Post-Baccalaureate Certificate in Embedded Systems

About This Program

The Department of Computer Science and Engineering offers graduate certificate options to current UTA graduate students and candidates not currently enrolled at UTA who hold at least a BS degree or equivalent. Most completed certificate coursework can be applied toward a UTA CSE master's or PhD degree.

The Graduate Certificate in Embedded Systems is a credit-bearing, degree-leading program designed to provide students with a comprehensive understanding of embedded computing technologies and practical system design. The curriculum emphasizes both theoretical knowledge and hands-on experience with modern embedded platforms, preparing students to tackle real-world challenges in embedded systems development.

The core competencies described here show what a student should know or have upon completion of the certificate requirements.

Competencies

1. Upon completion, students will demonstrate the knowledge and skills required to design and test embedded systems.
2. Upon completion, students will demonstrate an ability to use microcontrollers, system-on-chip, and FPGA devices.
3. Upon completion, students will demonstrate an understanding of multi-threaded programming on bare-metal, custom real-time operating systems, and embedded Linux systems.
4. Upon completion, students will demonstrate an ability to implement IP stacks for computer networking.
5. Upon completion, students will demonstrate an ability to develop network and wireless protocols for Internet of Things devices.

Admissions Criteria

CSE certificate students are expected and required to have sufficient background knowledge for the program by way of undergraduate preparation equivalent to a baccalaureate degree in Computer Science, Computer Engineering, Electrical Engineering, or in a technical field relevant to the CSE curriculum. Sufficient background can include, but is not limited to, holding a degree in computer science, computer engineering, or information systems or having gained the requisite background knowledge through active employment in computer science or information technology related fields. Students without a proper academic background, as determined by the graduate advisor at the time of the admission review, will be required to complete a foundations course of CSE 5400 Fundamentals of Computer Engineering, CSE 5342 Embedded Systems II, or EE 5314 Embedded Microcontroller Systems and earn a passing grade in addition to the other required graduate courses.

Should a certificate student wish to continue on to an MS or PhD degree program in the CSE department, most certificate courses may be used toward that advanced degree. Note that for admission to the MS degree program, all UTA and CSE graduate degree admission requirements would need to be met.

Current UTA students should contact CSEGradAdvising@uta.edu to request admission to the certificate program. Individuals not currently enrolled at UTA can apply for the certificate via ApplyTexas (https://nam12.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.applytexas.org%2Fadappc%2Fgen%2Fc_start.WBX&data=05%7C02%7Cdickens%40uta.edu%7C2baae0d3a6a9470ee8e308dd90434c51%7C5cdc5b43d7be4caa8173729e3b0a62d9%7C0%7C0%7C638825340889558519%7CUnknown%7CTWFpbGZsb3d8eyJFbXB0eU1hcGkiOnRydWUsIlYiOiIwLjAuMDAwMCIsIlAiOiJXaW4zMiIsIkFOIjoiTWFpbCIsIldUIjoyfQ%3D%3D%7C0%7C%7C%7C&sdata=TYpVJ5INFycjd8eztYS9pQ3ICJ%2Fn40%2FSewZkrb%2F3bOE%3D&reserved=0).

Curriculum

Foundations		
CSE 5342	EMBEDDED SYSTEMS II	3
Specialization		
Select 3 from the following:		9
CSE 5352	IoT AND NETWORKING	
CSE 5354	REAL-TIME OPERATING SYSTEMS	
or EE 6314	ADVANCED EMBEDDED MICROCONTROLLER SYSTEMS	
CSE 5355	ELECTROMECHANICAL SYSTEMS AND SENSORS	
EE 5315	SYSTEM ON CHIP (SOC) DESIGN	
or CSE 5356	SYSTEM ON CHIP (SoC) DESIGN	
CSE 5357	ADVANCED DIGITAL LOGIC DESIGN	
CSE 5372	RISC PROCESSOR DESIGN	

CSE 6351	ADVANCED TOPICS IN COMPUTER ENGINEERING (when content does not duplicate another course taken for credit)	
Total Hours		**12**

Program Completion

A grade of C or better and an overall GPA of 3.0 or higher is required in all courses counted towards the completion of the certificate. Students enrolled in the certificate program will take courses with students studying for master's and/or PhD programs in the CSE or EE Department.

Advising Resources

Graduate students should consult a graduate advisor as needed

Location:

Engineering Research Building 6th Floor

Email:

csegradadvising@uta.edu

Phone:

N/A

Web:

Graduate Advising (https://www.uta.edu/academics/schools-colleges/engineering/academics/departments/cse/students/graduate-advising/)