

# Autodesk Design Academy

Autodesk® Design Academy is a comprehensive pre-engineering, pre-architecture, and interdisciplinary solution developed specifically for secondary schools by experienced educators and technical experts.

The curriculum meets U.S. national standards and helps students master the fundamentals of the engineering and architectural design process while learning industry-leading Autodesk® design software.

The Design Academy curriculum engages students in real-life projects and helps students develop STEM skills. By integrating Design Academy into your classroom, you can help students be better prepared for college and careers in design, engineering, architecture, and technology.

## Design Academy Curriculum

Design Academy provides a project-based curriculum that explains key terms and concepts, along with easy-to-follow project summaries and self-test questions, and is broken down into units, lessons, and exercises. The units include the following:

**Design Basics**—Familiarizes students with basic functions such as object creation and modification, object properties, layers, blocks, layouts, and template files.

**Pre-Architecture**—Illustrates the basics of architecture and provides real-life architectural projects. Lessons cover the following:

- Defining architecture
- Applying American Institute of Architects (AIA) standards
- Creating walls, doors, windows, stairs, railings, roofs, sections, and elevations
- Developing schedules and visualization
- Bringing design to real architectural projects

**Pre-Engineering**—Includes the Introduction to Engineering foundation course from Project Lead the Way with a tutorial on Autodesk® Inventor® Professional software. Lessons cover the following topics:

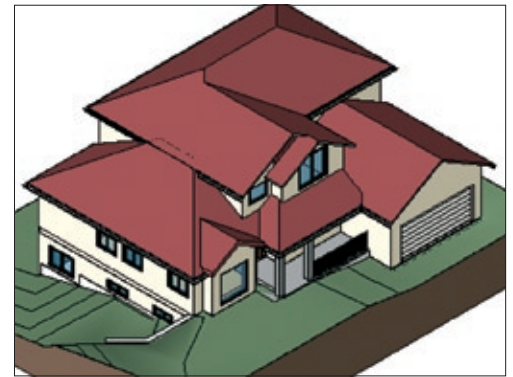
- History of design, evolution of innovation, and career pathways
- Portfolio development
- Geometric relationships
- Graphical and parametric modeling
- Assembly modeling
- Model analysis and verification
- Production and marketing (packaging, pricing, and cost analysis)

**Math and Science**—Supports student understanding of the relationship between math and science, engineering, and technology. Lessons cover the following topics:

- Geometry using Autodesk Inventor software: 3D solids of rotation, congruent triangles, trigonometric functions, special quadrilaterals, tessellations, rotations, symmetry, medians, altitudes, and bisectors.
- Physics: Create a floor and ball, trajectory, and track view; animate the ball, adding light.
- Earth Science: Build, map, and animate the solar system.
- Chemistry: Create the background, model the water molecules, and animate the reaction.

**Sustainable Design**—Engages students to understand the impact that design has on the environment through the use of AutoCAD® Civil 3D®, AutoCAD® Architecture, Revit® Architecture, and Autodesk Inventor Professional software. Lessons cover the following:

- Architectural design, considering materials, orientation, size, shape, room configuration, and electrical consumption
- Civil engineering basic and traditional concepts of sustainable design, including hydrologic cycle, volumetric flow, land cover (grass, asphalt, and so forth), and groundwater recharge
- Mechanical engineering, including designing the base of a wind turbine, creating a turbine blade, and assembling the two parts



## Design Academy Software

- AutoCAD®
- AutoCAD® Architecture
- Revit® Architecture
- AutoCAD® Revit® MEP Suite
- AutoCAD® Civil 3D®
- Autodesk® Inventor® Professional
- Autodesk® 3ds Max® Design

