CS 534: Advanced Topics in Computer Architecture
(aka Energy-Efficient Computer Architecture)
Prof. Josep Torrellas, Fall 2021
Tentative Course Outline

1. T1: Modeling process variation and wear-out (2 lectures)

2. T2: Tolerating/mitigating variation with body biasing (1 lecture)

3. T3: Tolerating/mitigating variation with timing speculation (2 lectures)

4. T4: Tolerating/mitigating variation with application scheduling (1 lecture)

5. T5: Reducing voltage guardbands (3 lectures)

6. T6: Managing voltage droops (1 lecture)

7. T7: Design for low voltage (2 lectures)

8. T8: Leakage (1 lecture)

9. T9: Efficient DRAM/eDRAM design (3 lectures)

10. T10: Power gating and microcheckpointing (1 lecture)

11. T11: On-chip controllers (3 lectures)

12. T12: Temperature (1 lecture)

13. T13: 3D stacked architectures (4 lectures)

14. T14: Extreme scale architectures (1 lectures)

15. T15: Mobile systems (1 lecture)

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8/25:   Introduction
8/27:   T1
9/1:    T1
9/3:    T2
9/8:  T3
9/10:   T3
9/15:   T4  Project proposals due
9/17:   T5
9/22:   T5
9/24:   T5
9/29:   T6
10/1:   T7
10/6: T7
10/8: T8
10/13: T9
10/15: T9
10/20: T9
10/22: T10 Midterm Progress Report in Class
10/27: T11
10/29:  T11
11/3:  T11
11/5:  T12
11/10: T13
11/12: T13
11/17: T13
11/19: T13
*** Thanksgiving Break ****
12/1: T14
12/3:  T15
12/8: Project presentations. Final project due later
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