

JULY

13

Friday

## ADVANCED OPERATING SYSTEMS

2018

Week 28

194-171

9 TAUGHT BY

10 • prof. manish Srivastava

11

### COURSE TOPICS

12

1 • history of operating systems

2 • processes and OS abstractions

3 • OS APIs

4 • interrupts and system calls

5 • introduction to linux Kernel.

6 • compiling the Kernel.

7 • module programming

• writing your own system calls

• Overview of Kernel startup and initialization.

• Kernel debugging techniques

• interrupts

JUL

2018

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1 2 3 4 5 6 7

S M T W T F S

8 9 10 11 12 13 14

S M T W T F S

15 16 17 18 19 20 21

S M T W T F S

22 23 24 25 26 27 28

S M T W T F S

29 30 31 \* \* \*

2018

JULY

Week 28  
195-170

Saturday

14

• PICs

• APICs

• exceptions (traps) and hard interrupts

• IDTs

• address spaces and loading

• virtual memory

• memory allocators

• overview of memory spaces

• logical segmentation

- linear virtual

- actual physical

• detecting BIOS provided physical RAM map.

• paging

• buddy system

Sunday 15

AUG	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S							
2018	*	*	*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	*

JULY

2018

16

Monday

Week 29  
197-168

- Setting up page directories

- global

- upper

- middle

- tables

- PTES

- (N) UNA nodes

- Zone

- memory types

2. Setting up buddy system

- allocating contiguous pages from buddy system.

- setting up slabs for small memory objects.

- CPU scheduling

- threads

- ## • Process

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2018

JULY

Week 29  
198-167

Tuesday

17

- structures

- organization

- initialization

• Concurrent programming

- locking

- deadlocks

• Structures

- thread union

- thread info

- stack

- task

- thread struct

• Creating kernel threads

• using kthread

• kernel process scheduling

AUG  
2018

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\* \* \* 1 2 3 4

S M T W T F S  
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S M T W T F S  
12 13 14 15 16 17 18

S M T W T F S  
19 20 21 22 23 24 25

S M T W T F S  
26 27 28 29 30 31 \*

AUGUST



JULY

2018

18

Wednesday

Week 29,  
199, 166

• scheduling processes with red-black tree

• process switching

• context switches

• switching to suspended process

• linux file systems

• disk scheduling

### TEXTBOOKS

1. operating systems: principles & practice; anderson. (2014)

2. understanding the linux kernel; bavier. (2005)

3. operating systems: three easy pieces; austin. (2018)

4. linux device drivers; corbet. (2005)

5. linux kernel development; laive. (2016)

6. linux in a nutshell; siever. (2009)

JUL	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
2018	1	2	3	4	5	6	7		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
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