Syllabus for Advancement to Candidacy Exam in the area of Systems Software

Affiliated Faculty
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Main Topics

1. Modern Computer Architecture
   - Performance Evaluation
   - Instruction Level Parallelism
   - Speculative Execution
   - Memory Hierarchy

2. Operating Systems and Hypervisors
   - System Calls
   - Memory Management
   - Process Management and Scheduling
   - Virtualization

3. Compilers and Run-Time Systems
   - Code Generation
   - Run-time storage management
   - Flow analysis and code optimization
   - Run-time optimization

Recommended Reading:

Suggested curriculum:

• CS 200 - Seminar in Research
• CS 260 - Fundamentals of the Design and Analysis of Algorithms
• CS 241 - Advanced Compiler Construction
• CS 250A - Computer Systems Architecture

One course chosen from:

• CS 230 - Distributed Computer Systems
• CS 222 - Principles of Data Management