BS in Technology & Engineering Studies: Technical (396549) MAP Sheet

Engineering, School of Technology

For students entering the degree program during the 2020-2021 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 manufacture, information technology, and related fields.

### University Core and Graduation Requirements

<table>
<thead>
<tr>
<th>Requirements</th>
<th>#Classes</th>
<th>Hours</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Religion Cornerstones</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachings and Doctrine of The Book of Mormon</td>
<td>1</td>
<td>2.0</td>
<td>REL A 275</td>
</tr>
<tr>
<td>Jesus Christ and the Everlasting Gospel</td>
<td>1</td>
<td>2.0</td>
<td>REL A 250</td>
</tr>
<tr>
<td>Foundations of the Restoration</td>
<td></td>
<td>2.0</td>
<td>REL C 225</td>
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<tr>
<td>The Eternal Family</td>
<td></td>
<td>2.0</td>
<td>REL C 200</td>
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<tr>
<td>The Individual and Society</td>
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</tr>
<tr>
<td>American Heritage</td>
<td>1-2</td>
<td>3-6.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Global and Cultural Awareness</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Skills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Year Writing</td>
<td></td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Advanced Written and Oral Communications</td>
<td></td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Quantitative Reasoning</td>
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<td>3.0</td>
<td>MATH 110*</td>
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<tr>
<td>Languages of Learning (Math or Language)</td>
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<td>3-4.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Arts, Letters, and Sciences</td>
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</tr>
<tr>
<td>Civilization 1</td>
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<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Civilization 2</td>
<td></td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Arts</td>
<td></td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Letters</td>
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<td>3.0</td>
<td>from approved list</td>
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<tr>
<td>Biological Science</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Physical Science</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
</tr>
<tr>
<td>Social Science</td>
<td>1</td>
<td>3.0</td>
<td>from approved list</td>
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<tr>
<td>Core Enrichment: Electives</td>
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<td>3-4</td>
<td>6.0 from approved list</td>
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<tr>
<td>Religion Electives</td>
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</tr>
<tr>
<td>Arts Electives</td>
<td></td>
<td>Variable</td>
<td>2 personal choice</td>
</tr>
</tbody>
</table>

FOR UNIVERSITY CORE QUESTIONS CONTACT THE COLLEGE ADVISEMENT CENTER IN 242 CB
FOR PROGRAM QUESTIONS SEE YOUR ADVISOR IN 230 SNLB

*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (8–9 hours overlap)

### Graduation Requirements:

- Minimum residence hours required: 30.0
- Minimum hours needed to graduate: 120.0

### Suggested Sequence of Courses

#### FRESHMAN YEAR

<table>
<thead>
<tr>
<th>Semester</th>
<th>Classes</th>
<th>Hours</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>TES 276 A</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TES 276 B</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TES 200</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>American Heritage or First-Year Writing</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Physical Science</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Religion Cornerstone Course</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TES 291R</td>
<td>0.5</td>
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</tr>
<tr>
<td>Total Hours</td>
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<td>15.5</td>
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#### SOPHOMORE YEAR

<table>
<thead>
<tr>
<th>Semester</th>
<th>Classes</th>
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</thead>
<tbody>
<tr>
<td>2nd</td>
<td>TES 125</td>
<td>3.0</td>
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<tr>
<td></td>
<td>CS 142</td>
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<td></td>
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<tr>
<td></td>
<td>TES 225</td>
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<tr>
<td></td>
<td>TES 340</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TES 291R</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Religion Cornerstone Course</td>
<td>2.0</td>
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</tr>
<tr>
<td></td>
<td>TECH 112</td>
<td>1.0</td>
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<tr>
<td>Total Hours</td>
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#### JUNIOR YEAR

<table>
<thead>
<tr>
<th>Semester</th>
<th>Classes</th>
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<th>Categories</th>
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</thead>
<tbody>
<tr>
<td>3rd</td>
<td>TES 255</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TES 330</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TES 291R</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Biological Science</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Religion Cornerstone Course</td>
<td>2.0</td>
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</tr>
<tr>
<td></td>
<td>Languages of Learning</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>Total Hours</td>
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<td>14.5</td>
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</table>

#### SENIOR YEAR

<table>
<thead>
<tr>
<th>Semester</th>
<th>Classes</th>
<th>Hours</th>
<th>Categories</th>
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</thead>
<tbody>
<tr>
<td>4th</td>
<td>TES 291R</td>
<td>0.5</td>
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<td></td>
<td>REL C 225</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>TES Technical Elective</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TES Technical Elective</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TES Technical Elective</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>Total Hours</td>
<td></td>
<td>15.0</td>
<td></td>
</tr>
</tbody>
</table>

#### Suggested Sequence of Courses

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.
## BS in Technology & Engineering Studies: Technical (396549)  
2020-2021 Program Requirements (74.5 - 78 Credit Hours)

**REQUIREMENT 1** Complete 4 options

<table>
<thead>
<tr>
<th>OPTION 1.1</th>
<th>Complete 1 course</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE EN 112 - Engineering Drafting with CAD Applications</td>
<td>3.0</td>
</tr>
<tr>
<td>CFM 105 - Introduction to Construction and Facilities Management</td>
<td>3.0</td>
</tr>
</tbody>
</table>

**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.*

| C S 142 - Introduction to Computer Programming | 3.0 |
| TECH 112 - Exploration in Innovation Design Techniques | 1.0 |
| TES 125 - Communication Technologies and Systems | 3.0 |
| TES 200 - Processes and Prototyping with Wood | 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 - Creativity, Engineering, and Problem Solving | 3.0 |
| TES 340 - Principles of Technology and Engineering | 3.0 |
| TES 399R - Academic Internship | 3.0v |

**OPTION 1.4** Complete 1 course

| ENGT 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 the School of Technology); 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). For specific courses, please visit www.et.byu.edu/tte or contact the School of Technology advisement center in 250 SNLB.

**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 laboratories are also comparable with the best in the nation. Facilities in drafting, metalwork, woodwork, and multi-media laboratories are also comparable with the best in the nation. Facilities in drafting, metalwork, woodwork, and multi-media laboratories 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.

Gradiing 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

Technology and Engineering Studies, School of Technology  
230 Snell Building  
Brigham Young University Provo, UT 84602  
Telephone: 801-422-2021
ADVISEMENT CENTER INFORMATION

Samuel Cardenas, Academic Advisor, School of Technology
230 Snell Building
Brigham Young University Provo, UT 84602
Telephone: 801-422-2021
sot_advisement@byu.edu