

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Computer Science and Engineering - NOC:Design and Engineering of Computer Systems

Subject Co-ordinator - Prof. Mythili Vutukuru

Co-ordinating Institute - IIT - Bombay

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction to Computer Systems  
Lecture 2 - Principles of Computer Systems Design  
Lecture 3 - Overview of CPU hardware  
Lecture 4 - Overview of memory and I/O hardware  
Lecture 5 - Introduction to Operating Systems  
Lecture 6 - Week 1: Tutorial 1  
Lecture 7 - Week 1: Tutorial 2  
Lecture 8 - Processes  
Lecture 9 - Kernel mode execution  
Lecture 10 - Threads  
Lecture 11 - CPU scheduling policies  
Lecture 12 - Virtual machines and containers  
Lecture 13 - Week 2: Tutorial 1  
Lecture 14 - Week 2: Tutorial 2  
Lecture 15 - Week 2: Tutorial 3  
Lecture 16 - Memory management in OS  
Lecture 17 - Paging  
Lecture 18 - Demand paging  
Lecture 19 - File system and memory  
Lecture 20 - Optimizing memory access  
Lecture 21 - Week 3: Tutorial 1  
Lecture 22 - Week 3: Tutorial 2  
Lecture 23 - Week 3: Tutorial 3  
Lecture 24 - Filesystem Datastructures  
Lecture 25 - Filesystem Implementation  
Lecture 26 - Network I/O via Sockets  
Lecture 27 - Network I/O Implementation  
Lecture 28 - Memory and I/O virtualization  
Lecture 29 - Week 4: Tutorial 1

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- Lecture 30 - Week 4: Tutorial 2
- Lecture 31 - Introduction to computer networking
- Lecture 32 - Internet Routing and Forwarding
- Lecture 33 - Transport protocols
- Lecture 34 - Application layer protocols
- Lecture 35 - Network Security
- Lecture 36 - Week 5: Tutorial 1
- Lecture 37 - Week 5: Tutorial 2
- Lecture 38 - Multithreaded application design
- Lecture 39 - Inter-process communication
- Lecture 40 - Multi-tier application design
- Lecture 41 - Examples of end-to-end systems design
- Lecture 42 - Deployment of computer systems
- Lecture 43 - Week 6: Tutorial 1
- Lecture 44 - Week 6: Tutorial 2
- Lecture 45 - Performance measurement
- Lecture 46 - Performance analysis
- Lecture 47 - Performance profiling and optimization
- Lecture 48 - Caching
- Lecture 49 - Performance scalability
- Lecture 50 - Week 7: Tutorial 1
- Lecture 51 - Fault tolerance and reliability
- Lecture 52 - Replication and consistency
- Lecture 53 - Atomicity
- Lecture 54 - Distributed transactions
- Lecture 55 - Case studies of distributed systems design