

# TECHNOLOGY AND ENGINEERING EDUCATION

## HANDS-ON, MINDS-ON EDUCATION

### Our mission:

Technology and Engineering Education is committed to preparing students for employment and/or continuing education opportunities by teaching them to understand, design, produce, use, and manage the human-made world in order to contribute and function in a technological society.

### CAREERS IN TECHNOLOGY AND ENGINEERING

Due to the expansion of jobs in the technical fields and the increasing numbers of engineers who are retiring, the number of job openings in technology and engineering is increasing. There is a critical shortage of engineers and engineering technologists entering the field at a time when technology is reinventing itself every few years. Careers in these areas include, but are not limited to:

- **Construction:** Operating Engineer
- **Manufacturing:** Industrial Engineer, Electrical Engineer
- **Engineering Design:** Mechanical Engineer, Civil Engineer, Computer Software Engineer
- **Computer Integrated Manufacturing:** Computer Hardware Engineer, Computer Programmer

### STUDENT LEADERSHIP ORGANIZATION

The Technology Student Association (TSA) is the student leadership organization for Technology and Engineering Education. 2002-2003 marked the 25th anniversary of TSA. TSA plays a vital role in giving students an opportunity to compete and excel in their activities. The winners of the high school competitions are invited to compete at nationals each year.

- Nationally there are 115,000 members in 1,500 chapters in 47 states.
- Utah has 4,999 members.  
[www.tsaweb.org](http://www.tsaweb.org)

*Our vision is to see that every student receives the academic knowledge and technical skills needed to be successful in the technology and engineering career of his or her choice, by combining engineering principles, mathematics, and science courses that result in a logical thought process. Technology and Engineering Education students will develop essential career preparation skills through technical and academic courses, as well as personal leadership opportunities.*

### AREAS OF STUDY:

Agriculture

Business

Economics, Entrepreneurship,  
& Financial Literacy

Family & Consumer Sciences

Health Science & Technology

Information Technology

Marketing

Technology & Engineering

Trade & Technical



### NATIONAL RECOGNITION

In 2002, Utah had over four hundred students participate in the state TSA conference. One hundred and sixteen of these students were state winners, and fifty-four students went on to compete at the national conference. Students competed with dignity and represented the state of Utah extremely well.

### PROJECT LEAD THE WAY

#### Teaching Tomorrow's Technology Today

Project Lead The Way (PLTW) is a national program that creates dynamic partnerships with high schools to increase the quantity and quality of engineers and engineering technologists. PLTW prepares an increasing and more diverse group of students to be successful in engineering and engineering technology careers.

In 2003, two students from Northridge High School in Layton, Utah were recognized for their achievements in designing an open-ended ratchet wrench. Their project reinforced their academics and opened their eyes to the world of engineering.

### CAREER PREPARATION/ECONOMIC DEVELOPMENT

Through PLTW, a four-year sequence of engineering courses is combined with traditional mathematics and science courses, which introduce students to the scope, rigor, and discipline of engineering. The high school certification program recognizes schools that have successfully implemented the PLTW curriculum, and provides an opportunity for students to receive college credit as well as increase their earning potential while still in high school.

In 2002-2003, 4,093 students attained a substantial or sufficient level on the Technology and Engineering Education competency skill certificate tests, of which 2,112 demonstrated substantial skill at 80% or above. Student performance must be demonstrated in class as part of the skill certificate process.

### SAMPLING OF COURSES OFFERED

- Construction – Introduction
- Communications – Introduction
- Manufacturing – Introduction
- Transportation and Energy – Introduction
- Foundations of Technology
- Principles of Technology
- Pre-Engineering
- Project Lead the Way (Pre-Engineering Program)
  - › Principles of Engineering
  - › Engineering Design – Introduction
  - › Digital Electronics
  - › Computer Integrated Manufacturing
  - › Engineering Design and Development

### STATE AND LOCAL PARTNERSHIPS

Utah GIS Coalition  
Utah State Division of Risk Management  
Utah Trade and Technology Educators (UTTE)

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