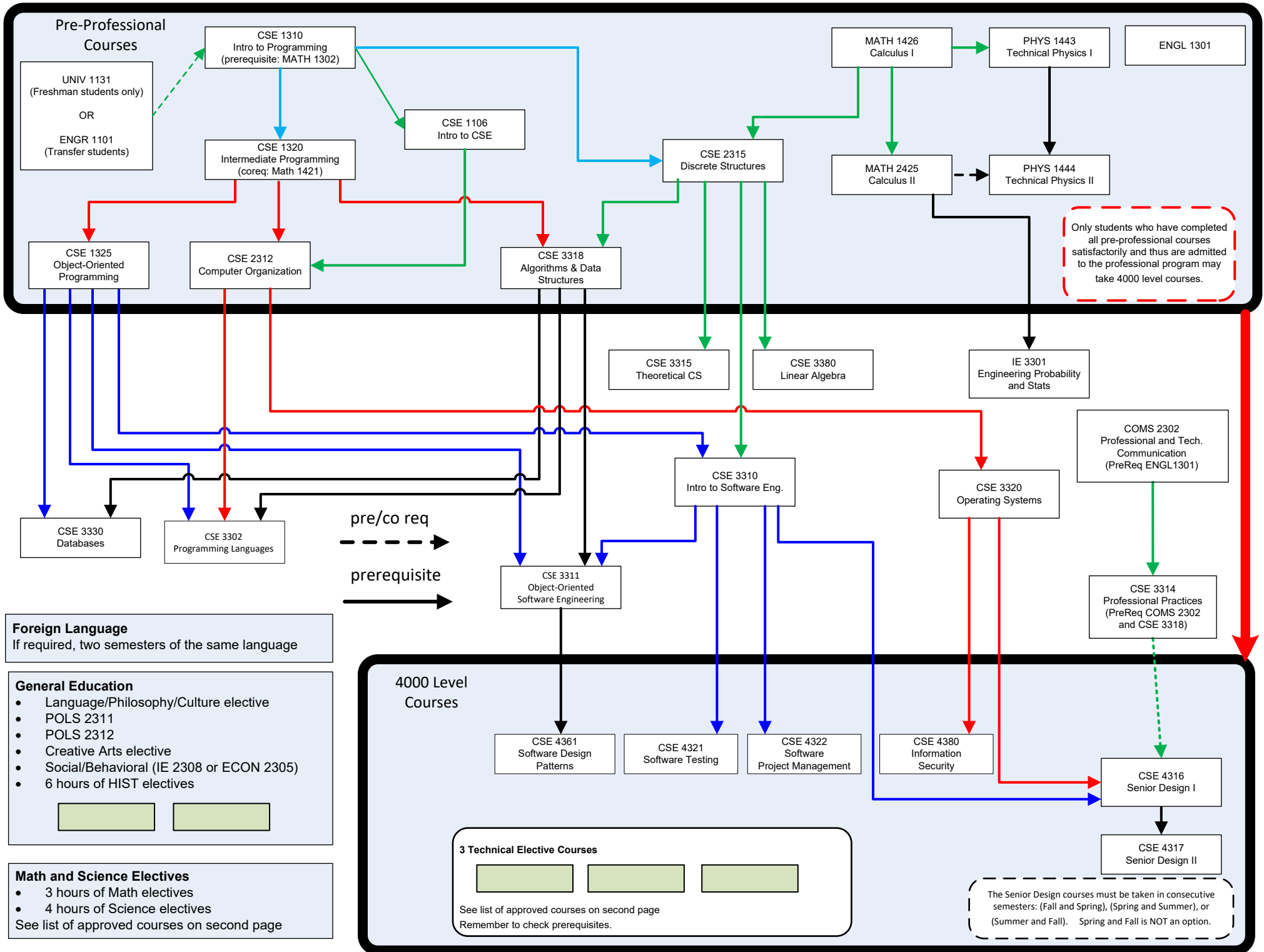


# BS in Software Engineering (BSSE), 2021-2022 Catalog



## SE 2021-2022 Classes

### Mathematics Electives

- MATH 2326 - Calculus III (Fall, Spring, & Summer)
- CSE 4345 - Computational Methods (Fall & Spring)

### Science Electives

- BIOL 1441 – Cell and Molecular Biology (Fall, Spring, & Summer)
- CHEM 1441 – General Chemistry (Fall, Spring, & Summer)
- CHEM 1465 – Chemistry for Engineers (Fall, Spring, & Summer)
- PHYS 3313 & PHYS 3183 – Intro to Modern Physics (Fall & Spring)

### Technical Electives

- CSE 4303 – Computer Graphics  
prereqs: CSE 3318 and CSE 3380 or MATH 3330 (Fall & Spring)
- CSE 4305 – Compilers  
prereqs: CSE 3302 and CSE 3315 (Fall & Spring)
- CSE 4308 – Artificial Intelligence  
prereqs: CSE 3318 and IE 3301 (Fall, Spring, & Summer)
- CSE 4309 – Fundamentals of Machine Learning  
prereqs: CSE 3318, IE 3301 or MATH 3313, and CSE 3380 or MATH 3330 (Fall only)
- CSE 4310 - Fundamentals of Computer Vision  
prereqs: CSE 3318, IE 3301 or MATH 3313, CSE 3380 or MATH 3330 (Spring only)
- CSE 4323 – Quantitative Computer Architecture  
prereqs: CSE 3320 (Fall & Spring)
- CSE 4331 – Database Implementation and Theory  
prereqs: CSE 3330 (Fall, Spring, & Summer)
- CSE 4334 – Datamining  
prereqs: IE 3301 or MATH 3313 and coreq: CSE 3330 (Fall & Spring)
- CSE 4340 – Fundamentals of Wireless Networks  
prereqs: CSE 4344 or CSE 4352 (Fluctuates)
- CSE 4344 – Computer Network Organization  
prereqs: CSE 3320 (Fall, Spring, & Summer)
- CSE 4345 – Computational Methods  
prereqs: CSE 3318, IE 3301 or MATH 3313, and CSE 3380 or MATH 3330 (Fall & Spring)
- CSE 4351 – Parallel Processing  
prereqs: CSE 3320 (Fall & Spring)
- CSE 4360 - Autonomous Robot Design and Programming  
prereqs: CSE 3318, CSE 3320, and CSE 3380 or MATH 3330 (Fall only)
- CSE 4378 – Intro to Unmanned Vehicles  
prereqs: Department consent (Fall only)
- CSE 4381 – Information Security 2  
prereqs: CSE 3320 and coreq CSE 4344 (Fall & Spring)

- CSE 4382 – Secure Programming  
prereqs: CSE 3320 (Fall & Spring)
- CSE 3313 – Signal Processing  
prereqs: CSE 3318 and CSE 3380 or MATH 3330 (Fall & Spring)
- IE 3315 – Operations Research I  
prereqs: coreq MATH 2326 (Fall & Spring)

### Language, Philosophy & Culture Electives

- ANTHROPOLOGY (ANTH) 2322
- ARABIC (ARAB) 2310, 2314
- ARCHITECTURE (ARCH) 2300
- ART & ART HISTORY (ART) 1317
- American Sign Lang. (ASL) 2314
- CHINESE (CHIN) 2310, 2314
- CLASSICS (CLAS) 1300
- ENGLISH (ENGL) 2303, 2309, 2319, 2329
- FRENCH (FREN) 2310, 2314
- GERMAN (GERM) 2310, 2314
- GLOBAL (GLOBAL) 2301
- GREEK (GREK) 2314
- HISTORY (HIST) 2377
- INTERDISCIPLINARY STUDIES (INTS) 1310
- KOREAN (KORE) 2310, 2314
- LATIN (LATN) 2314
- LINGUISTICS (LING) 2371
- MEXICAN AMERICAN STUDIES (MAS) 2300
- PHILOSOPHY (PHIL) 1304, 2300, 2314
- RUSSIAN (RUSS) 2310, 2314
- SOCIOLOGY (SOCL) 1310
- SPANISH (SPAN) 2310, 2314, 2315
- WOMEN'S & GENDER STUDIES (WOMS) 2310

### Creative Arts Electives

- ARCHITECTURE (ARCH) 1301
- ART & ART HISTORY (ART) 1301, 1309, 1310
- DANCE (DNCE) 1300
- ENGLISH (ENGL) 1375
- MUSIC (MUSI) 1300, 1302, 1304, 2300, 2301
- THEATER ARTS (THEA) 1342, 1343

### History Electives

- HIST 1301
- HIST 1302
- HIST 1331
- HIST 1332

Student Name: \_\_\_\_\_

UTA ID#: \_\_\_\_\_

### General Education/Core Curriculum

Course	Hours Earned	Hours
US History*		3
US History*		3
POLS 2311		3
POLS 2312		3
ECON 2305 or IE 2308		3
Creative Arts*		3
Language, Philosophy, and Culture*		3
ENGL 1301		3
COMS 2302		3
<b>TOTAL General Education/Core</b>		<b>27</b>

### Mathematics

Course	Hours Earned	Hours
MATH 1426 Calculus I		4
MATH 2425 Calculus II		4
IE 3301 or MATH 3313 Engr. Probability		3
CSE 3380 or MATH 3330 Linear Algebra		3
Math Elective **		3
<b>TOTAL Mathematics</b>		<b>17</b>

### Science

Course	Hours Earned	Hours
PHYS 1443 Technical Physics 1		4
PHYS 1444 Technical Physics 2		4
Science Elective **		4
<b>TOTAL Science</b>		<b>12</b>

### COE Foreign Language

\_\_\_ Earned in High School,

\_\_\_ Earned in College, or

\_\_\_ Exempt (ESL)

### Engineering Success

Course	Hours Earned	Hours
ENGR 1101 or UNIV 1131		1
<b>TOTAL Engineering Success</b>		<b>1</b>

### Major: Software Engineering

Course	Hours Earned	Hours
CSE 1106 Introduction to CSE		1
CSE 1310 Introduction to Programming		3
CSE 1320 Intermediate Programming		3
CSE 1325 Object-Oriented Programming		3
CSE 2312 Computer Organization		3
CSE 2315 Discrete Structures		3
CSE 3318 Algorithms & Data Structures		3
CSE 3302 Programming Languages		3
CSE 3310 Intro to Software Engineering		3
CSE 3311 Object-Oriented Software Engr.		3
CSE 3314 Professional Practices		3
CSE 3315 Theoretical Concepts		3
CSE 3320 Operating Systems		3
CSE 3330 Database Systems		3
CSE 4316 Senior Design I**		3
CSE 4317 Senior Design II**		3
CSE 4321 Software Testing**		3
CSE 4322 Software Project Management**		3
CSE 4361 Software Design Patterns**		3
CSE 4380 Information Security**		3
Technical Elective**		3
Technical Elective**		3
Technical Elective**		3
<b>TOTAL Software Engineering</b>		<b>67</b>

### **Total Hours for SE Degree Plan 2021: 124 Hours**

\* Refer to the UTA catalog for options (<https://catalog.uta.edu/degreerequirements/generalcorerequirements/>)

\*\* Refer to flowcharts on website for options (<https://www.uta.edu/academics/schools-colleges/engineering/academics/degree-plans>)

# BS in Software Engineering Course Pre/Co-requisite Requirements 2021-2022

- This document lists all courses required for a BS degree in Software Engineering along with any required pre-requisites and co-requisites.
- For Texas Common Course Number (TCCN), visit <https://www.uta.edu/admissions/apply/transfer/transfer-guides>. Scroll down the page to view “Current Transfer Guides.” Prior to registering, confirm with your UTA advisor any courses you plan to take outside of UTA.
- This document lists three categories of course requirements: 1. General Education; 2. Pre-professional; and 3. Professional.
- To be eligible to enroll in College of Engineering (COE) pre-professional and/or professional level courses, must be in “[good standing](#)” with the College

## 1. General Education

### U.S. History

Course Required	Prerequisites	Corequisites*	UTA Alternative Course Options
Any U.S. History course from the <a href="#">UTA approved list</a>	None	ENGL 1301 (HIST 1301/2)	None
Any U.S. History course from the <a href="#">UTA approved list</a>	None	ENGL 1301 (HIST 1301/2)	None

### Political Science

Course Required	Prerequisites	Corequisites*	UTA Alternative Course Options
POLS 2311 – Government of the United States	None	None	None
POLS 2312 – State and Local Government	None	None	None

### Social/Behavioral Science

Course Required	Prerequisites	Corequisites*	UTA Alternative Course Options
IE 2308 – Economics for Engineers <b>or</b> ECON 2305 – Principles of Macroeconomics	MATH 1426 (for IE 2308)	None	None

### Creative Arts

Course Required	Prerequisites	Corequisites*	UTA Alternative Course Options
Any Creative Arts course from the <a href="#">UTA approved list</a>	Varies	None	None

## Language, Philosophy, Culture

Course Required	Prerequisites	Corequisites*	UTA Alternative Course Options
Any Language, Philosophy, Culture course from the <a href="#">UTA approved list</a>	Varies	None	None

## Communication

Course Required	Prerequisites	Corequisites*	UTA Alternative Course Options
ENGL 1301 – Rhetoric and Composition 1	None	None	None
COMS 2302 – Professional and Technical Communication	ENGL 1301 + a minimum of 30 college credits	None	None

## Mathematics

Course Required	Prerequisites	Corequisites*	UTA Alternative Course Options
MATH 1426 – Calculus 1	MATH 1421 or ALEKS scores	None	None
MATH 2425 – Calculus 2	MATH 1426	None	None
IE 3301 – Engineering Probability or MATH 3313 – Intro to Probability	IE 3301: MATH 2425 (or concurrent enrollment) MATH 3313: C or better in MATH 2326	None	None
CSE 3380 or MATH 3330 – Introduction to Linear Algebra	For CSE 3380- C or better in CSE 2315 For MATH 3330- C or better in MATH 2425	None	None
MATH Elective	Varies	Varies	Varies

## Science

Course Required	Prerequisites	Corequisites*	UTA Alternative Course Options
PHYS 1443 – Physics 2 with Lab	MATH 1426	None	None
PHYS 1444 – Physics 2 with Lab	PHYS 1443	MATH 2425	None
Science Elective	Varies	Varies	Varies

## Engineering

Course Required	Prerequisites	Corequisites*	UTA Alternative Course Options
Transfer Students: ENGR 1101 – Entrance to Engineering or Freshmen: UNIV 1131 – Student Success	None	None	None

## 2. Software Engineering Pre-Professional Engineering Courses

Course Required	Prerequisites	Corequisites*	UTA Alternative Course Options
CSE 1106 – Introduction to Computer Science and Engineering	CSE 1310	None	None
CSE 1310 – Introduction to Computers and Programming	C or better in MATH 1302 or C or better (or concurrent enrollment) a subsequent mathematics course (MATH 1421, MATH 1426, MATH 2425, MATH 2326, MATH 3330, HONR-SC 1426 or HONR-SC 2425) and C or better in UNIV 1131 (or concurrent enrollment) or ENGR 1101 (or concurrent enrollment)	ENGR 1101 or UNIV 1131	None
CSE 1320 – Intermediate Programming	C or better in CSE 1310 or C or better in CSE 1312, and C or better in (or concurrent enrollment in) (MATH 1421, MATH 1426, MATH 2425, MATH 2326, MATH 3330, HONR-SC 1426, or HONR-SC 2425) and C or better in UNIV 1131 (or concurrent enrollment) or ENGR 1101 (or concurrent enrollment)	ENGR 1101 or UNIV 1131	None
CSE 1325 – Object-Oriented Programming	CSE 1320	None	None
CSE 2312 – Computer Organization and Assembly Language Programming	A C or better in CSE 1320 and a C or better in CSE 1106	None	None
CSE 2315 – Discrete Structures	C or better in CSE 1310 and MATH 1426 (or C or better in or concurrent enrollment in MATH 2425)	None	None
CSE 3318 – Algorithms and Data Structures	CSE 1320 and CSE 2315	None	None
CSE 3302 – Programming Languages	C or better in each of the following: CSE 1325, CSE 2312 and CSE 3318	None	None
CSE 3310 – Fundamental of Software Engineering	C or better in each of the following: CSE 1320, CSE 1325 and CSE 2315	None	None

Course Required	Prerequisites	Corequisites*	UTA Alternative Course Options
CSE 3311 – Objected-Oriented Software Engineering	C or better in each of the following: CSE 3310 and CSE 3318	None	None
CSE 3314 – Professional Practices	C or better in COMS 2302 and CSE 3318	None	None
CSE 3315 – Theoretical Concepts in Computer Science and Engineering	C or better in CSE 2315	None	None
CSE 3320 – Operating Systems	C or better in CSE 2312	None	None
CSE 3330 – Database Systems and File Structures	C or better in each of the following: CSE 1325 and CSE 3318	None	None

### 3. Software Professional Courses: **MUST BE IN THE PROFESSIONAL SE PROGRAM**

Course Required	Prerequisites	Corequisites*	UTA Alternative Course Options
CSE 4316 – Computer System Design Project I	For academic plan CS_CS or SE_SE, C or better in CSE 3310 and CSE 3320, and C or better in CSE 3314 (or concurrently). For academic plan CSE_CP, C or better in CSE 3320 and CSE 3442, and C or better in CSE 3314 (or concurrently)	CSE 3314	None
CSE 4317 – Computer System Design Project II	C or better in CSE 4316 and continuation within the same team	None	None
CSE 4321 – Software Testing and Maintenance	C or better in CSE 3310	None	None
CSE 4322 – Software Project Management	C or better in CSE 3310	None	None
CSE 4361 – Software Design Patterns	C or better in CSE 3311	None	None
CSE 4380 – Information Security	C or better in CSE 3320	None	None
Technical Elective 1	Varies	Varies	None
Technical Elective 2	Varies	Varies	None
Technical Elective 3	Varies	Varies	None

\*In order for a course to be considered a co-requisite, both courses must be registered for at UTA.