

Engineering and Technology Education Major

Technology Education Emphasis Trade and Technical Education Emphasis

Published May 2008

Effective for students beginning degree Summer Sem. 2008 thru Spring Sem. 2009

Admission Requirements For This Major

1. New freshmen admitted to USU in good standing qualify for admission to this major.
2. Transfer students from other institutions need a 2.75 total GPA for admission to this major in good standing.
3. Students transferring from other USU majors need a total GPA of 2.75 for admission to this major in good standing.

The Program

The ever-increasing rate of technological development and the impacts of globalization have created a demand for individuals who are technologically literate, innovative, and able to work in teams. As the need for these individuals increases, so does the need for qualified instructors who can teach the necessary hard and soft skills required in our changing world. The degree programs with the Department of Engineering and Technology Education are structured to educate students with these types of skills.

The Department of Engineering and Technology Education, in cooperation with the Emma Eccles Jones College of Education and Human Services, offers a program of study leading to the Bachelor of Science degree in Engineering and Technology Education. There are two emphases available in this program. The **Technology Education** emphasis is available to prepare students for careers in teaching at the middle school and high school levels. Students in the **Trade and Technical Education** emphasis are prepared for teaching vocational courses at the high school or post-high school levels.

Technology Education students must apply to and be admitted to the Secondary Teacher Education Program (STEP) during the last semester of the sophomore year. Students should contact their advisor early in their sophomore year. After this has been done, students may begin completing the secondary education component, which is a series of courses designed to provide students with necessary teaching skills and techniques. This component is also required as part of the standards for licensure to teach in the public schools.

Students are exposed to extensive practical classroom experience through role-playing and video-laboratory activities. Emphasis is placed on early and continuing exposure to teaching in public schools, which includes observing techniques of teaching in conventional classes of students and tutoring individuals in need of enrichment or remedial help in particular skills or subjects. Students also acquire basic planning and teaching skills in a subject area by preparing and presenting mini-lessons to small groups of students. Actual teaching experiences offer the student an opportunity to develop individualized teaching methods. These field experiences also provide a means of performance evaluation.

The Engineering and Technology Education curriculum offers flexibility and an opportunity to pursue and develop skills in a variety of technical fields. A number of elective courses may be chosen to strengthen areas of weakness and to enhance employment opportunities. The training culminates with students managing and instructing large classroom groups during the student teaching portion of the teacher education component. Usually students will spend one semester during their senior year teaching in a secondary school. On-campus classes, with the exception of the Student Teaching Seminar, should not be scheduled for this semester.

The Department of Engineering and Technology Education is partnered with Project Lead the Way (PLTW) and provides pre-service training for students to become qualified to teach selected PLTW courses. PLTW is a national program that has developed a curriculum introducing students to the scope, rigor, and discipline of engineering prior to entering college. Students opting to become qualified to teach selected PLTW courses must include MATH 1100 in their program of study, as well as an additional science course with a laboratory experience.

Career Opportunities

Technology Education Emphasis

Students are eligible for a teaching license in secondary education upon completing the program. The license qualifies them to teach at the middle school and high school levels (grades 7-12). To receive a State of Utah Teaching License, students should apply during the last semester of their teacher education program. Applications are available at the Emma Eccles Jones College of Education and Human Services Office.

Completion of a teacher education program in Utah enables one to apply for a teaching license in many other states. Utah has reciprocal agreements in some form with the majority of states and the District of Columbia. Students interested in teaching outside of Utah should know that other states may recognize teaching majors and minors not approved in Utah, and conversely, some teaching majors and minors approved in Utah may not be recognized in other states. Students should check the licensure requirements of the state or states in which they plan to seek employment.

Trade and Technical Education Emphasis

Students are eligible to apply for Trade and Technical Education licensure in their selected field. The license qualifies them to teach vocational programs at the high school or postsecondary school level. Application for licensure is made to the Utah State Office of Education.

Degrees and Programs Offered Through This Department

Aviation Technology—Maintenance Management:

Bachelor of Science (BS)

Aviation Technology—Professional Pilot: BS

Engineering and Technology Education: BS and Master of Science (MS)

Academic Advisement

All students should contact their academic advisor for assistance with course selection, program planning, and meeting graduation requirements. If they do not know who their advisor is, students should contact their department, college, or the Office of University Advising.

Graduation Requirements: BS Degree in Engineering and Technology Education

Minimum University Requirements*

Total credits	120
Grade point average (most majors require higher GPA)	2.00 GPA
Credits of C- or better	100
Credits of upper-division courses (#3000 or above)	40
USU credits	30
(20 of which must be upper division, including 10 required by major)	
Completion of approved major program of study	See department
Credits in minor (if required by department)	12
Credits in American Institutions (ECON 1500; HIST 1700, 2700, or 2710; POLS 1100; or USU 1300)	3
University Studies requirements	See next page

*Colleges and departments may require more credits or a higher GPA. See requirements on this sheet.

University Studies Requirements for Engineering and Technology Education Major

Note: Approved University Studies courses and requirements are listed in the back section of each semester's *Schedule of Classes*.

General Education Requirements (31-34 credits)

Competency Requirements (10 credits)

Communications Literacy (CL1 and CL2) (6 credits)

ENGL 1010 (CL1) (3 credits) or satisfactory AP, CLEP, IBO, ACT, or SAT score

AND

ENGL 2010 (CL2) (3 credits) or satisfactory IBO score

Quantitative Literacy (QL) (4 credits)

MATH 1050 (4 credits)

OR

One MATH or STAT course requiring MATH 1050 as a prerequisite

OR

Satisfactory AP, CLEP, IBO, ACT, or SAT score

Computer and Information Literacy (0 credits)

Passing grade on six computer and information literacy related examinations.

Breadth Requirements (18-20 credits)

Select at least one approved course from each of the following six categories: **American Institutions (BAI)**, **Creative Arts (BCA)**, **Humanities (BHU)**, **Life Sciences (BLS)**, **Physical Sciences (BPS)**, and **Social Sciences (BSS)**. At least two of the six breadth courses must be University Studies courses with a **USU prefix** (excluding USU 1000, 1010, 1100, 3330, 4900, and 6900). (CLEP or AP credit may be used.) PHYS 1800, which is required for this major, fulfills the Breadth Physical Sciences requirement.

Exploration Requirement (3-4 credits)

Choose an additional class from one of the following General Education categories: QL, BAI, BCA, BHU, BLS, BPS, or BSS. MATH 1100 (QL) fulfills this requirement for students who complete the PLTW Option.

Depth Education Requirements

Communications Intensive (CI) (2 courses)

ETE 5220 and SCED 4200 will meet this requirement.

Quantitative Intensive (QI) (1 course)

ETE 2300, a course required for the major, will meet this requirement.

Depth Course Requirements (4 credits minimum, including 2 credits minimum completed in each of two courses)

Complete at least 2 credits in approved 3000-level or above courses from each of the following two categories: **Humanities and Creative Arts (DHA)** and **Social Sciences (DSS)**. SCED 3210, which is required for this major, fulfills the Social Sciences requirement.

Technology Education Emphasis

The Technology Education emphasis is designed to prepare students for teaching in junior and senior high schools. Students should follow the suggested semester schedule presented below, completing all courses listed. Consult with an advisor when choosing elective courses. All students in this program must maintain a cumulative GPA of 2.75 and gain admission to teacher education, in order to student teach and to receive secondary education licensure (Emma Eccles Jones College of Education and Human Services).

Engineering and Technology Education Curriculum (124-125 credits)

Suggested Semester Schedule

Freshman Year (32 credits)

Credits

Fall Semester (17 credits)

- ETE 1000 Orientation to Engineering and Technology Education . . . 1
- ETE 1010 Communications Technology 3
- ETE 1030 Material Processing Systems 3
- ETE 1200 Computer-Aided Drafting and Design 3
- ENGL 1010 (CL1) Introduction to Writing: Academic Prose 3
- MATH 1050 (QL)⁴ College Algebra 4

Spring Semester (15 credits)

Credits

- ETE 1040 Construction and Estimating 3
- ETE 2300 (QI)⁶ Electronic Fundamentals. 4
- MATH 1060 Trigonometry 2
- USU 1350 (BLS) Integrated Life Science 3
- University Studies Breadth American Institutions (BAI) course. . . . 3

Sophomore Year (31-32 credits)

Fall Semester (15-16 credits)

Note: Students should apply to the Secondary Teacher Education Program (STEP) *early* (see advisor).

- ETE 2030 Wood-Based Manufacturing Systems 3
- ETE 3220 Architecture and Construction Systems 3
- University Studies Breadth Humanities (BHU) course. 3
- Elective course(s) 3
- Exploration Requirement course 3-4

Spring Semester (16 credits)

- ETE 1020 Energy, Power, Transportation Systems Control Technology 3
- ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode 3
- PHYS 1800 (BPS)^{5,7} Physics of Technology 4
- SPED 4000^{2,3} Education of Exceptional Individuals 2
- Elective course(s) 4

Junior Year (33 credits)

Fall Semester (16 credits)

- ETE 3200^{2,3} Methods of Teaching Engineering and Technology Education I 3
- ETE 3300^{2,3} Clinical Experience I. 1
- SCED 3100^{2,3} Motivation and Classroom Management. 3
- SCED 3210 (CI/DSS)^{2,3,5} Educational and Multicultural Foundations 3
- University Studies Breadth Creative Arts (BCA) and Breadth Social Sciences (BSS) courses 6

Spring Semester (17 credits)

- ETE 3030 Computer-Integrated Manufacturing Systems 3
- ETE 3440 (DSC) Science, Technology, and Modern Society. . . . 3
- ETE 4300^{2,3} Clinical Experience II 1
- ETE 4400^{2,3} Methods of Teaching Engineering and Technology Education II 3
- SCED 4200 (CI)^{2,3} Reading, Writing, and Technology 3
- SCED 4210² Cognition and Evaluation of Student Learning 3
- INST 3500¹ Technology Tools for Secondary Teachers. 1

Note: Prior to Student Teaching, the Praxis Content Exam must be passed.

Senior Year (28 credits)

Fall Semester (12 credits)

- ETE 5500^{2,3} Student Teaching Seminar 2
- ETE 5630^{2,3} Student Teaching in Secondary Schools 10

Spring Semester (16 credits)

- ETE 3050 Computer Systems and Networking 3
- ETE 3660 Principles of Engineering Education 3
- ETE 5220 (CI) Program and Course Development 3
- University Studies Depth Humanities and Creative Arts (DHA) course 3
- Elective course(s) 4

Students must complete a total of 40 credits of stipulated upper-division coursework.

¹The INST 3500 requirement has been waived. However, INST 4500 is recommended.

²This course is included in the Secondary Education Licensure Requirements (listed on this sheet). Prior to enrolling in this course, students must be admitted to the STEP.

³Students must maintain a cumulative 2.75 GPA for admission to the Emma Eccles Jones College of Education and Human Services, for student teaching, and to receive secondary education licensure.

⁴A Math ACT score of 23 or higher is required for enrollment in MATH 1050. If Math ACT score is between 18 and 22, student should enroll in MATH 1010 first.

⁵PHYS 1800 fulfills the University Studies Breadth Physical Sciences (BPS) requirement. SCED 3210 fulfills the University Studies Depth Social Sciences (DSS) requirement.

⁶MATH 1050 is a prerequisite for ETE 2300.

⁷PHYS 1800 needs to be completed during the sophomore year.

Secondary Education Licensure Requirements (36 credits)

	Credits
<input type="checkbox"/> ETE 1000 Orientation to Engineering and Technology Education (F)	1
<input type="checkbox"/> ETE 3200 Methods of Teaching Engineering and Technology Education I (F)	3
<input type="checkbox"/> ETE 3300 Clinical Experience I (F)	1
<input type="checkbox"/> ETE 4300 Clinical Experience II (Sp)	1
<input type="checkbox"/> ETE 4400 Methods of Teaching Engineering and Technology Education II (Sp)	3
<input type="checkbox"/> ETE 5500 Student Teaching Seminar (F)	2
<input type="checkbox"/> ETE 5630 Student Teaching in Secondary Schools (F)	10
<input type="checkbox"/> SCED 3100 Motivation and Classroom Management (F,Sp)	3
<input type="checkbox"/> SCED 3210 (CI/DSS) Educational and Multicultural Foundations (F,Sp)	3
<input type="checkbox"/> SCED 4200 (CI) Reading, Writing, and Technology (F,Sp)	3
<input type="checkbox"/> SCED 4210 Cognition and Evaluation of Student Learning (F,Sp)	3
<input type="checkbox"/> SPED 4000 Education of Exceptional Individuals (F,Sp,Su)	2
<input type="checkbox"/> INST 3500 ⁸ Technology Tools for Secondary Teachers (F,Sp,Su)	1

Project Lead the Way (PLTW) Option (7-8 credits)

Required Course (3 credits)	Credits
<input type="checkbox"/> MATH 1100 (QL) ¹⁰ Calculus Techniques (F,Sp,Su)	3

Additional Science Course(s) with Laboratory Experience (4-5 credits)

In addition to completing MATH 1100, students must also complete one of the following three science options, as shown below.

- CHEM 1110 (BPS)¹⁰ General Chemistry I (F,Sp) (4 cr) **and**
- CHEM 1115 General Chemistry Laboratory (F,Sp) (1 cr) 5
- Or**
- BIOL 1010 (BLS) Biology and the Citizen (F,Sp,Su) (3 cr) **and**
- BIOL 1020 Biological Discovery: A Lab Course (F,Sp) (1 cr) 4
- Or**
- PHYS 2110 The Physics of Living Systems I 4

Trade and Technical Education Emphasis

The Trade and Technical Education emphasis is designed to prepare students to teach vocational courses at the high school or post-high school level. Students should complete all of the following courses. All students in this emphasis must maintain a GPA of 2.75 in order to student teach.

Credits

<input type="checkbox"/> INST 3500 ⁸ Technology Tools for Secondary Teachers (F,Sp,Su)	1
<input type="checkbox"/> ETE 3200 Methods of Teaching Engineering and Technology Education I (F)	3
<input type="checkbox"/> ETE 3300 Clinical Experience I (F)	1
<input type="checkbox"/> ETE 3900 Principles and Objectives of Career and Technical Education	3
<input type="checkbox"/> ETE 3930 Evaluation of Career and Technical Education	2
<input type="checkbox"/> ETE 4300 Clinical Experience II (Sp)	1
<input type="checkbox"/> ETE 4400 Methods of Teaching Engineering and Technology Education II (Sp)	3
<input type="checkbox"/> ETE 4700 Student Teaching in Postsecondary Schools	4
<input type="checkbox"/> ETE 5220 (CI) Program and Course Development (Sp)	3
<input type="checkbox"/> ETE 5910 Special Problems in Engineering and Technology Education	1-4
<input type="checkbox"/> SPED 4000 Education of Exceptional Individuals (F,Sp,Su)	2
<input type="checkbox"/> ENGL 1010 (CL1) Introduction to Writing: Academic Prose (F,Sp,Su)	3
<input type="checkbox"/> ENGL 2010 (CL2) Intermediate Writing: Research Writing in a Persuasive Mode (F,Sp,Su)	3
<input type="checkbox"/> MATH 1050 (QL) College Algebra (F,Sp,Su)	4
<input type="checkbox"/> SPCH 1020 (CI) ⁹ Public Speaking (F,Sp)	3
(formerly SPCH 1050)	
<input type="checkbox"/> STAT 2000 (QI) Statistical Methods (F,Sp) (3 cr) or	
<input type="checkbox"/> Any Quantitative Intensive (QI) approved course (3 cr)	3
<input type="checkbox"/> University Studies courses	24
<input type="checkbox"/> General elective courses	12

⁸The INST 3500 requirement has been waived. However, INST 4500 is recommended.

⁹Due to House Bill 320 (Common Course Numbering), SPCH 1050 was changed to SPCH 1020, effective Summer Semester 2006.

¹⁰MATH 1050 is a prerequisite for MATH 1100 and CHEM 1110.

State Licensure Requirement

State licensure requires a minimum of two years of approved vocational experience. Successful completion of a trade competency examination is accepted in lieu of vocational experience.

Requirement Changes

Graduation requirements shown on this sheet are subject to change. Students should check with their assigned advisor concerning possible changes.

Materials for Persons with Disabilities

This requirement sheet is available in digital format, recordings, or large print upon request to the USU Disability Resource Center.

For information contact

Engineering and Technology Education Department; Industrial Science 112; Utah State University; 6000 Old Main Hill; Logan UT 84322-6000; tel. (435) 797-1795; e-mail kurt.becker@usu.edu; <http://www.ete.usu.edu/>

Prepared by Registrar's Office, Utah State University