

# University of the Incarnate Word<sup>®</sup> Bachelor of Science in **Engineering** **Mechatronics Concentration**

School of Mathematics, Science and Engineering

## PROGRAM OVERVIEW

The Bachelor of Science (B.S.) in Engineering in the School of Mathematics, Science and Engineering at the University of the Incarnate Word develops highly skilled, highly educated engineering professionals ready to succeed in the lab, in the field or in the C-suite.

The B.S. in Engineering combines a strong core of math, science and engineering courses with intensive study in one of four concentrations. Students can choose from electrical, mechanical, management and mechatronics concentrations based on their career or academic goals.

The Mechatronics concentration is a multidisciplinary program that combines elements of the Electrical concentration and Mechanical concentration. Mechatronics students can further tailor their study by selecting two courses from the Electrical concentration and two from the Mechanical concentration with the approval of their advisor.

Engineering students also have the opportunity to work with faculty on ongoing research projects — among them, Unmanned Aircraft Systems (UAS) as part of the department's Autonomous Vehicle Systems (AVS) Lab.

The Capstone course challenges students to apply their engineering education and apply it as a solution or innovation to a contemporary issue.

## ADMISSION REQUIREMENTS

The requirements for admission to the B.S. in Engineering program are the same as the requirements for admission to the University of the Incarnate Word.

## CONTACT

**UIW Admissions**  
(210) 829-6005  
admission@uiwtx.edu

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**Engineering - Mechatronics (B.S.)**

**B.S. in Engineering - Mechatronics****FRESHMAN YEAR****Fall**

CHEM 1301: Chemical Principles I (3 hours)  
 CHEM 1101: Chemical Principles I Lab (1 hour)  
 MATH 2312: Calculus I (3 hours)  
 ENGL 1311: Composition I (3 hours)  
 ENGR 1201: Intro to Engineering (2 hours)  
 FYES 1211: First Year Experience Seminar (2 hours)

**Total Hours: 14****Spring**

MATH 2313: Calculus II (3 hours)  
 ENGR 2330: Engineering Prob. & Statistics (3 hours)  
 ENGR 1301: Engineering Graphics CAD I (3 hours)  
 ENGL 1312: Composition II (3 hours)  
 PEHP Physical Education (1 hour)  
 ECON 2301: Macroeconomics (3 hours)

**Total Hours: 16****SOPHOMORE YEAR****Fall**

MATH 2322: Linear Algebra (3 hours)  
 ENGL 2310: World Literature Studies (3 hours)  
 ENGR 2305: Engineering Physics I (3 hours)  
 ENGR 2105: Engineering Physics I Lab (1 hour)  
 ENGR 2340: Computer Programming (3 hours)  
 Modern Language I (3 hours)

**Total Hours: 16****Spring**

ENGR 3350: Statics (3 hours)  
 ENGR 2106: Engineering Physics II Lab (1 hour)  
 ENGR 2306: Engineering Physics II (3 hours)  
 PHIL 1381: Intro to Philosophy (3 hours)  
 MATH 2314: Differential Equations (3 hours)  
 Modern Language II (3 hours)

**Total Hours: 16****JUNIOR YEAR****Fall**

ENGR 3330: Engineering Analysis (3 hours)  
 ENGR 3373: Dynamics (3 hours)  
 ENGR 3340: Numerical Methods and Advanced  
 Programming (3 hours)  
 ENGR 2463: Digital Logic (4 hours)  
 ENGR 3355: Mechanics of Materials (3 hours)  
 ENGR 3155: Mechanics of Materials Lab (1 hour)

**Total Hours: 17****Spring**

Fine Arts (3 hours)  
 ENGR 4353: Mechanical Vibrations (3 hours)  
 ENGR 4310: Design of Mechanisms (3 hours)  
 RELS 1305, 1315, 1325, or 1327H (3 hours)  
 ENGR 2360: Circuit Analysis (3 hours)  
 ENGR 2160: Circuit Analysis Lab (1 hour)

**Total Hours: 16****SENIOR YEAR****Fall**

MATH 3314: Calculus III (3 hours)  
 Upper Level RELS or PHIL (3 hours)  
 Upper-Level Technical Elective (3 hours)  
 ENGR 3364: Signals and Systems (3 hours)  
 ENGR 3362: Electronics (3 hours)  
 ENGR 3162: Electronics Lab (1 hour)  
 ENGR 4180: Senior Design 1 (1 hour)

**Total Hours: 17****Spring**

HIST 1311, 1312, 1321, 1322 (3 hours)  
 ENGR 4366: Digital Signal Processing (3 hours)  
 ENGR 4368: Intro to Control Systems (3 hours)  
 ENGR 4380: Senior Design 2 (3 hours)  
 ENGR 4321: Microcontrollers and Embedded Systems  
 (3 hours)  
 Upper-Level Technical Elective (3 hours)

**Total Hours: 18**

130 hours needed to complete the B.S. in Engineering with a Mechatronics concentration.