DEPARTMENT OF ELECTRICAL ENGINEERING AND COMPUTER SCIENCE	
MASSACHUSETTS INSTITUTE OF TECHNOLOGY	
CAMBRIDGE, MASSACHUSETTS 02139	
6.101 Course Outline & Reading Assignments	Electronic Circuit Analysis
	and Design, **3rd Edition**
Content	Donald A. Neaman
1. Components	
□ resistors and capacitors standard values	pp 1331 to 1333,
□ component symbols	handout
□ frequency response, bode plots, basics review:	sections 7.1 to 7.2.4
2. Diodes	
□ diodes, diode equation	1.2.4 to 1.3
□ graphical/load line analysis	1.3.1
□ diode models	1.3.2 to 1.3.4
□ ideal	
□ piecewise linear	
□ AC	1.4 all
□ other diode types	1.5.1 to 1.5.4,
□ zener diodes	1.5.5
□ diode applications	2.1 to 2.4.1, 2.5 to 2.6,
□ peak sampler, power rectifier, clamps, regulator	handouts
3. Bipolar Transistors	
□ definitions	p 292 to 5.1.4
□ v-i characteristics, breakdown	5.1.5 to 5.1.6
□ common-emitter large signal model, graphical analysis	5.2 to 5.2.3, 5.3.3
□ common-collector	6.6 to 6.6.3
□ common-emitter	6.4 to 6.4.4
□ applications: current source, dc power supply regulator	
4. Bipolar Transistors	
□ transistor biasing	5.4 to 5.4.3
□ hybrid-pi equivalent circuit	6.2.2 to 6.2.4
□ high-frequency hybrid-pi	7.4 to 7.4.5
□ h-parameters	6.2.5
□ common-emitter amplifier	6.3 to 6.4.4
□ AC load line	6.5
□ common-collector (emitter-follower) amplifier	6.6 to 6.6.3
5. Junction Field-Effect Transistors	
□ operation	3.6 to 3.6.1
□ background & v-i characteristics: JFET	3.6.2
□ FET switch, chopper, MUX	
□ low frequency incremental model	4.9 to 4.9.2
□ biasing	3.6.3
□ JFET current source	10.2.4
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□ Common Source Amplifier	4.3

□ Common Drain (Source Follower)	4.4
□ Common Gate & Summary	4.5 to 4.6
□ Amplifiers	4.7 to 4.11
6. Two-Transistor Amplifiers	
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□ current mirror	10.1 to 10.1.1
□ complementary emitter-follower [Class B, AB]	8.5 to 8.5.2
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□ power amplifiers	8.1 to 8.2.1, 8.2.4
7. Operational Amplifiers	
□ overview	9.1 to 9.1.4
□ basic linear op-amp circuits	
□ inverting, non-inverting, addition, subtraction	9.2 to 9.2.2; 9.3; 9.4 to 9.4.2; 9.7.1
□ ac amplifiers, inverting & non-inverting	
□ cascading; ideal impedances	
□ I-V conv, V-I conv, difference amp, instrument. amp	9.5.1 to 9.5.4
□ integrator, differentiator	9.5.5
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8. Operational Amplifiers	
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□ effect of finite open-loop gain	9.2.3 + handouts, 14.2.2
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□ output current limit	14.1.1, p 956: short ckt protection
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9. Operational Amplifiers	
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11. Practical Matters	
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□ V_{cc}, V_{ee} bypassing	
□ capacitors and resistors at very high frequencies	
□ interference and shielding	
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