COURSE PLAN

Solid State Physics, winter 08

Literature: C. Kittel: Introduction to Solid State Physics, 8th ed.

Lectures+ Lessons (10 x 3h): Given in English, material in English.
Laborations (6); in groups of 2 students.

Home page: www.angstrom.uu.se/solidstatephysics/education/education.html

Schedule available on web: http://www.teknat.uu.se/student/schema/index.php

Examination:
6 problems, 3 points/problem
In order to pass the course, the laborations must also have been passed.

Teachers:

Lectures:	N. Witkowski	witkowski@insp.jussieu.fr
Lessons:	N. Witkowski	witkowski@insp.jussieu.fr
Laborations:	Magdalena Lundh (tel. 4713134)	room 4242
	Zareh Topalian (tel. 4713132)	room 4353
	Magnus Wikberg (tel. 4713139)	room 4418

Laborations:

1. Superconductivity
2. Specific heat
3. Semiconductor physics
4. Magnetic suseptibility
5. X-ray Diffraction
6. Band Structure Calculations

PLAN OF LECTURES

Lecture:		**Chap: pp. (in Kittel).**
1	Introduction, crystal structure	1
2	Crystal binding	3: 49-73
3	Reciprocal lattice	2: 27-30, 33-38
4	Diffraction	2
5	Lattice vibrations	4
6	Thermal properties	5
7	Free electron model	6
8	Energy bands	7, 9: 232-242
9.	Electron movement in crystals	8: 191-200
	Metals and Fermi surfaces	9: 223-242
10.	Semiconductors	8
11.	Superconductivity	10: 259-279, 293-294
12.	Magnetism	11

A summary of the lectures is available on the home page.

Plan of Lessons

Lesson		Number in Problem collection (reserve).	
1	Crystal structure	1,4,6,7,8	2, 9
2	Reciprocal lattice	3,4,6	7
	Diffraction	1,4	2,5,6
3	Diffraction	3,8,9,15	12
4	Lattice dynamics	2,3,6,9	4,5
5	Free electron model	2,3,5,14	4,10,12
6	Band structure	1,3,6,7	4,5
7	Fermi surface	1,2,5,7	3
8	Semiconductors	2,4,6,8	5,7
9	Magnetism	1,3,5	2,4
	Superconductivity	3	2
10	Repetition	Old exam	

Laborations FTF I, spring 2008:

Laboration reports should be handed in at most a week after the laboration. Outside the Solid State Physics corridor in House 4, level 3, there are files with the names of the laborations. Please hand them in there. Laborations that need corrections will also be handed out in these files. The corrected laboration reports must have been approved at latest 31 May 2006. If not the laboratory work must be redone next year.

NOTE! Preparatory questions in the beginning of the lab instructions must have been answered prior to the laboratory work. This is a prerequisite for doing the laboratory work.

Sign up for laborations on the lab schedules at the noteboards at the Ångström Lab, ground level. The schedules will be posted later, and notification will be given at the lectures. Every lab group should contain 2 students. Each group carries out two of the three available laborations (semiconductors is compulsory). Each student writes a full report on one of the laborations and a summary report of the other.