科目名　Course Title	
物性物理学2(Condensed Matter Physics II)	
学科・専攻　Department/Program	受講年次　Grade
G30 Physics	3rd
授業形態　Class style	必修・選択の別　Compulsory or Elective
講義	* See "Remarks"
時間割コード　Registration code	開講期・曜日・時限　Semester,Day & Period
0680200	春学期 金：2
単位数　Credit	科目区分　Course type
2	Specialized Course

担当教員　Instructor	GELLOZ Bernard Jacqu(GELLOZ Bernard Jacqu)
所属研究室　Laboratory	J-Lab
連絡先　Contact	bernard.gelloz@nagoya-u.jp
居室　Room	615

講義の目的とねらい　Course purpose

The purpose of this course is to gain a solid understanding of the basic behavior of electrons and atoms in solids and the consequences on the electrical and thermal properties.

履修要件　Prerequisite

Condensed Matter Physics I

履修取り下げの方法について　How to Apply for Course Withdrawal

<「履修取り下げ届」提出の要・不要 Necessity/Unnecessity to submit "Course Withdrawal Request Form">
Necessary
<条件等 Conditions>
The course withdrawal system is adopted. Students can withdraw from this course by submitting a request to the appropriate School.
Deadline for submitting this request is the end of the final class.

成績評価　Grading

Grades will be based on homework (30%), a midterm examination (30%) and a final examination (40%).

不可（F）と欠席（W）の基準　Criteria for "Absent(W)" &"Fail" grades

A student will be regarded as ABSENT if he is absent without valid reason from any scheduled tests.
A student who wishes to be considered as ABSENT must contact the instructor by the end of the final examination.

関連する科目　Related courses

Condensed Matter Physics I, Fundamentals of Physics I, II, III & IV, Science of Materials, Quantum Mechanics I&II, Electricity and Magnetism.

教室　Class room
Check the Course Timetable. ES-035

到達目標　Goal
The goal of this course is to learn about the fundamental theories related to the behavior of electrons and atoms in solids and about the mechanism of some of electrical and thermal properties.

授業内容　Content
1. Lattice vibrations; Phonons 2. Heat capacity of solids - Classical theory, Einstein model and Debye model 3. Thermal conductivity of solids 4. Introduction to electron theory of metals; Drude model 5. Free electrons: quantum approach 6. Nearly-free electron models; Concept of energy bands; Bloch waves 7. Metals; Fermi sphere; Density of states; Electronic specific heat; 8. Semiconductors 9. Dielectric properties of solids

教科書　Textbook
Introduction to Solid State Physics (IE), 8th Edition　Kittel, Charles/ McEuen, Paul　John Wiley & Sons Inc. 2005
参考書　Recommended reading
Ashcroft&Mermin: Solid State Physics (Brooks/Cole) P. Hofmann: Solid State Physics, an introduction (Wiley-VCH)
連絡方法　Contact method
Please use email to contact the teacher if you have any questions outside class.
その他　Remarks
*See Course List and Graduation Requirements for your program for your enrollment year.