

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

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

Project Proposal ERD:3

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

Reserach ERD:4

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

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

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

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.

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

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.

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