About this course

This course will teach both the fundamental concepts and principles of distributed systems and the practical skills for developing distributed systems. Specific topics covered include distributed systems architecture, communication, coordination, and consistency and replication.

Specific topics covered include:

- Architecture
- Communication
- Coordination
- Consistency and Replication

Required prior knowledge and skills

- A strong understanding of computer organization, operating systems, and computer networks
- Proficiency in C and Java programming

Learning Outcomes

Learners completing this course will be able to:

- Apply the fundamental concepts and principles to analyze distributed and multiprocessor operating systems.
- Utilize the basic approaches and techniques to develop distributed and multiprocessor operating systems.

Estimated Workload/Time Commitment Per Week

15 - 20 hours per week

Technology Requirements

Hardware - Standard hardware with major OS

Software and Other (programs, platforms, services, etc.) - To complete course projects, some of the following software may be required:

- Virtual machines
- Linux
- gRPC
- Python
Ming Zhao, Ph.D.

Ming Zhao, Ph.D. is an associate professor at Arizona State University in the School of Computing, Informatics, and Decision Systems Engineering (CIDSE). Before joining ASU, he was an associate professor of the School of Computing and Information Sciences (SCIS) at Florida International University. He directs the Research Laboratory for Virtualized Infrastructure, Systems, and Applications (VISA). His research interests are in distributed/cloud computing, big data, high-performance computing, autonomic computing, virtualization, storage systems and operating systems.