COURSE DETAIL

NANO MECHANICAL ENGINEERING
Country Korea, South
Host Institution Yonsei University
Program(s) Yonsei University
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Mechanical Engineering
UCEAP Course Number 121
UCEAP Course Suffix
UCEAP Official Title NANO MECHANICAL ENGINEERING
UCEAP Transcript Title NANO MECHANCL ENGR
UCEAP Quarter Units 4.50
UCEAP Semester Units 3.00

Course Description

Topics include Hamilton`s variational principle, Lagrange equations of motion, principle of least action, generalized coordinates, equivalence of Lagrange`s and Newton`s equations, simple harmonic oscillator, Hamilton`s equations, Hamilton-Jacobi theory, particles and waves, atoms, quantization of light, quantization of atomic energy levels, Bohr model, matter waves, thermal physics, entropy, blackbody radiation, quantization of energy, uncertainty principle and wave packet, Schrodinger equation in one dimension, barriers and wells, tunneling through the potential barrier, electron microscopy (TEM, SEM), Scanning Probe Microscopy (STM, AFM), three-dimensional Schrodinger equation, quantum well, quantum dots, nano wires, nano particles, electron spin, MRI, Pauli exclusion principle, fermions and bosons, Solids-Theory: the concept of energy bands, nanocrystals, Solids-Applications: conductors, semiconductors, insulators and superconductors, Solids-Applications: transistors, integrated circuits.

Language(s) of Instruction
English

Host Institution Course Number
MEU3710

Host Institution Course Title
NANO MECHANICAL ENGINEERING

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department
Mechanical Engineering

Print