

# DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

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## ABOUT THE DEPARTMENT AND MAJORS

The UW-Platteville Department of Electrical and Computer Engineering offers two Bachelor of Science degrees: Electrical Engineering and Computer Engineering. The Electrical Engineering degree requirements include completion of at least one of these emphases: controls, computer engineering, power and energy, or communications and electronics. The Computer Engineering degree requirements provide a background in computer science, computer engineering, and electrical engineering.

### MAJORS

- Computer Engineering (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/electrical-engineering/computer-engineering-bs/>)
- Electrical Engineering (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/electrical-engineering/electrical-engineering-bs/>)
  - Communications and Electronics Emphasis
  - Computer Engineering Emphasis
  - Controls Emphasis
  - Power and Energy Emphasis

## COMPUTER ENGINEERING

<https://www.uwplatt.edu/department/electrical-computer-engineering> (<https://www.uwplatt.edu/department/electrical-computer-engineering/>)

University of Wisconsin Platteville's B.S. program in Computer Engineering started in Fall 2022.

The program has outstanding laboratory and computer facilities where all students gain hands-on practical experience. Students are encouraged to participate in undergraduate research projects supervised by faculty and sponsored by outside agencies. Students graduate with a broad background in computer engineering, and are ready to take their place in industry.

## COMPUTER ENGINEERING DEGREE PROGRAM VISION, OBJECTIVES AND OUTCOMES

### VISION

The vision of the UW-Platteville Computer Engineering program is to provide a quality computer engineering education with extensive hands-on and laboratory experience that will enable our graduates to practice their profession with proficiency and integrity.

### PROGRAM EDUCATIONAL OBJECTIVES

Within five years of graduation, our graduates are expected to

- (1) advance in their profession to positions of increased responsibility, and be technically competent and productive members of their profession
- (2) be recognized as leaders in their profession and wisely adopt new technologies to drive innovation and enhance professional effectiveness
- (3) be strong collaborators on multidisciplinary project teams in industry, effectively engaging with other engineers, management, and clients.

### STUDENT OUTCOMES

By graduation, students in our program are expected to attain the following student outcomes:

- (1) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- (2) an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
- (3) an ability to communicate effectively with a range of audiences
- (4) an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- (5) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives

(6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

(7) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

## ELECTRICAL ENGINEERING

<https://www.uwplatt.edu/departement/electrical-computer-engineering> (<https://www.uwplatt.edu/departement/electrical-computer-engineering/>)

University of Wisconsin Platteville's B.S. program in Electrical Engineering is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org> (<https://www.abet.org/>), under the commission's General Criteria and the Program Criteria for Electrical, Computer, Communications, Telecommunication(s) and Similarly Named Engineering Programs.

The program has outstanding laboratory and computer facilities where all students gain hands-on practical experience. Students are encouraged to participate in undergraduate research projects supervised by faculty and sponsored by outside agencies. Students graduate with a broad background in electrical engineering, and are ready to take their place in industry.

Electrical engineers design, plan and supervise the construction and maintenance of electrical and electronic equipment, computers or control systems. The variety of an electrical engineer's work can range from the smallest integrated circuit to power systems that cover entire states. Virtually every device that is either plugged in or runs on batteries has had an electrical engineer involved in its design or construction somewhere in its development.

## ELECTRICAL ENGINEERING DEGREE PROGRAM VISION, OBJECTIVES AND OUTCOMES

### VISION

The vision of the UW-Platteville Electrical Engineering program is to provide a quality electrical engineering education with extensive hands-on and laboratory experience that will enable our graduates to practice their profession with proficiency and integrity.

### PROGRAM EDUCATIONAL OBJECTIVES

Within five years of graduation, our graduates are expected to

- (1) advance in their profession to positions of increased responsibility, and be technically competent and productive members of their profession
- (2) be recognized as leaders in their profession and wisely adopt new technologies to drive innovation and enhance professional effectiveness
- (3) be strong collaborators on multidisciplinary project teams in industry, effectively engaging with other engineers, management, and clients.

### STUDENT OUTCOMES

By graduation, students in our program are expected to attain the following student outcomes:

- (1) an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
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- (3) an ability to communicate effectively with a range of audiences
- (4) an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
- (5) an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- (6) an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- (7) an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

## ACADEMIC STANDARDS

All required electrical engineering courses must be completed with a grade of "C-" or better.

Course	Title	Credits
ELECTENG 1020	Electrical Engineering Projects and Tools	1
ELECTENG 1210	Circuit Modeling I	3
ELECTENG 2210	Circuit Modeling II	4
COMPENG 2780	Logic and Digital Design	4
ELECTENG 3220	Signals and Systems	4
ELECTENG 3020	Analog Electronics	4

ELECTENG 3140	Electric and Magnetic Fields	3
ELECTENG 3210	Engineering Computation	3
INDSTENG 3730	Engineering Management	3
ELECTENG 4930	Senior Design	3

Students must receive a “C-” or better in these courses when used as prerequisites for electrical engineering courses:

Course	Title	Credits
MATH 2640	Calculus and Analytic Geometry I	4
MATH 2740	Calculus and Analytic Geometry II	4
MATH 2840	Calculus and Analytic Geometry III	4
MATH 3630	Differential Equations I	3
PHYSICS 2340	General Physics II	4

Students may get a “D” in the following as a graduation requirement. BUT, if used as a prerequisite or corequisite of an electrical engineering course, must be completed with a C- or better.

Course	Title	Credits
ELECTENG 3130	Solid State Electronic Devices	4
ELECTENG 3320	Automatic Controls	4
ELECTENG 3410	Introduction to Electrical Machines and Power Systems	4
COMPENG 3780	Computer Architecture	4
PHYSICS 3140	Modern Physics	4
COMPUTER 1430	Introduction to Computer Programming	3

A “D” is allowed in any other 4000-level course in electrical engineering.

Students must also have an average G.P.A. of 2.00 or higher in electrical engineering courses.

## GENERAL REQUIREMENTS BACHELOR OF SCIENCE DEGREE

Course	Title	Credits
Total for graduation		120
Major studies		95

## MAJORS

- Computer Engineering Major, B.S. (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/electrical-engineering/computer-engineering-bs/>)
- Electrical Engineering Major, B.S. (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/electrical-engineering/electrical-engineering-bs/>)
  - Communications and Electronics Emphasis
  - Computer Engineering Emphasis
  - Controls Emphasis
  - Power and Energy Emphasis

## CERTIFICATE

- Interdisciplinary Engineering Design Certificate (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/mechanical-industrial-engineering/interdisciplinary-engineering-design-certificate/>)

## FOUR-YEAR PLANS

- Computer Engineering Major, B.S. Four-Year Plan (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/electrical-engineering/computer-engineering-bs/computer-engineering-four-year-plan/>)

- Electrical Engineering Major, B.S., Four-Year Plan (<https://catalog.uwplatt.edu/undergraduate/engineering-mathematics-science/electrical-engineering/electrical-engineering-four-year-plan/>)

## FACULTY AND LECTURERS

Additional information about the Faculty and Lecturers below may be found in the Faculty and Academic Staff (<https://catalog.uwplatt.edu/faculty-academic-staff/>) section of this catalog.

Boril, Hynek

Dehnavi, Gholamreza

Goomey, John R.

Habibi, Cyrus

Ma, Xiaoguang

Roopaei, Mehdi

Safari-Shad, Nader

Stanojev, Igor

Yang, Fang