

Engineering Design I
Pacing Guide
Instructor: Mr. Seth Coleman
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Weeks 1-2: Introduction and Safety

- Week 1: Course Overview, Introduction to Engineering Disciplines, and Career Exploration (Standards 2.1 and 2.2)
- Week 2: Safety Rules, Safety Equipment, and Safety Test (Standards 1.1 and 1.2)

Weeks 3-5: Engineering Design Process

- Week 3: Introduction to the Engineering Design Process (Standard 3.1)
- Week 4: Comparing Engineering Practices and Science Practices (Standard 3.1)
- Week 5: Problem-Solving Formats and Application (Standard 4.1)

Weeks 6-13: Engineering Drawing

- Week 6: Introduction to Engineering Drawing, Freehand Sketching, and Manual Drafting (Standard 5.1)
- Week 7: Orthographic Drawings and Basic Dimensioning Techniques (Standard 5.1)
- Week 8: Isometric Drawings and 3D Pictorial Techniques (Standard 5.2)
- Week 9: CAD Software for 2D and 3D Drawings (Standard 5.3)
- Week 10: Advanced CAD Techniques and Applications (Standard 5.3)
- Week 11: Creating Technical Drawings for Projects (Standard 5.3)
- Week 12: Interpreting and Analyzing Engineering Drawings (Standard 5.3)
- Week 13: Final Engineering Drawing Projects and Presentations (Standard 5.3)

Weeks 14-16: Work, Force, Power, and Machines

- Week 14: Introduction to Simple Machines (Standard 6.1)
- Week 15: Project Completion Using Simple Machines (Standard 6.2)
- Week 16: Calculating Force, Work, and Power (Standard 6.3)

Weeks 17-18: Mechanism

- Week 17: Introduction to Mechanisms (Standard 7.1)
- Week 18: Types of Mechanisms (Linkages, Cams, Bearings, etc.) (Standard 7.1)

Weeks 19-21: Energy

- Week 19: Understanding Energy in Engineering (Standard 8.1)
- Week 20: The Concept of Heat and Temperature Scales (Standard 8.2)
- Week 21: Units of Energy and Energy Conversion Problems (Standard 8.3)

Weeks 22-24: Electrical Systems

- Week 22: Introduction to Subatomic Particles and Electricity (Standard 9.1)
- Week 23: Voltage, Current, and Resistance (Standard 9.2)
- Week 24: Ohm's Law and Circuit Calculations (Standard 9.3)

Weeks 25-27: Computer Software for Engineering Problem Solving

- Week 25: Introduction to Spreadsheet Software for Engineering (Standard 10.1)
- Week 26: Using MATLAB for System of Equations (Standard 10.1)
- Week 27: Programming Software for Engineering Solutions (Standard 10.1)

Weeks 28-36: Team Project and Review

- Weeks 28-29**: Project Planning: Identifying a Problem and Drafting a Problem Statement (Standard 11.1)
- Weeks 30-31: Engineering Design Process Applied to the Project (Standard 11.1)
- Weeks 32-33: Developing and Testing Prototypes (Standard 11.1)
- Weeks 34-36: Final Project Presentation and Course Review