BS in Computer Engineering (BSCpE), 2020-2021 Catalog

Pre-Professional Courses

UNIV 1131 (freshman students only)
OR
ENGR 1101 (transfer students)

CSE 1310 Intro to Programming
(pre-requisite: MATH 1302)

CSE 1205 Intro to CSE

CSE 1320 Intermediate Programming
(co-requisite: Math 1401)

CSE 1325 Object Oriented Programming

CSE 2012 Computer Organization

CSE 2441 Digital Logic

CSE 3318 Algorithms & Data Structures

CSE 3215 Discrete Structures

CSE 3380 Linear Algebra

CSE 3442 Embedded I

CSE 3313 Signal Processing

CSE 3320 Operating Systems

CSE 4342 Embedded II

ENGR 1250 or ENGR 1251 and ENGR 0251

CSE 2440 Circuit Analysis

MATH 1426 Calculus I

PHYS 1443 Technical Physics I

MATH 1425 Calculus II

PHYS 1444 Technical Physics II

ENGL 1301

CSE 2315

CSE 2312

CSE 2315 Discrete Structures

CSE 2312 Computer Organization

CSE 2441 Digital Logic

CSE 3318 Algorithms & Data Structures

4000 Level Courses

CSE 3442 Embedded I

CSE 3313 Signal Processing

CSE 3320 Operating Systems

CSE 4342 Embedded II

CSE 4323 Quan. Computer Arch.

CSE 3314 Professional Practices
(pre-requisites: COMS 2302 and CSE 3318)

CSE 3323 Electronics

COMS 2302 Professional and Tech.
Communication (pre-requisite ENGL1301)

ENGR 1230

IE 3301 Engineering Probability and Stats

POLS 2311

POLS 2312

Creative Arts elective

Social/Behavioral (IE 2308 or ECON 2305)

6 hours of HIST electives

General Education

• Language/Philosophy/Culture elective
• POLS 2311
• POLS 2312
• Creative Arts elective
• Social/Behavioral (IE 2308 or ECON 2305)
• 6 hours of HIST electives

Math and Science Electives

• 3 hour Math elective
• 4 hour Science elective

See list of approved courses on second page.

Foreign Language

If required, two semesters of the same language.

The Senior Design courses must be taken in consecutive semesters: (Fall and Spring), (Spring and Summer), or (Summer and Fall). Spring and Fall is NOT an option.
Mathematics Electives
- **MATH 2326** - Calculus III (Fall, Spring, & Summer) pre-req: MATH 2425
- **CSE 4345** - Computational Methods (Fall & Spring) pre-req: CSE 3318, IE 3301 or MATH 3313, and CSE 3380 or MATH 3330
- **CSE 3315** - Theoretical Concepts in CSE (Fall & Spring) pre-req: CSE 2315

Science Electives
- **BIOL 1441** – Biology I for Science Majors (Fall, Spring, & Summer) pre-req: None
- **CHEM 1441** – General Chemistry (Fall, Spring, & Summer) pre-req: MATH 1302
- **CHEM 1465** – Chemistry for Engineers (Fall, Spring, & Summer) co-req: MATH 1421
- **PHYS 3313 & PHYS 3183** – Intro to Modern Physics (Fall & Spring) pre-req: MATH 2425 and PHYS 1444

Technical Electives
You need to complete three tech electives for your degree plan, but you are only allowed to take ONE of the following: CSE 4308, CSE 4309, CSE 4310, CSE 4340, CSE 4360, CSE 4378, and CSE 4380.

- **CSE 4352** – IoT and Networking
  pre-reqs: CSE 3442 (Spring only)
- **CSE 4354** – Real-time Operating Systems
  pre-reqs: CSE 3320 and CSE 3442 (Fall only)
- **CSE 4355** – Electromechanical Systems and Sensors
  pre-reqs: CSE 3323 and CSE 3442 (Fall only)
- **CSE 4356** – System on Chip (SoC) Design
  pre-reqs: CSE 3442 (Fall only)
- **CSE 4357** – Advanced Digital Logic Design
  pre-reqs: CSE 3442 (Spring only)
- **CSE 4358** – Microprocessor Systems
  pre-reqs: CSE 3442 (Spring only)
- **CSE 4372** – RISC Processor Design
  pre-reqs: CSE 3442 (Spring only)
- **CSE 4373** – General Purpose GPU Programming
  pre-reqs: CSE 3320 (Fall only)
- **CSE 4376** – Digital Communication Systems
  pre-reqs: CSE 3313 (Fall only)
- **CSE 4377** – Wireless Communication Systems
  pre-reqs: CSE 3313 (Spring only)

Only one of these classes will count in your degree plan:
- **CSE 4308** – Artificial Intelligence
  pre-reqs: CSE 3318, and CSE 3380 or MATH 3330 (Fall, Spring, and Summer)
- **CSE 4309** – Fundamentals of Machine Learning
  pre-reqs: CSE 3318, IE 3301 or MATH 3313, and CSE 3380 or MATH 3330 (Fall only)
- **CSE 4310** – Fundamentals of Computer Vision
  pre-reqs: CSE 3318, IE 3301 or MATH 3313, CSE 3380 or MATH 3330 (Spring only)
- **CSE 4340** – Fundamentals of Wireless Networks
  pre-reqs: CSE 4344 or CSE 4352 (Fluctuates)
- **CSE 4360** – Autonomous Robot Design and Programming
  pre-reqs: CSE 3318, CSE 3320, and CSE 3380 or MATH 3330 (Fall only)
- **CSE 4378** – Intro to Unmanned Vehicle Systems
  pre-reqs: Admission to the professional program and permission from an advisor (Fall only)
- **CSE 4380** – Information Security
  pre-reqs: CSE 3320 (Fall and Spring)

Language, Philosophy & Culture Electives
- **ANTHROPOLOGY (ANTH) 2322**
- **ARABIC (ARAB) 2310, 2314**
- **ARCHITECTURE (ARCH) 2300**
- **ART & ART HISTORY (ART) 1317**
- **AMERICAN SIGN LANGUAGE (ASL) 2314**
- **CHINESE (CHIN) 2310, 2314**
- **CLASSICS (CLAS) 1300**
- **INTRO TO LGBTIQ+ STUDIES (DIVR) 2315**
- **ENGLISH (ENGL) 1350, 2303, 2309, 2319, 2329**
- **FRENCH (FREN) 2310, 2314**
- **GERMAN (GERM) 2310, 2314**
- **GLOBAL (GLOBAL) 2301**
- **GREEK (GREEK) 2314**
- **HISTORY (HIST) 2377**
- **KOREAN (KORE) 2310, 2314**
- **LATIN (LATN) 2314**
- **LINGUISTICS (LING) 2371**
- **MEXICAN AMERICAN STUDIES (MAS) 2300**
- **PHILOSOPHY (PHIL) 1304, 2300**
- **PORTUGUESE (PORT) 2300**
- **RUSSIAN (RUSS) 2310, 2314**
- **INTRO TO POPULAR CULTURE (SOC/INTS) 1310**
- **SPANISH (SPAN) 2310, 2314, 2315**
- **WOMEN'S STUDIES (WOMS) 2310, 2315**

Creative Arts Electives
- **ARCHITECTURE (ARCH) 1301**
- **ART & ART HISTORY (ART) 1301, 1309, 1310**
- **DANCE (DNCE) 1300**
- **ENGLISH (ENGL) 1375**
- **PHOTOJOURNALISM I (JOUR) 2340**
- **MUSIC (MUSI) 1300, 1302, 1304, 2300, 2301**
- **THEATER ARTS (THEA) 1342, 1343**

History Electives
- **HIST 1301**
- **HIST 1302**
- **HIST 1331**
- **HIST 1332**