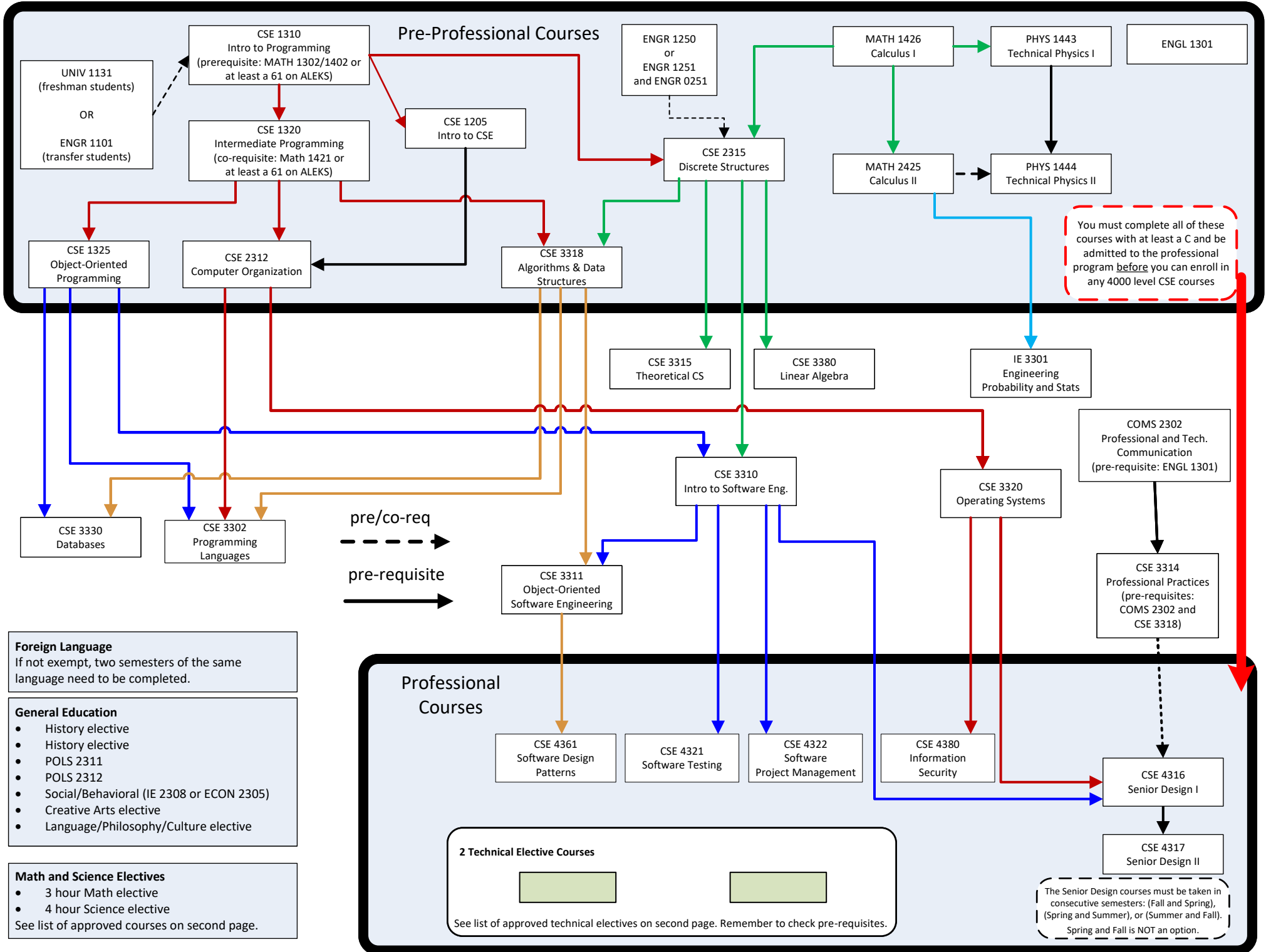


# BS in Software Engineering (BSSE), 2020-2021 Catalog



## Pre-Professional Courses

## Professional Courses

You must complete all of these courses with at least a C and be admitted to the professional program before you can enroll in any 4000 level CSE courses

pre/co-req  
- - - - ->  
pre-requisite  
—————>

**Foreign Language**  
If not exempt, two semesters of the same language need to be completed.

- General Education**
- History elective
  - History elective
  - POLS 2311
  - POLS 2312
  - Social/Behavioral (IE 2308 or ECON 2305)
  - Creative Arts elective
  - Language/Philosophy/Culture elective

- Math and Science Electives**
- 3 hour Math elective
  - 4 hour Science elective
- See list of approved courses on second page.

**2 Technical Elective Courses**

See list of approved technical electives on second page. Remember to check pre-requisites.

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.

## SE 2020-2021 Classes

Each course taken can be used to satisfy only one degree plan requirement. For example, you can use CSE 4345 as your math elective, but it will not also count as a technical elective.

We will accept either CSE 3380 or MATH 3330 as the linear algebra class that you need for your degree plan. The pre-req for MATH 3330 is MATH 2425, and it's taught in summer, fall, and spring.

We will accept either IE 3301 or MATH 3313 as the statistics class that you need for your degree plan. The pre-req for MATH 3313 is MATH 2326 and it is only taught in the fall.

### 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

### 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 or MATH 1402
- 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

- CSE 4303 – Computer Graphics pre-reqs: CSE 3318 and CSE 3380 or MATH 3330 (Fall & Spring)
- CSE 4304 – Game Design and Development pre-reqs: CSE 3380 or MATH 3330 (Fall only)
- CSE 4305 – Compilers pre-reqs: CSE 3302 and CSE 3315 (Fall & Spring)
- CSE 4308 – Artificial Intelligence pre-reqs: CSE 3318 and IE 3301 or MATH 3313 (Fall, Spring, & Summer)
- CSE 4309 – Fundamentals of Machine Learning pre-reqs: CSE 3318, MATH 2326 or the consent of the instructor, 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, and CSE 3380 or MATH 3330 (Spring only)
- CSE 4311 – Neural Networks and Deep Learning pre-reqs: CSE 3380 or MATH 3330 and IE 3301 or MATH 3313 (Spring only)

- CSE 4323 – Quantitative Computer Architecture pre-reqs: CSE 3320 (Fall & Spring)
- CSE 4331 – Database Implementation and Theory pre-reqs: CSE 3330 (Fall, Spring, & Summer)
- CSE 4333 – Cloud Computing Fundamentals and Application pre-reqs: CSE 3320 and CSE 3330 (Fall only)
- CSE 4334 – Datamining pre-reqs: IE 3301 or MATH 3313 and co-req: CSE 3330 (Fall & Spring)
- CSE 4344 – Computer Network Organization pre-reqs: CSE 3320 (Fall, Spring, & Summer)
- CSE 4345 – Computational Methods pre-reqs: CSE 3318, IE 3301 or MATH 3313, and CSE 3380 or MATH 3330 (Fall & Spring)
- CSE 4351 – Parallel Processing pre-reqs: CSE 3320 (Fall & Spring)
- 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 Vehicles pre-reqs: Department consent (Fall only)
- CSE 4381 – Information Security 2 pre-reqs: CSE 3320 and co-req CSE 4344 (Fall & Spring)
- CSE 4382 – Secure Programming pre-reqs: CSE 3320 (Fall & Spring)
- CSE 3313 – Signal Processing pre-reqs: CSE 3318 and CSE 3380 or MATH 3330 (Fall & Spring)
- CSE 3340 – Intro to Human Computer Interaction pre-reqs: CSE 3318 and CSE 3310 (Spring only)
- ENGR 4302 – Engineering Entrepreneurship pre-reqs: Admitted to an engineering professional program (Fall only)
- IE 3315 – Operations Research I pre-reqs: co-req MATH 2326 (Fall & Spring)

### Language, Philosophy & Culture Electives

- See the [catalog](#) for these options
- Complete one class from this list

### Creative Arts Electives

- See the [catalog](#) for these options
- Complete one class from this list

### History Electives

- See the [catalog](#) for these options
- Complete two classes from this list

## 2020-2021 Bachelor of Science in Software Engineering University of Texas at Arlington – Four Year Course Sequence

### First Year

#### Fall Semester – 16 Total Hours

Course	Hours
CSE 1310 – Intro to Programming	3
ENGR 1101 – Intro to Engineering	1
<b>OR</b> UNIV 1131 – Student Success	
MATH 1426 – Calculus 1	4
ENGR 1250 <b>OR</b> ENGR 1251 and ENGR 0251 – Problem Solving in Engineering	2
ENGL 1301 – Rhetoric & Composition	3
U.S. History Elective 1	3

#### Spring Semester – 16 Total Hours

Course	Hours
CSE 1205 – Intro to CSE	2
CSE 1320 – Intermediate Programming	3
MATH 2425 – Calculus 2	4
PHYS 1443 – General Technical Physics 1	4
CSE 2315 – Discrete Structures	3

### Second Year

#### Fall Semester – 16 Total Hours

Course	Hours
CSE 1325 – Object-Oriented Programming	3
CSE 2312 – Computer Organization	3
CSE 3318 – Algorithms and Data Structures	3
PHYS 1444 – General Technical Physics 2	4
U.S. History Elective 2	3

#### Spring Semester – 15 Total Hours

Course	Hours
CSE 3380 – Linear Algebra for CSE	3
CSE 3310 – Intro to Software	3
CSE 3320 – Operating Systems	3
IE 3301 – Probability and Statistics	3
COMS 2302 – Prof. & Technical Comm	3

### Third Year

#### Fall Semester – 15 Total Hours

Course	Hours
CSE 3302 – Programming Languages	3
CSE 3330 – Databases	3
CSE 3315 – Theoretical CS	3
CSE 3311 – Object-Oriented Software	3
POLS 2311 – Govt of the United States	3

#### Spring Semester – 15 Total Hours

Course	Hours
CSE 4321 – Software Testing	3
CSE 4380 – Information Security	3
Technical Elective 1	3
Math elective	3
POLS 2312 – State & Local Government	3

### Fourth Year

#### Fall Semester – 16 Total Hours

Course	Hours
CSE 3314 – Professional Practices	3
CSE 4316 – Senior Design I	3
CSE 4361 – Software Design Patterns	3
Science Elective	4
Language, Philosophy, Culture Elective	3

#### Spring Semester – 15 Total Hours

Course	Hours
CSE 4317 – Senior Design 2	3
CSE 4322 – Software Project Management	3
Technical Elective 2	3
Creative Arts Elective	3
ECON 2305 – Principles of Macroeconomics	3
<b>OR</b> IE 2308 – Economics for Engineers	

#### Notes:

Visit the [UTA Transfer Guide](#) to view Texas Common Core Number course number equivalents.

Visit the [UTA Catalog](#) to view general core curriculum requirements for elective courses.

COE Requirement: Two high school years or six credit hours of the same foreign language.