Technology, Engineering and Design Education (BS): Graphic Communication Concentration

The degree of Bachelor of Science in Technology, Engineering, and Design Education is offered by the Department of STEM Education in the College of Education. With an emphasis on innovation and active learning, this program prepares individuals for a variety of engineering and design employment opportunities, including a teacher licensure option and a non-licensure graphics communications option.

Graphics Communications

Through the study of technical graphics language and design processes, students learn how to think in the language of graphics to effectively communicate ideas and solve technical problems. They actively visualize, design, model, simulate, analyze, and document solutions in technical graphics studies courses and explore the role graphics play in all areas of engineering.

The goals and objectives of the BS degree in Technology, Engineering, and Design Education: Graphic Communications Option are:

- Develop technical skills and an understanding of the technical graphics language
- Develop the ability to apply knowledge, skill and creativity in solving technical problems
- Understand and appreciate the historical evolution of graphic communications
- Understand and assess the impact of current technical graphics developments and trends
- Demonstrate an ability to teach others about graphic communications

For more information about this program, visit our website (https://ced.ncsu.edu/stem-ed/).

Department of Science, Technology, Engineering and Mathematics Education (STEM)
North Carolina State University
510 Poe Hall, 2310 Stinson Drive
Raleigh, NC 27695

Contact

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STEM Education
510F Poe Hall
919.513.0221
mmfranzen@ncsu.edu

Plan Requirements

<table>
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<tr>
<th>Code</th>
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<th>Hours</th>
<th>Counts towards</th>
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<td>PSY 376</td>
<td>Developmental Psychology</td>
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<td>STS 302</td>
<td>Contemporary Science, Technology and Human Values</td>
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<td>Mathematical and Natural Sciences</td>
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<td>MA 131</td>
<td>Calculus for Life and Management Sciences A</td>
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<td>MA 141</td>
<td>Calculus I</td>
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<td>CH 100</td>
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<td>CH 101 &amp; CH 102</td>
<td>Chemistry - A Molecular Science and General Chemistry Laboratory</td>
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<td>PY 131</td>
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<td>PY 211</td>
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<td>BIO 105</td>
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Professional Education
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**Management Electives**

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<td>Concepts of Financial Reporting</td>
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<td>ACC 220</td>
<td>Introduction to Managerial Accounting</td>
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<td>ACC 280</td>
<td>Survey of Financial and Managerial Accounting</td>
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<td>AFS 305</td>
<td>Racial and Ethnic Relations</td>
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<td>ANT 261</td>
<td>Technology in Society and Culture</td>
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<tr>
<td>ARE 201</td>
<td>Introduction to Agricultural &amp; Resource Economics</td>
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1. A grade of C- or higher is required.
2. A grade of C or higher is required.
3. Students should consult their academic advisors to determine which courses fill this requirement.
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<td>ARE 301</td>
<td>Intermediate Microeconomics</td>
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<td>ARE 309</td>
<td>Environmental Law &amp; Economic Policy</td>
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<td>Introduction to Resource and Environmental Economics</td>
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<td>Marketing Methods</td>
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<td>BUS 370</td>
<td>Operations and Supply Chain Management</td>
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<td>EC 201</td>
<td>Principles of Microeconomics</td>
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<td>Principles of Macroeconomics</td>
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<td>Fundamentals of Economics</td>
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<td>EC 305</td>
<td>A Closer Look at Capitalism</td>
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<td>Introduction to Resource and Environmental Economics</td>
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<td>EC 348</td>
<td>Introduction to International Economics</td>
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<td>EC 351</td>
<td>Econometrics I</td>
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<td>Money, Financial Markets, and the Economy</td>
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<td>State and Local Government</td>
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<td>PS 236</td>
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### Technology, Engineering and Design Education (BS): Graphic Communication Concentration

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<td>PS 303</td>
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<td>PS 309</td>
<td>Equality and Justice in United States Law</td>
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<td>PS 310</td>
<td>Public Policy</td>
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<td>Introduction to Public Administration</td>
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<td>Science, Technology and Public Policy</td>
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<td>U.S. Environmental Law and Politics</td>
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<td>International Law</td>
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<td>Global Environmental Politics</td>
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<td>Gender Law and Policies</td>
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<td>Introduction to Psychology</td>
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<td>PSY 411</td>
<td>The Psychology of Interdependence and Race</td>
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<td>SOC 205</td>
<td>Jobs and Work</td>
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### GC Technical Electives

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<td>GC 330</td>
<td>Basic Technical Animation</td>
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<td>GC 340</td>
<td>Concepts of Website Development</td>
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<tr>
<td>GC 350</td>
<td>Applied CAD/D and Geometric Controls</td>
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<td>GC 420</td>
<td>Visual Thinking</td>
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<td>GC 450</td>
<td>Advanced Graphics Usage with CAD</td>
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<td>TDE 230</td>
<td>Scientific and Technical Visualization</td>
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<td>TDE 261</td>
<td>Digital Media Education</td>
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<td>TDE 351</td>
<td>Ceramics: The Art and Craft of Clay</td>
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<td>TDE 359</td>
<td>Electronics Technology</td>
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<td>TDE 371</td>
<td>Emerging Issues in Technology</td>
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<td>TDE 385</td>
<td>Robotics Education</td>
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### Semester Sequence

This is a sample.

#### First Year

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<td>GEP Health and Exercise Studies</td>
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#### Spring Semester

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**Notes:**

1. Intro to Education
2. Foundations of Graphics
3. Materials & Processes Technology
4. Calculus (p. 1)
Chemistry (p. 1) 4
TDE 205 Desktop Publishing and Imaging Technology 1 2 3
GC Technical Elective (p. 4) 3 3

| Hours | 16 |

Second Year

**Fall Semester**
Management Elective (p. 2) 3
GC 250 Architectural Graphic Communications 1 3
TDE 131 Technology through Engineering and Design 1 2 3
Physics (p. 1) 4
EDP 304 Educational Psychology 1 3

| Hours | 16 |

**Spring Semester**
GC Technical Elective (p. 4) 3 3
BIO 105 Biology in the Modern World 3
GEP Humanities (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-humanities/) 3
ISE 216 Product Development and Rapid Prototyping 1 3
GEP US Diversity, Equity, and Inclusion (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-usdei/) 3

| Hours | 15 |

Third Year

**Fall Semester**
Management Elective (p. 2) 3
ELP 344 School and Society 1 3
GC Technical Elective (p. 4) 3 3
GEP Social Sciences (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-social-sciences/) 3
GC Technical Elective (p. 4) 3 3

| Hours | 15 |

**Spring Semester**
PSY 376 Developmental Psychology 3
Management Elective (p. 2) 3
TDE 331 Technology Through Engineering and Design II 1 3
GC Technical Elective (p. 4) 3 3
STS 302 Contemporary Science, Technology and Human Values 3
GEP Health and Exercise Studies (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-health-exercise-studies/) 1

| Hours | 16 |

Fourth Year

**Fall Semester**
GEP Interdisciplinary Perspectives (http://catalog.ncsu.edu/undergraduate/gep-category-requirements/gep-interdisciplinary-perspectives/) 2-3
GC Technical Elective (p. 4) 3 3
TDE 481 Research & Development in Technology Education 1 3
Management Elective (p. 2) 3

| Hours | 16 |

A grade of C or higher is required.

Critical Path (CP): This course is required in the first year of TDE and part of the critical path.

A C- or better is required for courses in this category.

Only one course in this category may be passed with a D. The other course must be at least a C-.