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PRIMARY TEXT: Device Electronics for Integrated Circuits, 3rd edition
Muller, Kamins & Chan
Wiley Interscience 2003

SUPPLEMENT: The Maryland Primer For Microelectronics

COURSE TOPICS

1. An introduction to semiconducting materials
2. Some quantum mechanics of solids and charge transport
3. Topics in process technology
4. Two terminal devices: resistors, diodes (Schottky and junction)
5. Junction transport phenomena
6. Bipolar transistor basics
7. Second order effects in bipolar devices
8. Advanced bipolar devices – SiGe
9. MOSCAPs
10. MOSFETs – 1st order models
11. MOSFETs – 2nd order models
12. Advanced topics in component technology: CCDs, wide-bandgap materials, high electron mobility transistors (HEMTs), dual gate structures (FINFETs, etc.)