

# Engineering Technology: Manufacturing Engineering

Apply the design process involving **MAE1**

- a** problem identification, conceptualization, and research **MAE1A**

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- b** refinement of preliminary ideas, design analysis, development and implementation **MAE1B**

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- c** detailed documentation of final design, optimization and final presentation. **MAE1C**

Identify the basic processes, systems, designs, and materials used in manufacturing. **MAE2**

- 2** Identify the basic processes, systems, designs, and materials used in manufacturing. **MAE2**

Identify product families. **MAE3**

- 3** Identify product families. **MAE3**

Conduct model documentation as the process of recording details such as size, material development process that describes a model for the purpose of communication of ideas. **MAE4**

- 4** Conduct model documentation as the process of recording details such as size, material development process that describes a model for the purpose of communication of ideas. **MAE4**

Apply the principles of design for manufacturing enabling the efficient and effective production of products. **MAE5**

- 5** Apply the principles of design for manufacturing enabling the efficient and effective production of products. **MAE5**

Distinguish the difference between custom and industrial furniture production. **MAE6**

- 6** Distinguish the difference between custom and industrial furniture production. **MAE6**

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**Demonstrate safe and appropriate use of** MAE7

**a** tools, machines, and materials in materials and processes technology. MAE7A

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**Select and defend a material for use in a product, explaining material properties and characterization, based upon manufacturing processes, chemical composition, internal defects, temperature, previous loading, dimensions and other factors.** MAE8

**8** Select and defend a material for use in a product, explaining material properties and characterization, based upon manufacturing processes, chemical composition, internal defects, temperature, previous loading, dimensions and other factors. MAE8

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**Demonstrate an understanding of mechanisms and how they relate to manufacturing systems.** MAE9

**9** Demonstrate an understanding of mechanisms and how they relate to manufacturing systems. MAE9

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**Apply the principles of robotics to automated systems.** MAE10

**10** Apply the principles of robotics to automated systems. MAE10

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**Integrate control systems and equipment with production and production support mechanisms.** MAE11

**11** Integrate control systems and equipment with production and production support mechanisms. MAE11

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**Demonstrate proficiency in the set-up and operation of manual and CNC wood and/or metalworking machines.** MAE12

**12** Demonstrate proficiency in the set-up and operation of manual and CNC wood and/or metalworking machines. MAE12

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**Demonstrate proficiency in computer-aided drafting/computer aided manufacturing (CAD/CAM) software.** MAE13

**13** Demonstrate proficiency in computer-aided drafting/computer aided manufacturing (CAD/CAM) software. MAE13