Bachelor of Science in Software Engineering

About This Program

UTA's Bachelor of Science in Software Engineering (BSSE) degree program provides students with opportunities to interface with the profession through cooperative education programs, professional society activities, plant trips, special projects, and industry speakers. Design experiences are included throughout the first three years of the curriculum and culminate in a major team-oriented project in the senior year that approximates an industrial work experience.

ABET ACCREDITATION

The BSSE program has been accredited since 2002 by the Engineering Accreditation Commission of ABET (http://www.abet.org/) under the commission's General Criteria and the Program Criteria for Software Engineering.

PROGRAM EDUCATIONAL OBJECTIVES

The program is designed so that a few years following graduation students will be able to:

1. Pursue the software profession by achieving expertise in implementation, integration, testing, and maintaining software systems; or pursue graduate studies in software engineering or a related area.
2. Advance in the software profession with expertise in identifying needs and software requirements in an application domain, and design systems to meet the desired needs within realistic constraints.
3. Demonstrate excellence and leadership in the software profession or a related area.

STUDENT OUTCOMES

Upon completion of the degree, students will be able to:

1. Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. 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. Communicate effectively with a range of audiences.
4. 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. Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. Acquire and apply new knowledge as needed, using appropriate learning strategies.

Admissions Criteria

All entering students majoring in this program are permitted to enroll in general education and pre-professional courses for which they are qualified. Students completing pre-professional courses must meet the academic requirements specified by the College of Engineering prior to applying for admission to the professional program. The Computer Science and Engineering Department requires a 2.5 overall grade point average on a 4.0 scale in each of three categories: (1) overall, (2) required science, mathematics, and engineering courses, and (3) required CSE courses. Additionally, they must have a total of no more than four unsuccessful attempts in engineering courses. Students not in the professional program must have permission from the department chairperson to receive credit for courses listed in the professional program category. Application for admission to the professional program is made to the Department of Computer Science and Engineering.

PRIOR PREPARATION

This is a four-year program, and requirements for the degree are based upon prior high school preparation through either an honors or college track. More specifically, entering students are expected to have a background in mathematics through precalculus, high school chemistry, and programming in a high-level language such as C, C++, Java or Python.

Students who have not had the appropriate preparation should contact the departmental advising office for assistance in structuring a degree plan that will include leveling courses. Students requiring leveling courses may require a longer period of time to complete their undergraduate program.

READINESS EXAMINATIONS

Students that have prior programming experience without having course credit for a programming course will have the option to take readiness examinations before enrolling in CSE courses at UTA. Students not passing the readiness examination must take these courses at UTA. A readiness

examination may be taken only once per course and only before enrolling in any CSE courses. Additional information is available in the departmental office.

Curriculum

Foundations		
General Core Requirements (https://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/)		42
Students are required to complete specific courses in certain core areas. Those included in the pre-professional program are identified with a footnote.		
In addition to the specified courses, students must choose 6 hours of U.S. History, 6 hours of Political Science, 3 hours of Language, Philosophy, Culture, and 3 hours of Creative Arts in the general educaiton core.		
For Communication select:		
ENGL 1301	RHETORIC AND COMPOSITION I [1]	
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING	
For Life & Physical Sciences select:		
PHYS 1443	GENERAL TECHNICAL PHYSICS I [1]	
PHYS 1444	GENERAL TECHNICAL PHYSICS II [1]	
For Mathematics select:		
MATH 1426	CALCULUS I [1]	
MATH 2425	CALCULUS II [1]	
For Social & Behavioral Sciences select:		
IE 2308	ECONOMICS FOR ENGINEERS	
or ECON 2305	PRINCIPLES OF MACROECONOMICS	
For Foundation Component area option select:		
MATH 2326	CALCULUS III	
BSSE Foundations		
Additional hours required in core pre-professional courses		4
UNIV 1131	STUDENT SUCCESS	1
or ENGR 1101	ENTRANCE TO ENGINEERING FOR TRANSFER STUDENTS	
CSE 1106	INTRODUCTION TO COMPUTER SCIENCE AND ENGINEERING	1
CSE 1310	INTRODUCTION TO COMPUTERS & PROGRAMMING	3
CSE 1320	INTERMEDIATE PROGRAMMING	3
CSE 1325	OBJECT-ORIENTED PROGRAMMING	3
CSE 2312	COMPUTER ORGANIZATION & ASSEMBLY LANGUAGE PROGRAMMING	3
CSE 2315	DISCRETE STRUCTURES	3
CSE 3318	ALGORITHMS & DATA STRUCTURES	3
BSSE Specialization (Professional Program) [2]		
IE 3301	ENGINEERING PROBABILITY	3
or MATH 3313	INTRODUCTION TO PROBABILITY	
CSE 3302	PROGRAMMING LANGUAGES	3
CSE 3310	FUNDAMENTALS OF SOFTWARE ENGINEERING	3
CSE 3311	OBJECT-ORIENTED SOFTWARE ENGINEERING	3
CSE 3314	PROFESSIONAL PRACTICES	3
CSE 3315	THEORETICAL CONCEPTS IN COMPUTER SCIENCE AND ENGINEERING	3
CSE 3320	OPERATING SYSTEMS	3

CSE 3330	DATABASE SYSTEMS AND FILE STRUCTURES	3
CSE 3380	LINEAR ALGEBRA FOR CSE	3
or MATH 3330	INTRODUCTION TO LINEAR ALGEBRA AND VECTOR SPACES	
CSE 4316	COMPUTER SYSTEM DESIGN PROJECT I	3
CSE 4317	COMPUTER SYSTEM DESIGN PROJECT II	3
CSE 4321	SOFTWARE TESTING & MAINTENANCE	3
CSE 4322	SOFTWARE PROJECT MANAGEMENT	3
CSE 4361	SOFTWARE DESIGN PATTERNS	3
CSE 4380	INFORMATION SECURITY	3
Select one science elective with advanced approval of academic advisor.		4
Technical Electives		
Select three engineering courses numbered 3000 or higher with advanced approval of academic advisor.		9
Total Hours		**124**

1 Core course included in the pre-professional program.
2 All pre-requisites for professional courses must be completed with a C or better.

Total hours will depend upon prior preparation and academic qualifications.

Program Completion

Refer to the College of Engineering section (https://catalog.uta.edu/engineering/) of this catalog for information concerning the following topics: Preparation in High School for Admission to the College of Engineering, Admission to the College of Engineering, Admission into the Professional Program, Advising, College of Engineering Academic Regulations, Transfer Policies, College of Engineering Probation, Repeating Course Policy and Academic Honesty.

Advising Resources

First time in college students meet with engineering advisors in the UAEC (UAECengineering@uta.edu). Transfer students are advised prior to New Maverick Orientation by the department. Students, please read all student emails carefully and consult the department advising webpage for additional contact information and answers to common questions.

Location:

ERB 6th Floor: ERB 643, ERB 644, ERB 645, ERB 646, ERB 622A

Email:

cseugadvising@uta.edu

Phone:

817-272-3785

Web:

Find our contact information, walk-in advising schedule, and virtual appointment links here (https://www.uta.edu/academics/schools-colleges/engineering/academics/departments/cse/students/undergraduate-advising/)