TDT4186 – Operating Systems

This is an approximate mapping of lectures to chapters of the “Three Easy Pieces” book (https://pages.cs.wisc.edu/~remzi/OSTEP/).

Please note that the course puts different emphasis on some of the topics compared to the book, might use different example/algorithms in some cases and also discusses topics beyond what the book covers. However, the book still gives a good overall background of topics in TDT4186 and overall maps pretty good to what we have been discussing.

TDT4186 lecture	Topic	Related chapters in “Three Easy Pieces”
1	Introduction to operating systems	1
2	Resources and computer architecture	36, part of 19
3	Challenges and tasks of operating systems	2, 6
4	Processes	4, 5
5	Threads	27 (this goes much deeper)
6	Concurrency: Mutual Exclusion and Synchronization	26, 28, 30, 31 (+ App. D, linked lists Ch. 29)
7	Concurrency: Deadlocks and Starvation	32
8	From source code to process	–
9	Memory management	4, 17
10	Virtual memory	13, 15, 18, 20, 22
11	Inter-process communication	28 (sockets) other IPC approaches are not extensively discussed in the book
12	Uniprocessor scheduling	7, 8
13	Real-time scheduling	–
14	I/O management and disk scheduling	36, 37
15	File systems 1	39, 40
16	File systems 2	41, 42, 43, 38 (RAID)
17	Virtual machines and microkernels	Appendix B (covers only part)
18	Cloud, Unikernels, single-address space OS	–
19/20	Embedded systems 1/2	–
21/22	OS Security 1/2	53, 54, 55 (Meltdown/Spectre discussed at the end of Ch. 23 if you want details, we only mentioned these in the course shortly)