

EE 360P Vijay K. Garg Spring 2018

EE 360P: CONCURRENT AND DISTRIBUTED SYSTEMS

Unique # 15825

Prof. Vijay K. Garg

TTh 11:00 – 12:30, CPE 2.208

Instructor: Prof. Vijay Garg ; **Office:** EER 7.884; **Phone:** (512) 471-9424 ; **e-mail:** garg AT ece.utexas.edu;

Office Hours: T Th 2:30-4:00 (or by appointment);

URL: <http://www.ece.utexas.edu/~garg>

Prerequisites: Grade of C- in EE 422C

Course Contents: This is a senior-level undergraduate course in concurrent and distributed computing. It will expose students to theoretical as well as practical aspects of designing and implementing concurrent and distributed systems. The course assumes that the student knows programming and basic data structures. There will be two mid-terms and one final exam. The following topics will be covered in the course:

- *Constructs in concurrent languages:* threads, semaphores, monitors, wait and signals, inter-process communication.
- *Networking in Java:* Sockets, Streams, Java RMI
- *Fundamentals of Concurrent Computing:* Mutual Exclusion, Locking, Deadlocks
- *Fundamentals of Distributed Computing:* Logical clocks, Mutual Exclusion, Snapshots, leader election, global property detection, Distributed Consensus, P2P computing, Paxos, Public Key Systems
- *MPI* High performance computing using MPI collectives, communication and computation
- *Cloud Computing:* Google File System, Map Reduce, Hadoop, Spark
- *Blockchains:* Distributed Ledgers

Grading: 35 % Assignments, 20 % Exam 1, 20% Exam 2, 25% Final Exam.

Course Material:

Lecture Notes provided by the instructor.

The following book is optional. [Concurrent and Distributed Computing in Java](#) by Vijay K. Garg, Wiley & Sons, 2004. **Note that this book is different from the ``Elements of Distributed Computing'' book.**

Course Website: We will use Canvas System available at <http://canvas.utexas.edu>

Add/Drop Policy: Adds and drops for graduate students taking graduate courses are not approved after the twelfth class day except for good cause. Applications for approval to drop a course after the twelfth class day should be made in the Graduate ECE Office.

Honor Code: The core values of the University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each member of the University is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community.

Pending Absence: By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

Students with Disabilities: The University of Texas at Austin provides upon request appropriate academic adjustments for qualified students with disabilities. For more information, contact the Office of the Dean of Students at 471-6259, 471-4241 TDD or the College of Engineering Director of Students with Disabilities at 471-4382.