

ENGR-356
Exam 1 planning

Exam 1 will be on Wednesday and will cover chapters one and two of the textbook.

The exam will be closed book. No “cheat sheet” is allowed for this exam.

In chapter 1:

The focus of questions will be on the four amplifier models shown in table 1.1. Note that each amplifier has an output resistance (R_{out}) but that the gain factor for each is calculated assuming the R_{out} does not affect the output circuit. That is, R_{out} is zero for voltage output amplifiers and infinite for current output amplifiers. Note, as shown in example 1.3, how when cascading amplifiers the input resistance of a second stage can load the output of the preceding stage thereby reducing the final output signal compared to what it would be if no loading occurred.

In chapter 2 you should know:

- the ideal opamp characteristics
- know the topology for inverting and non-inverting amplifiers
- know the gain relationships for inverting and non-inverting opamp topologies
- understand the approach to finding these gain relationships
- understand how we can have a virtual ground in an opamp circuit
- know the topology and gain relationship for the differential amplifier
- know the topology for and operation of an instrumentation amplifier
- know what input offset voltage is, how we model it in a circuit, and how we mitigate its affect, particularly for systems where we are amplifying AC voltages but don't need to amplify DC
- know what bias offset voltage is, how it is modeled, and how it's affect is mitigated

- frequency response of amplifiers will not be emphasized