

# Engineering Design and Problem Solving

Local Course #: 83644

State Course ID: 13037300

## Course Description:

This course is the senior capstone course of the Project Lead the Way pre-engineering sequence. Students will work in teams to research, design, and construct a solution to an open-ended engineering problem. Students apply principles developed in the four preceding courses and are guided by an engineering mentor. Students will present progress reports, submit a final written report, and present their solutions to a panel of outside reviewers at the end of the course. This course counts as a science credit. This course receives Honors weight for the class of 2025 and beyond

## Link to TEKS:

<https://tea.texas.gov/academics/instructional-materials/review-and-adoption-process/breakout-documents/130.373engineering-design-and-problem-solving.pdf>

## First 9 Weeks Major Topics:

Q1 problem identification and Research:

Problem identification and justification

Research methodologies

Market analysis and stakeholder outreach

## Second 9 Weeks Major Topics:

Q2. Solution Development and Feasibility

Generating and evaluating design concepts

Decision Matrices

Feasibility analysis

Initial prototyping

Project timeline and management

## Third 9 Weeks Major Topics:

Q3. Prototype and testing

Building prototypes

Testing and data collection

Failure analysis

**Fourth 9 Weeks Major Topics:**

Q4. Presentation and Professional Practice

Final documentation and reflection

project pitch and presentation

professional portfolio