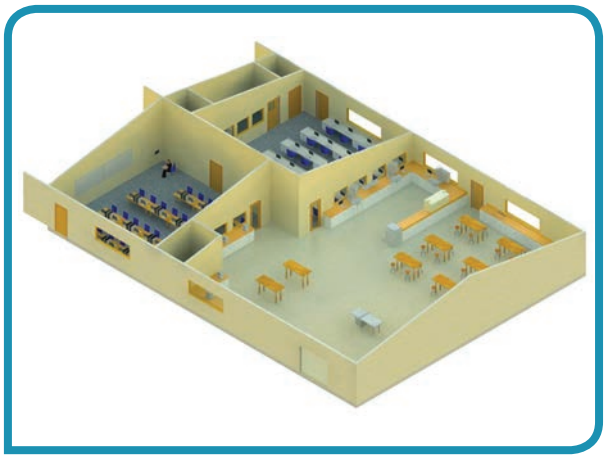
STEM LEARNING ENVIRONMENTS

Modernization Project: Galt High School BEST Academy, Galt Joint Union High School District

In order to meet the needs of STEM (science, technology, engineering, and mathematics) learning, Galt High School worked with the school district and the local community to convert several aging classrooms into a 3,300-square-foot prototype manufacturing lab with two adjacent classrooms. The modernization project increased the capacity for students to enter the BEST (Biomedical, Engineering, Science, and Technology) Academy, which is one of four career pathways offered at Galt High.[1] Students may also choose Agriculture, Child Development, or Visual and Performing Arts as their course of study.

Guided by an instructor's vision, Galt High School's modernization enables students to learn advanced engineering concepts and enhances their work in courses such as Introduction to Engineering, Computer Integrated Manufacturing, Digital Electronics, and Civil Engineering and Architecture. The school is recognized by the National Academy Foundation as an Academy of Engineering, and its engineering program is accredited by Project Lead the Way, which uses project- and problem-based learning to encourage teamwork and innovation.[2]



Galt High School's BEST Academy Prototype Lab (photo provided by Galt Joint Union High School District)

Facility Features That Support STEM Learning and Career Technical Education:

- Adjacent computer lab and lecture room designs with interior windows, which allow students to view and access the prototype lab and create larger and more complex projects
- Updated classrooms with new furnishings, storage, an upgraded HVAC system, and electrical and data wiring to accommodate 60 computers
- Additional space for technology tools including an interactive classroom whiteboard, a digital projector, and 35 student computers, consistent with recommendations in the *Blueprint for California Education Technology*[3]
- Division of the prototype lab into four work areas, allowing collaborative, hands-on work and more ambitious engineering design
- Assembly and working area with large work tables, counters, and lockable storage cabinets to secure student projects and materials
- Designated area for woodworking tools, including a drill press, band saw, table saw, wood lathe, two floor-mounted belt and disc sanders, a scroll saw, and a grinder and miter saw
- Metal-working section with a metal lathe, a metal shear, and a box and pan brake to support the production process
- High-tech manufacturing section including two CNC (computer numerical control) routers with a robotic arm, a laser engraver, an injection molder, and a 3D printer that prints CAD (computer-aided design) drawings as plastic models[4]

1. California Department of Education (CDE), *California Career Technical Education Model Curriculum Standards* (Sacramento, CA: CDE, 2013).
2. *The Galt Herald Online,* "BEST Academy Launches at GHS" (Galt, CA: January 25, 2012).
3. CDE, *Empowering Learning: A Blueprint for California Education Technology 2014–2017* (Sacramento, CA: CDE, 2014).
4. *Lodi News-Sentinel,* "Galt High School Unveils New State-of-the-Art Engineering Lab" (Lodi, CA: Lodinews.com, December 2010).

For more information, contact the California Department of Education, School Facilities and Transportation Services Division, at 916-322-2470.

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