



H-Form ECE 344

A Brief Course Description			
College	Engineering		
Department/ Program	Electrical Engineering - Electronics Engineering Program		
Course Name	Introduction to Nano-Electronics		
Course Code	ECE 344		
Year / Level	4/ 8		
Credit Hours	3		
Contact Hours	Lecture: 3	Lab/Tutorial: 0	Training: 0
Language	English		
Track	<input type="checkbox"/> University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Program		
	<input checked="" type="checkbox"/> Required <input type="checkbox"/> Elective		
Pre-requisites Course	ECE 342		
Co-Requests	-		
Course Description	Theory of current, voltage and resistance from atoms up. Electrons at the nanoscale. Principles of quantum mechanics, including quantization, the wave-particle duality, wave functions and Schrödinger's equation. Electronic properties of molecules, carbon nanotubes and crystals, including energy band formation and the origin of metals, insulators and semiconductors. Electron conduction. Ballistic transport. Derivation of Ohm's law. Ballistic vs bulk MOSFETs.		