

# 11-12 Engineering Research and Design

## Engineering

Pathway ERD:1-2

**a** Explain professional, legal, and ethical responsibilities in the field of engineering, including the need for a diverse work force. ERD1.A

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**b** Demonstrate effective skills for seeking employment in a specific engineering pathway, including the attributes that contribute to a successful engineering career. ERD 1.B

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## Project Proposal ERD:3

**a** Create a formal, narrative proposal for an engineering design brief. ERD:3A

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## Reserach ERD:4

**a** Conduct independent research related to a chosen engineering design brief. ERD:4A

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## Design and

Evaluation ERD: 5-6

**a** Demonstrate the engineering design process, including defining the problem, developing and selecting solutions, constructing prototypes testing, evaluating and documenting results, and redesigning as needed. ERD:5A

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**b** Apply a standard experimental method to the evaluation process of a given engineering design. ERD:6B

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## Product and

Process ERD:7-10

**a** Create a written technical report and a multimedia presentation for an engineering design problem, concept, or issue using industry recognized guidelines.

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**b** Demonstrate the correct use and selection of tools, materials, procedures, and equipment in the construction of models, prototypes, and finished products.

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**c** Apply correct drafting techniques using computer-aided design (CAD) programs to produce plans, diagrams, and working drawings for the construction of models, prototypes, and final products.

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**d** Design a project portfolio that includes all project-related documentation.