

2013 Scanning Sheet. Assignment Description: _____ Instructor: _____ Date: _____ Scanned File Name: _____

ABET Outcomes											Rubric or student %	Example problem	Outcome #	EE 475 Integrated Circuit Engineering (3) – Outcomes Reviewed 2013
A	B	C	D	E	F	G	H	I	J	K				
		2		2			1	2	1	1	1		1	Use the Industry Association (SIA) roadmap to recognize trends and challenges in IC fabrication. Understand system constraints for bipolar and MOS technologies. Comprehend the necessary processing techniques for IC fabrication based on Advanced CMOS technology.
1		2		2					1		1		2	Theory of oxidation based on Deal-Grove model. Design and simulate the oxidation process with SUPREM and understand the theory of oxidation based on the Deal-Grove model.
		2		2					1		1		3	Apply the principles, theory and operation of optical and non-optical lithography techniques.
			2	2						1		1	4	Apply theory of processing techniques for thin film deposition by Epitaxy, evaporation, CVD, PECVD, and dry etching techniques, and their application in advanced processes. Design and simulation of process of thin film deposition, etching, and Epitaxy with SUPREM.
1			2	2						1		1	5	Apply principles and theory of thermal diffusion and ion implantation to design a fabrication schedule for BJTs and MOSFETs. Design and simulation of thermal diffusion and ion implantation with SUPREM.
1			2	2				2	1			1	6	Understand theory, trends, and challenges in advanced IC fabrication when dealing with multilevel interconnects.
		1		2				2				1	7	Design of process integration, MOS scaling, MOS layout, and conduct simulation project for BJT and CMOSFET using SUPREM program to achieve electrical specifications of devices.

1=supporting contribution
2=significant contribution

Rubric 5: Excellent Mastery of Outcome By Vast Majority of Students 4: Good Mastery of Outcome By Vast Majority of Students 3: Adequate Mastery of Outcome By Majority of Students 2: Marginal Mastery of Outcome By Most Students 1: Lack of Mastery of Concept By Most Students	a. an ability to apply knowledge of mathematics, science, and engineering	
	b. an ability to design and conduct experiments, as well as to analyze and interpret data	
	c. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	
	d. an ability to function on multi-disciplinary teams	
	e. an ability to identify, formulate, and solve engineering problems	
	f. an understanding of professional and ethical responsibility	
	g. an ability to communicate effectively	
	h. the broad education necessary to understand the impact of engineering solution in a global, economic, environmental, and societal context	
	i. a recognition of the need for, and an ability to engage in life-long learning	
	j. a knowledge of contemporary issues	
	k. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	
	Improvement Suggestions or Comments:	