

Condensed Matter Physics II			
Registration code	0829312	Credits	2.0
Course Category	Specialized course	Class room	333
Term(Semester)/Day/Period	III (3rd year 6th semester) /Fri / 2 (10:30~12:00)		
Instructor	GELLOZ Bernard Jacques		
Contact	Office : Engineering Building3,North wing 431 Phone : 789-4202 E-mail: gelloz@nuap.nagoya-u.ac.jp		
Target Schools (Programs)	Sc(P · C · B) · En(P · C · Au) · ?		
<p>Aim of the course The goal of this course is to learn about the fundamental theories related to the behavior of electrons and atoms in solids. Phonons and basic models of electrons in metals, semiconductors and dielectrics will be discussed.</p> <p>Prerequisite for CM II: CM I, or a knowledge of reciprocal lattice (a refresh will be given)</p> <p>Contents 1.Heat capacity of solids - Classical theory 2. Heat capacity of solids - Quantum theory and Einstein model 3.Lattice vibrations 4.Heat capacity of solids - Debye model 5.Thermal conductivity of solids 6.Dielectric properties of solids 7. Introduction to electron theory of metals 8. Concept of energy band and free electron model 9. Fermi sphere 10. Fermi-Dirac distribution function 11. Electronic specific heat 12. Semiconductors</p> <p>Grading Class attendance is required. Absentee must give a valid reason. A student will be regarded as ABSENT if his attendance of lecture is below 75% or he is absent without valid reason from any scheduled tests. A student who has an attendance rate of 75% or more and has taken the tests but wishes to be considered as ABSENT must contact the instructor by the end of the final examination. Grades will be based on homework, a midterm examination and a final examination.</p> <p>Related courses: Science of Materials, Quantum Mechanics I&II, Electricity and Magnetism.</p> <p>Key Words: Materials, solid state, metals, crystal, structure, thermal, electrical, optical.</p>			
Text Book	C. Kittel: Introduction to Solid State Physics 8 th Ed. (John Wiley & Sons, 2005). Price: \$40		
Reference Books	Ashcroft&Mermin: Solid State Physics (Brooks/Cole) Price: \$60; P. Hofmann: Solid State Physics, an introduction (Wiley-VCH) Price: \$40		