

Master of Science in Computer Science

University of Texas of the Permian Basin

Objectives:

The overall mission of the Master's of Science in Computer Science program is to prepare computer systems professionals to undertake leadership roles in business, industrial, and technology-based organizations. In addressing that mission, the following specific goals have been identified for the program:

- To instill in our graduates high principles of security, quality, and professional ethics.
- To prepare those who choose to do so to continue graduate work leading to the doctorate in computing.
- To prepare graduates who can apply and adapt business systems in distributed environments.

The program will have an overall emphasis on distributed computer systems, addressing both the architecture and the applications of the systems.

Admissions:

General – Students who wish to enter the program must meet the general University requirements for admission to a graduate program. Regular admission is granted to students who have adequate preparation in the discipline and either a graduate degree from an accredited college or university or a bachelor's degree from an accredited college or university, an Entrance Score of 1600, and a score on the written portion of the GRE of at least 4. The Entrance Score, for disciplines outside the School of Business, is calculated as $ES = (GPA \times 200) + GRE$, where GPA is the grade point average for the last sixty hours of undergraduate work. Applicants whose first language is not English must present a TOEFL score of 550 or higher. Students without adequate preparation in the discipline may be admitted conditionally and assigned specific requirements in terms of classes and performance.

Generally, students not admitted to regular status may be admitted provisionally if their ES is at least 1300, their GPA is at least 2.5, and their score on the written portion of the GRE is at least 3. Provisionally admitted students will be assigned specific requirements in terms of courses and performance, to include at least twelve hours of 6000-level courses, with a grade of B or better in all courses taken.

Departmental – To be considered as having adequate preparation for the computer science master's program, students must present evidence of having completed courses equivalent to the following UT Permian Basin undergraduate computer science and mathematics courses. Students not adequately prepared may be admitted conditionally with the requirement that any courses in this list not already completed be completed with a grade of B or better. Students admitted conditionally to computer science must complete assigned requirements before beginning the actual degree program.

- COSC 1430, 2430 – CS 1 and 2, with programming experience in Java
- COSC 3310 – Digital Computer Organization
- COSC 3312 – Discrete Mathematics
- COSC 3315 – Information Systems
- COSC 3420 – Data Structures
- MATH 2413, 2414 – Calculus and Analytic Geometry 1, 2

Additional Background – Several of the graduate courses have undergraduate prerequisites beyond these program prerequisites. Students are not required to complete these courses prior to admission to the graduate program and many will have completed them in their undergraduate program. In each case, the prerequisite course must be completed before undertaking the course for which it is a prerequisite. Up to two such courses, if not already taken as part of the

undergraduate program, may be counted in the graduate degree program. Here is the list of such courses:

- COSC 4330 – COSC 6310* (Computer Architecture)
- COSC 4370 – COSC 6370* (Networking), 6375* (Distributed Systems)
- COSC 4415 – COSC 6315 (Distributed Database Systems)
- COSC 4455 – COSC 6345 (Multimedia)
- COSC 4460 – COSC 6360* (Software Engineering)

More information regarding admissions can be found at:

http://www.utpb.edu/utpb_student/grad_catalog/main_admissions.htm

Curriculum:

Courses required of everyone:

- COSC 6310 – Computer Systems Architecture
- COSC 6315 – Distributed Database Systems
- COSC 6360 – Software Engineering in Distributed Environments
- COSC 6370 – Networking
- COSC 6375 – Distributed Systems

Computer Science elective courses:day

- COSC 6320 – Data Modeling and Mining
- COSC 6325 – Advanced Operating Systems and Real-time Computing
- COSC 6378 – Computer and Network Security
- COSC 6380 – Programming Languages and Concurrency Issues
- COSC 6385 – Analysis of Algorithms
- COSC 6390 – Theory of Computation

The program overview:

Every student completes a 36 credit hour program as follows:

- the five courses 6310, 6315, 6360, 6370, 6375 (15 hours)
- at least two more graduate computer science courses (6 hours)
- three more elective courses, which may include courses from outside computer science approved by the student's committee, or may be additional computer science courses (9 hours)
- either a project or a thesis, either is the equivalent of two courses (6 hours)

First semester:

The first graduate courses will be offered in the spring 2007 term They are:

COSC 6360 – Software Engineering in Distributed Environments (Dr. Owen) – Students will work in groups to apply software engineering principles to large applications development and maintenance projects. Software engineering principles for project management, procurement requirements, analysis and design, construction, quality and security control, and implementation will be studied. (Prerequisite: COSC 4460 or equivalent or permission of the instructor)

COSC 6375 – Distributed Systems (Dr. I. Lee) – Principles, advanced concepts, and advanced technologies in distributed systems. The topics include: fundamentals of distributed systems, communication model, naming, synchronization, fault-tolerance, and distributed object-based

systems. The emphases in technology are internet, middleware, World Wide Web, CORBA, DCOM, and JDBC. Concept-oriented assignments with Java programming. (Prerequisites: COSC 4330 and COSC 4370 or permission of the instructor.)

How do I apply for the program?

You must do three things to complete your application:

1. Take the Graduate Record Examination (GRE) General Test and have the scores reported to UT Permian Basin. The General Test is available in computer-based format and can be taken at many places around the world. To find a location near you where the test can be taken and to register for the test, please go to the ETS website:

<http://www.ets.org>

and link to the GRE homepage.

2. Complete an application for admission. Available as a downloadable Word document by going to:

http://www.utpb.edu/utpb_student/grad_catalog/main_admissions.htm

and clicking on Graduate Applications. Send the application to the Office of Admissions.

3. Submit transcripts of all previous college level work from the school where the credit was originally granted. Have the transcripts sent to the Office of Admissions.