

### ECEn 450. Introduction to Semiconductor Devices

<b>Catalog Description:</b>	<b>ECEn 450. Introduction to Semiconductor Devices. (3:3:1) W</b> Physics of electronic and optical solid state devices; includes semiconductor materials, bipolar and FET device physics and modeling, optical properties of semiconductors, and lasers.	
<b>Course Type:</b>	Engineering Topics	
<b>Prerequisites:</b>	ECEn 313, Physics 220,281, Math 113,	
<b>Textbooks and/or other required materials</b>	S.M. Sze, <i>Semiconductor Devices, Physics and Technology - 2nd Edition</i> , John Wiley & Sons, 2002, ISBN 0-471-33372-7.	
<b>Topics Covered:</b>	Physics of solid state devices including energy bands and electron and hole transport. Concentration on pn junctions, MOS Structures, and MOSFETs. Fabrication principles for semiconductors from lithography to etching and doping.	
<b>Course Competencies:</b>	Application of differential equations to model p-n junctions.	Outcome 1
	Application of differential equations to charge transport in semiconducting material.	Outcome 1
	Application of electromagnetics to understand fields and flow in PN-junctions.	Outcome 1
	Ability to use Spice.	Outcome 11
<b>Schedule:</b>	Lectures: One hour MWF Laboratory: (None) TA Recitations: One hour TTh	
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<b>Date:</b>	June 24, 2008	