BS in Technology & Engineering Studies: Technical (396549) MAP Sheet
Engineering
For students entering the degree program during the 2022-2023 curricular year.

The Technology and Engineering Studies - Technical Emphasis degree offers students a broad education in STEM (science, technology, engineering, math), education, multi-media, innovation, problem solving, entrepreneurship, management, manufacturing, information technology, and related fields.

The TES--Technical Emphasis major allows students considerable flexibility in selecting elective courses. As a result, students should carefully consider their long-term interests as they determine which elective courses will best prepare them to meet their professional goals. Before declaring the major, it is required to make an appointment with academic advisement by calling (801) 422-1818 or email sot_advisement@byu.edu.

University Core and Graduation Requirements
University Core Requirements:
Requirements#ClassesHoursClasses
Religion Cornerstones
Teachings and Doctrine of The Book of Mormon12.REL A 275
Jesus Christ and the Everlasting Gospel12.REL A 250
Foundations of the Restoration12.REL C 225
The Eternal Family12.REL C 200
The Individual and Society
American Heritage1-23-6.0 from approved list
Global and Cultural Awareness13.OTECH 231*
Skills
First Year Writing13.0 from approved list
Advanced Written and Oral Communications13.0 from approved list
Quantitative Reasoning13.MATH 110*
Languages of Learning (Math or Language)13-4.0 STAT 121 recommended
Arts, Letters, and Sciences
Civilization 113.0 from approved list
Civilization 213.0 from approved list
Arts13.0 from approved list
Letters13.0 from approved list
Biological Science13-4.0 from approved list
Physical Science13.0 from approved list
Social Science13.OTECH 231* or from approved list
Core Enrichment: Electives
Religion Electives3-46.0 from approved list
Open ElectivesVariable2 personal choice
FOR PROGRAM QUESTIONS SEE YOUR ADVISOR IN 265 CTB
*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (8–9 hours overlap)
Graduation Requirements:
Minimum residence hours required30.0
Minimum hours needed to graduate120.0
Suggested Sequence of Courses
Freshman Year
1st Semester
TES 276 A3.5
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>TES 276 B</td>
<td>0.5</td>
</tr>
<tr>
<td>TES 2003.0</td>
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<tr>
<td>American Heritage or First-Year Writing</td>
<td>3.0</td>
</tr>
<tr>
<td>Physical Science</td>
<td>3.0</td>
</tr>
<tr>
<td>Religion Cornerstone Course</td>
<td>2.0</td>
</tr>
<tr>
<td>TES 291R0.5</td>
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<tr>
<td>Total Hours</td>
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2nd Semester
<table>
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<tr>
<th>Course</th>
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<tr>
<td>CE EN 112 or CFM 105</td>
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<tr>
<td>MATH 110</td>
<td>3.0</td>
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<tr>
<td>TES 2293.0</td>
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<tr>
<td>American Heritage or First-Year Writing</td>
<td>3.0</td>
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<tr>
<td>Religion Cornerstone Course</td>
<td>2.0</td>
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<tr>
<td>Religion Elective</td>
<td>2.0</td>
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<tr>
<td>TES 291R0.5</td>
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<td>Total Hours</td>
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Sophomore Year
3rd Semester
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<tr>
<td>TES 1253.0</td>
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<tr>
<td>TES 2103.0</td>
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<tr>
<td>TES 2253.0</td>
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<tr>
<td>TES 340*3.0</td>
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<tr>
<td>TES 291R0.5</td>
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<tr>
<td>Religion Cornerstone Course</td>
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<tr>
<td>TES 1121.0</td>
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<tr>
<td>Total Hours</td>
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*Students on the Technical Track who have taken PHSCS 121 or 105 may substitute this class

4th Semester
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<tr>
<td>TES 2553.0</td>
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<tr>
<td>TES 3303.0</td>
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</tr>
<tr>
<td>TES 291R0.5</td>
<td></td>
</tr>
<tr>
<td>Biological Science</td>
<td>3.0</td>
</tr>
<tr>
<td>Religion Cornerstone Course</td>
<td>2.0</td>
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<tr>
<td>Languages of Learning*3.0</td>
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<tr>
<td>Total Hours</td>
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*STAT 121 is recommended

Junior Year
5th Semester
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<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Advance Written &amp; Oral Communication</td>
<td>3.0</td>
</tr>
<tr>
<td>Social Science &amp; Global Cultural Awareness*3.0</td>
<td></td>
</tr>
<tr>
<td>Civilization I</td>
<td>3.0</td>
</tr>
<tr>
<td>Religion Elective</td>
<td>2.0</td>
</tr>
<tr>
<td>TECH Elective</td>
<td>3.0</td>
</tr>
<tr>
<td>TES 291R0.5</td>
<td></td>
</tr>
<tr>
<td>Total Hours</td>
<td>14.5</td>
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</tbody>
</table>

*Students on an older contract may still see TECH 231 as their social studies requirement. TECH 231 will be retired. You can take ME EN 231 or CCE 231 to fulfill the social science, global cultural awareness, and TECH 231 requirement. Please see advisor for any questions.

6th Semester
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Civilization II &amp; Arts or Letters</td>
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</table>
Arts or Letters 3.0
Technical Elective 3.0
Technical Elective 3.0
TES 291R 0.5
Religion Elective 2.0
Total Hours 14.5
Spring/Summer
TES 399R 3.0
Total Hours
Senior Year
7th Semester
Religion Elective 2.0
TES Technical Elective 1.0
TES Technical Elective 3.0
TES Technical Elective 3.0
TES Technical Elective 3.0
TES Technical Elective 3.0
Total Hours 15.0
8th Semester
TES Technical Elective 3.0
TES Technical Elective 3.0
TES Technical Elective 3.0
TES Technical Elective 3.0
TES Technical Elective 3.0
TES Technical Elective 3.0
Total Hours 15.0

Note: Students are encouraged to complete an average of 15-16 credit hours each semester or 30-32 credit hours each year, which could include spring and/or summer terms. Taking fewer credits substantially increases the cost and the number of semesters to graduate. Technical Emphasis Electives: Complete 34 hours from one or more of the following areas: engineering (courses from engineering departments); technology (courses from the School of Technology); graphic design and multimedia (courses from Digital Humanities, Design, Communications); computer programming (courses from Computer Science department); non-core TES courses; or other courses with TES faculty approval. Up to 9 credits of tech electives may be fulfilled only if they are approved and are from other STEM colleges/departments from within BYU. Only up to 9 transfer credits outside of BYU may be applied if they are approved and come from a STEM discipline. For specific courses, please contact your TES Major advisor.

BS in Technology & Engineering Studies: Technical (396549) 2022-2023 Program Requirements (78 - 79 Credit Hours)
requirement 1 Complete 4 options
option 1.1 Complete 1 course
 CCE 112 - Engineering Drafting 3.0
CMF 105 - Fundamentals of Construction and Facilities Management 3.0
option 1.2 Complete 1 course
*MATH 110 - College Algebra 3.0
MATH 111 - Trigonometry 2.0
option 1.3 Complete 12 courses
Note: Fingerprinting and FBI clearance must be completed prior to enrolling in TES 276A,B.
TES 112 - Innovation Bootcamp 1.0
TES 125 - Communication Technologies and Systems 3.0
TES 200 - Processes and Prototyping with Wood 3.0
TES 210 - Coding for Technology and Engineering Educators 3.0
TES 225 - Electronics for Technology and Engineering Teachers 3.0
TES 229 - Processes and Manufacturing with Metals and Polymers 3.0
TES 255 - Visual Communication Design 3.0
TES 276A - Exploration of Teaching A 3.5
TES 276B - Exploration of Teaching B 0.5
TES 330 - Creative Engineering and Problem Solving II 3.0
TES 340 - Principles of Technology and Engineering 3.0
TES 399R - Academic Internship 3.0
option 1.4 Complete 1 course
*TECH 231 - Foundations of Global Leadership 3.0
requirement 2 Complete 6 courses
Complete six registrations of the following (except if enrolled in TES 476):
TES 291R - Undergraduate Seminar 0.5
You may take this course up to 6 times.
requirement 3
Technical Emphasis Electives: Complete 34 hours from one or more of the following areas: engineering (courses from engineering departments); technology (courses from technology programs); graphic design and multimedia (courses from Digital Humanities, Design, Communications); computer programming (courses from Computer Science department); business management, entrepreneurship, marketing (courses from Business Management department); non-core TES courses; or other courses with TES faculty approval. Additional hours of internship (TES 399R) may be taken beyond the required three (3) credits in Requirement 1, up to a maximum of 6 credits total (3 credits from Requirement 1 and up to 3 credits in Requirement 3).
Upon declaring the TES major, only up to 9 credits of previous course work may be applied if they are from other STEM colleges/departments on campus and up to 9 transfer credits from outside of BYU may be applied only if they come from a STEM discipline. All tech electives must follow an approval process. Please contact the TES major advisor for details.
requirement 4
Complete department packet and exit interview.
THE DISCIPLINE:
Students graduating from the technology and engineering studies program at Brigham Young University are prepared to engage in a breadth of technology and engineering-related careers, become creators and builders of technology, pursue additional education through graduate studies, and provide technical training in industrial settings.

Students in the program are required to take core courses in visual communications, production technologies, and the engineering design process. In addition, students will complete a series of depth courses designed to provide a conceptual understanding of engineering and technological systems, experiences in creativity and design, technological expertise, and pedagogy. Finally, students are provided with field-based experiences including internships for TES general majors and a semester-long supervised student teaching experience for those pursuing teaching licensure.

ACADEMIC QUALITY:
Facilities - The department offers some of the most advanced and innovative technology education laboratories in the nation. Facilities in drafting, metalwork, woodwork, and multi-media are also comparable with the best in the nation.
Special programs - The department hosts a variety of special activities during the year, including workshops in technology education for teachers and administrators in secondary schools, colleges, and universities.
Faculty expertise - The department has 3 faculty members with a wide range of interests and expertise. Because of the broad scope of the program, it incorporates course work from other disciplines and integrates the expertise of University faculty.

Graduating majors commonly comment that the faculty are friendly and have personal interest in them as students and offer excellent program advisement. The faculty are involved in writing for professional journals and in making presentations at regional and national conventions.
FINANCING:
Scholarships are available. Also a number of upperdivision students are hired as laboratory assistants and teaching assistants.
CAREER OPPORTUNITIES:
The dramatic pace of technological innovation makes this a vital major. The current need for STEM professionals is excellent both in industry and in
teaching. The degree provides a strong foundation for numerous technical and teaching-related careers, including corporate, grades 6-12, and higher education.

Career Options for TES Graduates

- Industry/Technical Training
- Graduate Studies including law school, business school, and medical school
- Business & entrepreneurship with a technical/engineering emphasis.
- Various Technical Industries

MAP DISCLAIMER
While every reasonable effort is made to ensure accuracy, there are some student populations that could have exceptions to listed requirements. Please refer to the university catalog and your college advisement center/department for complete guidelines.

DEPARTMENT INFORMATION
BS in Technology & Engineering Studies: Technical (396549)2022-2023
Technology and Engineering Studies
250 Snell Building
Brigham Young University Provo, UT 84602
Telephone: 801-422-2021

ADVISEMENT CENTER INFORMATION
Samuel Cardenas, Academic Advisor
265 CTB Building
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Telephone: 801-422-1818
sot_advisement@byu.edu