

Course No.	430.837A	Lecture No.	001	Course Title (Subtitle)	Molecular Nanoengineering	Credit	3	
Representative Instructor	Name	Lee, Sin-Doo (position: Professor)		Homepage	http://mipd.snu.ac.kr			
	E-mail	lclab2@snu.ac.kr		Phone No.	02-880-1823			
	Interview Time/Place : Mon/Wed, 15:00-17:00/Bld. 301, Rm. 1109							
Attachment	(Korean)							
	(English)	Mol Nanoeng_Syllabus (ENG).hwp						
Prerequisite Course	Introduction to Quantum Mechanics, Introduction to Electro-Physics							
*1.Purpose of Course	This course is for graduate students who deal with nanoscience and nanoengineering of organic materials at molecular levels. It covers the nanofabrication tools, different classes of nanostructures, and diverse nanodevices ranging from the electronic, micromechanical, to bio applications. Throughout this course, the students are expected to acquire the methodology of systematic approaches together with the basic principles in nanoscience and nanotechnology.							
*2.Materials and Reference	<i>Learning Bio-Micro-Nanotechnology</i> , M. I. Mendelson (CRC Press-Taylor & Francis, New York, 2013). <i>Introduction to Nanoscale Science and Technology</i> , M. Di Ventra <i>et. al.</i> , Ed. (Springer, New York, 2004).							
*3.Evaluation Method	Attendance	Task	Medium	Final	Random Evaluation	Attitude	Other	Total
	10	20	30	40	0	0	0	100
	Remark of Others		Final: Report on the analysis of recent research papers					
*4.Lecture Plan	Contents of Lecture							
	Week	Weekly Plan						
	1	Chap. 1: Thinking Small and Big, Technology History						
	2	Size of Things, What's Small Technology?						
	3	Chap. 2: Biomolecules and Cells, Building a Human Cell						
	4	Cell Structures, Cell Membranes, Biomolecules						
	5	Chap. 3: Molecular Chemistry, Bonding, Macromolecules						
	6	Colloids, Solid Nanomolecules						
	7	Chap. 4: Bit of Physics, Surface Effects, Quantum Mechanics						
	8	Review and Midterm Exam						
	9	Energy Bands, Transistors, LEDs, Sensors						
	10	Chap. 5: Engineering Bits and Bytes, Electronics on a Chip and Analogy						
	11	Chap. 6: Seeing Small Things, Microscopes						
	12	Chap. 7: Nanoelectronics, Lithographic Tools						
	13	Emerging Technology Bottom-Up Technology						
	14	Chap. 8: Micromechanical Systems						
15	Chap. 12: Self-Assembled Future							
	Final Exam: Report on Analysis of Recent Research Papers							
5.References to Course Registration								