Bachelor of Science in Architectural Engineering

About the Program

The Bachelor of Science in Architectural Engineering degree program is designed to provide a strong foundation in science, mathematics, and engineering science; technical competence in the structural engineering area of civil engineering; and an understanding of the importance of ethics, safety, professionalism, and socioeconomic concerns in resolving technical problems through synthesis, planning, and design. Elements of design are introduced at the freshman level. This is followed by an analysis and design component in professional program courses, culminating in a comprehensive design experience.

The four basic architectural engineering curriculum areas are building structures, building mechanics systems, building electrical systems, and construction/construction management. Graduates are expected to reach the synthesis (design) level in building structures, application level in construction/construction management, and comprehension level in building mechanical and electrical systems.

ABET ACCREDITATION

The Architectural Engineering BS degree is accredited by the Engineering Accreditation Commission of ABET (http://www.abet.org/) under the commission's General Criteria and the Program Criteria for Architectural Engineering. ABET is recognized by the U. S. Department of Education as the sole agency responsible for accreditation of education programs leading to degrees in engineering. Graduation from an ABET accredited program is an important factor in attaining registration as a Professional Engineer in the State of Texas and other states. The Architectural Engineering program is housed in the Civil Engineering Department.

PROGRAM EDUCATIONAL OBJECTIVES

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

- Pursue professional growth and development through employment in technical roles and/or project management positions in the practice of Architectural Engineering.
- Be involved in continuing education and professional development activities.
- Obtain PE licensure or other professional certification.

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 Requirements

Admission as an Architectural Engineering major is subject to the relevant requirements and policies of the University of Texas at Arlington and of the UTA College of Engineering. The Civil Engineering Department does not impose additional requirements.

ADMISSION TO THE PROFESSIONAL PROGRAM

For admission to the professional program in Architectural Engineering students must meet the requirements for admission to the College of Engineering in addition to the following added stipulations:

- Each student must complete all pre-professional courses stipulated under "Program Curriculum" with a minimum grade of C in each course.
- A minimum 3-calculation GPA of 2.25 is required in: a) all courses, b) all math, science, and engineering courses, and c) all program specific courses.

Curriculum

Foundations		
General Core Requirements (https://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/)		42
Students must complete specifc courses in certain core areas as part of the pre-professional program.		
In addition to the specified courses, students must choose 6 hours of U.S. History, 6 hours of Political Science, and 3 hours of Language, Philosophy, & Culture from the UTA General Education Core Requirements.		
For Communication select:		
ENGL 1301	RHETORIC AND COMPOSITION I	
COMS 2302	PROFESSIONAL AND TECHNICAL COMMUNICATION FOR SCIENCE AND ENGINEERING [2]	
For Creative Arts select:		
ARCH 1301	INTRODUCTION TO ARCHITECTURE AND INTERIOR DESIGN	
For Mathematics select:		
MATH 1426	CALCULUS I	
MATH 2425	CALCULUS II	
For Life & Physical Sciences select:		
PHYS 1443	GENERAL TECHNICAL PHYSICS I	
PHYS 1444	GENERAL TECHNICAL PHYSICS II	
For Social & Behavioral Sciences select:		
IE 2308	ECONOMICS FOR ENGINEERS	
For Foundational Component Area Option select:		
MATH 2326	CALCULUS III	
AREN Pre-Professional Program		**25**
Additional hours required in General Eduation Core		4
UNIV-EN 1131	STUDENT SUCCESS	1
or ENGR 1101	ENTRANCE TO ENGINEERING FOR TRANSFER STUDENTS	
AREN 1152	INTRODUCTION TO CONSTRUCTION DRAFTING [1]	1
AREN 1205	INTRODUCTION TO ARCHITECTURAL ENGINEERING [1]	2
AREN 2213	BUILDING SCIENCE	2
AREN 2312	STATICS & DYNAMICS FOR AREN	3
AREN 2313	MECHANICS OF MATERIALS I	3
AREN 2315	CONSTRUCTION MATERIALS AND METHODS	3
CHEM 1465	CHEMISTRY FOR ENGINEERS	4
MATH 3319	DIFFERENTIAL EQUATIONS & LINEAR ALGEBRA	3
AREN Professional Program		**53**
GEOL 3340	GEOLOGY FOR ENGINEERS	3
ARCH 3357	DESIGN TECHNOLOGIES - BUILDING INFORMATION MODELING FOR ARCHITECTS/ ENGINEERS	3
AREN 3143	PROPERTIES AND BEHAVIOR OF SOILS	1
AREN 3301	STOCHASTIC MODELS FOR CIVIL ENGINEERING	3
AREN 3305	BASIC FLUID MECHANICS	3
AREN 3311	CONSTRUCTION ENGINEERING	3
AREN 3315	BUILDING HYDRAULIC SERVICE SYSTEMS	3

AREN 3330	APPLICATIONS OF BUILDING CODES IN ARCHITECTURE	3
AREN 3341	STRUCTURAL ANALYSIS	3
AREN 3343	SOIL MECHANICS	3
AREN 3346	ELECTRICAL SYSTEMS & LIGHTING FOR ARCHITECTURAL ENGINEERS	3
AREN 4314	TECHNOLOGIES FOR HIGH PERFORMANCE BUILDINGS	3
AREN 4316	BUILDING STRUCTURAL SYSTEMS	3
AREN 4331	BUILDING HVAC SYSTEMS DESIGN	3
AREN 4347	REINFORCED CONCRETE DESIGN	3
AREN 4352	PROFESSIONAL PRACTICE	3
AREN 4383	SENIOR PROJECT	3
Select a senior elective from the following:		3
AREN 4318	MACHINE LEARNING IN CIVIL ENGINEERING	
AREN 4320	SYSTEM RESILIENCE, RELIABILITY, & PERFORMANCE IN AREN	
Total Hours		**120**

1 Satisfies Computer Use Competency requirements.
2 Satisfies Oral Communication Competency requirements.

Program Completion

ACADEMIC RULES, REGULATIONS, AND POLICIES

The rules, regulations, and policies of the University of Texas at Arlington and of the UTA College of Engineering are set forth in other sections of this catalog. It is the responsibility of each student to follow the applicable published rules. Failure to follow these rules may be grounds for dismissal from the program.

COURSE REQUISITES

- A student must have the written approval of their program advisor to register for any course that will satisfy a requirement of their degree program.
- A student must have specific written permission of their program advisor to register at a different institution for any course that will satisfy a requirement of their degree program.
- A student may not attempt a CE Department course without satisfying all current requisite requirements. A prerequisite course requirement is satisfied by earning a grade of C or better. A co-requisite course requirement is satisfied by earning a grade of C or better or by concurrent enrollment in the course at UTA.
- A student may not drop a course which is co-requisite to a CE Department course without also dropping the CE Department course.
- No professional program courses may be attempted until the student is admitted into the professional program or obtains the written permission of the program advisor for one semester or obtains the written permission of the program advisor and Department Chair for any subsequent enrollment.

Advising Resources

Location:

Nedderman Hall 425

Email:

ceugadvising@uta.edu

Phone:

817-272-0279

Web:

Advisor Information & Scheduling an Appointment