EEL 6935: Distributed Computing   **Spring 2018**

Catalog Description: This course introduces beginning graduate students and undergraduate senior students to key concepts and techniques underlying the design and engineering of distributed computing systems. Technical topics covered in this course include interprocess communication, remote invocation, distributed naming, distributed file systems, security, distributed clocks, process coordination, concurrency control, replication and fault-tolerance. Types of systems discussed in this course include computational clouds, grid computing, storage systems, peer-to-peer networks and Web services.

Credits: 3

Prerequisites: EEL 5737 (Principles of Computer Design)

Goals: To prepare students for graduate work or software development directed at cloud computing and distributed information processing

Outcomes: Students who successfully complete the course will understand the fundamental issues involved in the design of distributed computing systems

Textbook: Andrew S. Tanenbaum, Maarten van Steen, Distributed Systems: Principles and Paradigms, 2nd edition, Prentice Hall, ISBN-10: 0132392275 ISBN-13: 9780132392273

Grading: Based on homework, midterm exam, final exam and a project. Failing grade given in case of academic dishonesty. UF student honor code applies.

Topics:

	Lectures
Architectures (layers, tiers, peers, middleware, management,…)	3
Communication (Layered Protocols. Remote Procedure Call …)	4
Processes (Threads. Clients. Servers. Code Migration. Agents)	4
Naming (Naming Entities. Mobile Entities. Removing Entities…)	3
Synchronization (Logical Clocks. Global State. Distributed Transactions…)	4
Consistency and Replication (Models, Protocols, Examples…)	3
Fault Tolerance (Process Resilience. Reliable Communication. Recovery…)	3
Security (Secure Channels. Access Control. Security Management…)	3
Distributed File and Web-based Systems (Sun NFS. WWW, …)	5
Introduction to cloud computing	5
Exam and project presentations	4

Professor in Charge: José Fortes   **Date:** 1/4/2017