



Course Information Sheet

Course Name: PLTW Introduction to Engineering Design

Instructional Material: Project Lead the Way

Semester One:

Week	Topic
1	Introduction to IED: The Design Process and Engineering Disciplines
2	Measurement & Statistics: Precision, Data Analysis, and Statistical Concepts
3	Sketching & Drawing: Technical Sketching and Orthographic Projection
4	Isometric Drawing: Three-Dimensional Sketching Techniques
5	CAD Introduction: Principles of Computer-Aided Design (CAD)
6	Part Modeling: Creating 3D Models of Parts using CAD Software
7	Part Modeling: Dimensioning and Feature Creation
8	Design Challenge: Applying the Design Process to a Simple Problem
9	Project Lead the Way (PLTW) Safety Test
10	Measurement & Tolerances: Precision, Fits, and Allowance
11	Assembly Modeling: Creating Assemblies from Individual Parts
12	Assembly Modeling: Constraints and Mating Relationships
13	Working Drawings: Creating Multiview Drawings and Annotations
14	Design for Disassembly & Sustainability
15	Reverse Engineering: Disassembling and Analyzing a Product
16	Reverse Engineering: Measuring and Documenting Components
17	Reverse Engineering: Creating CAD Models of Components
18	First Semester Review & Exam

**Semester Two:**

Week	Topic
19	Advanced Part Modeling: Complex Shapes and Features
20	Advanced Assembly Modeling: Advanced Mating and Sub-Assemblies
21	Design for Manufacturability: Principles of Machining and Fabrication
22	3D Printing: Principles of Additive Manufacturing & Rapid Prototyping
23	Statistics & Probability: Data-Driven Decision Making
24	Product Innovation: Brainstorming and Ideation Techniques
25	Mechanism Design: Principles of Motion and Linkages
26	Mechanism Design: Designing and Simulating a Mechanical System
27	Project Planning: Defining a Problem and Project Scope
28	Final Project: Research and Concept Generation
29	Final Project: Design & Prototyping Phase
30	Final Project: Testing and Evaluation Phase
31	Final Project: Documentation and Technical Report
32	Final Project: Presentation and Communication
33	Career Exploration: Fields of Engineering and Career Pathways
34	Ethics in Engineering: Social Responsibility and Professional Conduct
35	Portfolio Development
36	Final Course Review & Final Exam