# Technology & Engineering Majors at UWB

Side-by-side comparisons of different majors that have similar courses, qualities, or career options. Majors are not listed in any particular order.

## COMPUTER SCIENCE & SOFTWARE ENGINEERING

**What is it?**
The CSSE degree program offers a multidisciplinary approach that will enable students to develop a wide range of competencies needed for success in the dynamic and varied field of software applications. These include analysis and problem solving techniques; communication and business management skills; in-depth understanding of the software design and development process; and a solid technical foundation to allow students to continue to learn new and complex techniques.

**What will I study?**
CSS courses offer a broad range of topics from the theory of computer science the application of both leading edge and mature technologies. Students gain essential knowledge in object oriented programming, data structures, analysis of algorithms, software engineering, management principles, hardware architecture and operating systems.

**What are the prerequisites?**
- Calculus I
- Calculus II
- Computer Programming I
- Computer Programming II
- Composition
- Research Writing

**Where can I learn more?**
[uwb.edu/bscsse](http://uwb.edu/bscsse)

## COMPUTER ENGINEERING

**What is it?**
The Bachelor of Science in Computer Engineering (CE) combines education in hardware and software development, with students gaining the background necessary to become broadly-educated professionals who are knowledgeable in both domains, understanding how the domains interact, restrict, or enable interdependent capabilities.

**What will I study?**
Core coursework encompasses the physical and mathematical sciences, object-oriented programming, algorithms, data structures, software engineering, technical communications, circuits and systems, microprocessors, embedded systems, and operating systems.

**What are the prerequisites?**
- Calculus I
- Calculus II
- Calculus III
- Computing Programming I
- Computer Programming II
- Mechanics
- Electromagnetism & Oscillating Motion
- Composition

**Where can I learn more?**
[uwb.edu/bscompe](http://uwb.edu/bscompe)

## APPLIED COMPUTING

**What is it?**
The Bachelor of Arts in Applied Computing is a multidisciplinary degree that allows students to become experts in integrating computer technology across their minor elective field.

**What will I study?**
In their CSS coursework, students concentrate on programming, software engineering, management, communications, and hardware and operating systems from an application perspective. These core classes create a solid foundation of knowledge in computer hardware, programming, and software development.

**What are the prerequisites?**
- Calculus I
- Computer Programming I
- Computer Programming II
- Mechanics
- Research Writing

**Where can I learn more?**
[uwb.edu/appliedcomputing](http://uwb.edu/appliedcomputing)
## Technology & Engineering Majors at UWB

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<table>
<thead>
<tr>
<th>Major</th>
<th>What is it?</th>
<th>What will I study?</th>
<th>What are the prerequisites?</th>
<th>Where can I learn more?</th>
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| **ELECTRICAL ENGINEERING**            | The Bachelor of Science in Electrical Engineering provides students with a strong foundation for pursuing careers or graduate studies in Electrical Engineering. Students in the program master the fundamentals and applications of electricity, electronics, and electromagnetism. | A multidisciplinary learning environment provides experience in teamwork, design, ethics, entrepreneurship, and civic responsibility, with a focus on understanding the impact of engineering solutions in a global, economic, environmental, and societal context. | Calculus I  
Calculus II  
Calculus III  
Mechanics  
Electromagnetism & Oscillating Motion  
General Chemistry I  
Composition | uwb.edu/ee                                                                      |
| **MECHANICAL ENGINEERING**            | As an ABET accredited engineering program, the Bachelor of Science in Mechanical Engineering curriculum emphasizes hands-on experience, collaborative problem solving, and societal implications in the design, production, and implementation of mechanical and thermal fluid systems. | It also complements the existing Bachelor of Science in Electrical Engineering major by providing additional learning and research opportunities in biomedical engineering and in power engineering, where electrical and mechanical technologies interweave. | Calculus I  
Calculus II  
Calculus III  
Multivariable Calculus  
Differential Equations  
Mechanics  
Electromagnetism & Oscillating Motion  
General Chemistry I  
Composition  
Statics  
Mechanics of Materials  
Dynamics | uwb.edu/mechanical                                                             |
| **MATHEMATICS**                       | The Bachelor of Science in Mathematics provides students with a strong applied and theoretical foundation in mathematics that enables them to pursue either industry employment or graduate studies. | Students in the program gain experience using a variety of modeling techniques in combination with technology to solve real-world problems as well as develop a deep understanding of the generalizations and rigor that mathematics has to offer. | Calculus I  
Calculus II  
Calculus III | uwb.edu/math                                                                 |

ELECTRICAL ENGINEERING

**What is it?**
The Bachelor of Science in Electrical Engineering provides students with a strong foundation for pursuing careers or graduate studies in Electrical Engineering. Students in the program master the fundamentals and applications of electricity, electronics, and electromagnetism.

**What will I study?**
A multidisciplinary learning environment provides experience in teamwork, design, ethics, entrepreneurship, and civic responsibility, with a focus on understanding the impact of engineering solutions in a global, economic, environmental, and societal context.

**What are the prerequisites?**
- Calculus I
- Calculus II
- Calculus III
- Mechanics
- Electromagnetism & Oscillating Motion
- General Chemistry I
- Composition

**Where can I learn more?**
uwb.edu/ee

MECHANICAL ENGINEERING

**What is it?**
As an ABET accredited engineering program, the Bachelor of Science in Mechanical Engineering curriculum emphasizes hands-on experience, collaborative problem solving, and societal implications in the design, production, and implementation of mechanical and thermal fluid systems.

**What will I study?**
It also complements the existing Bachelor of Science in Electrical Engineering major by providing additional learning and research opportunities in biomedical engineering and in power engineering, where electrical and mechanical technologies interweave.

**What are the prerequisites?**
- Calculus I
- Calculus II
- Calculus III
- Multivariable Calculus
- Differential Equations
- Mechanics
- Electromagnetism & Oscillating Motion
- General Chemistry I
- Composition
- Statics
- Mechanics of Materials
- Dynamics

**Where can I learn more?**
uwb.edu/mechanical

MATHEMATICS

**What is it?**
The Bachelor of Science in Mathematics provides students with a strong applied and theoretical foundation in mathematics that enables them to pursue either industry employment or graduate studies.

**What will I study?**
Students in the program gain experience using a variety of modeling techniques in combination with technology to solve real-world problems as well as develop a deep understanding of the generalizations and rigor that mathematics has to offer.

**What are the prerequisites?**
- Calculus I
- Calculus II
- Calculus III

**Where can I learn more?**
uwb.edu/math
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<th>PHYSICS</th>
<th>SCIENCE, TECHNOLOGY &amp; SOCIETY</th>
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<td><strong>What is it?</strong></td>
<td>IHow have the fields of science and technology evolved over time, and what does the future hold? How should societies manage those fields to achieve just and sustainable communities? The Science, Technology &amp; Society (STS) major prepares students to address these important questions through an integrated approach to science, technology, and their relationships to culture, history, and society.</td>
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<tr>
<td>A major in physics gives students the opportunity to master fundamental laws and model-building techniques, awakens them to the power of the universe, and supports knowledge in mathematics, engineering, and other fields.</td>
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<td><strong>What will I study?</strong></td>
<td>STS students work with faculty members trained in disciplines ranging from biology and mathematics to political economy and philosophy</td>
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<tr>
<td>Physics students develop high-demand skills, such as numeracy, problem solving, data analysis, and the communication of complex ideas, that are valued in industry and all types of organizations.</td>
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<td>Research Writing</td>
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<td>Calculus III</td>
<td>10 credits in each Area Of Knowledge</td>
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<td>Mechanics</td>
<td>Quantitative &amp; Symbolic Reasoning course</td>
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<td>Electromagnetism &amp; Oscillating Motion Waves</td>
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