Goals for Exam 6: ECE 305, Thursday, May 7, 2015
Mark Lundstrom
Purdue University

The exam will be conducted in class and will consist of three questions. The first question is multiple choice and is about basic concepts and vocabulary. The second two questions are “workout” problems similar to the problems in the homework assignments.

You should bring a calculator. The only calculator permitted for exams in ECE undergraduate courses is the Texas Instruments TI-30X IIS scientific calculator.

A sheet of key equations will be provided.

This exam will test your understanding of and ability to work with three concepts/topics:

1) BJT fundamentals – familiarity with the active region of operation, the basic device physics and key parameters such as common emitter current gain, common base current gain, emitter injection efficiency, base transport factor, etc.

2) The Ebers-Moll model – its relation to the underlying device physics and an ability to use it to solve problems.

3) A general understanding of deviations of ideal – i.e. the Early effect, punchthrough, breakdown, emitter crowding and the basic operating principle of an HBT.

To do well on this exam, you should thoroughly understand the assigned reading as amplified upon in the lectures for Weeks 14 and 15. Most importantly, understand the quiz answers and the assigned homework.