols, terms, principles, and formulas. 2.3.1
2. Create a 3D model that incorporates the elements and principles of design. 2.3.2
3. Visualizes a finished product. 2.3.3

2.4 Recognize the elements of a corporate identity package

1. Communicates effectively through industry medium appropriately. 2.4.1
2. Uses logic to draw conclusions from available information such as industry portfolios and company statistical data. 2.4.2

2.5 Compose and assess a design portfolio

1. Organizes information into an appropriate format (i.e. company portfolio) 2.5.1
2. Communicates a thought, idea, or fact through oral presentation. 2.5.2
3. Combines ideas or information in a creative fashion combining oral presentation and written reports. 2.5.3

Design Applications Safety

3.1 Describe the need for safe work environments in the Engineering and Technology Educational classroom and laboratory

1. Imagines the flow of work activities from narrative descriptions and applies new knowledge/skills to safety procedures. 3.1.1
2. Makes connections between seemingly unrelated ideas while paying close attention to details. 3.1.2

3.2 Describe specific procedures such as reporting illness, injuries, safety violations and use of required personal protection equipment.

1. Listens and follows directions given by instructor. 3.2.1
2. Devises and implements a plan of action to resolve a problem 3.2.2

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Describe machine and tool safety practices and procedures

1. Demonstrates decision-making skills regarding safety protocols. 3.3.1

2. Reads and follows instructions to operate technical equipment and uses standard occupational resource materials 3.3.2
3. Follows safety guidelines pertaining to any and all activity tasks. 3.3.3
4. Illustrates ideas and concepts related to machine and tool safety 3.3.4
5. Illustrates written specifications and applies them to a task 3.3.5