

# SK2758 – Solid state physics, 7.5 credits

## Course analysis - Spring 2022, period 4

**Course analysis performed by**  
Magnus Andersson (examiner)

### Teachers:

Magnus Andersson (examiner and course responsible)

Frank Elson (tutorials)

Margareta Linnarsson (X-ray laboratory work)

Nezhat Pournaghavi (lectures on band structure, band structure laboratory work)

Ramon Almeida (lecture on DFT, band structure laboratory work)

### Course design

The course consists of lectures, tutorials and laboratory work (with two labs – one on X-ray diffraction and the other on band structure calculations). The course is examined through four quizzes in Canvas (TEN3), a normal written exam (TEN2) and a separate examination with written lab reports (LAB1). This year, education was back to Campus without any remaining pandemic restrictions, which seems to have been a relief for both students and teachers. A modern version of the band structure laboratory work was developed for this course offering by Ramon Almeida and Nezhat Pournaghavi, who were also assigned to give the lectures on band structure in the course. It seems as this newly developed laboratory work has worked well, but that minor improvements could be done on the laboratory instructions. The pass requirement for the quizzes was reformulated and the quizzes were also updated to fit this new pass requirement. This change seems to have worked without any problems.

### Student workload

The course has 7.5 hp (200 h) during period 4 and the students state that they have spent a reasonable amount of time on the course (all answers were in the ranges 100-140, 140-180 or 180-220 hours). This looks normal for the course and since students sometimes underestimate their workload, there are no reasons for change.

### Study results

The course had 34 registered students among which 22 were active in some way during the course this year. The results on the different parts were as follows:

Ladok code	LAB1	TEN2	TEN3	Full course
Passed	20	17	20	17

Percentage	91 %	77 %	91 %	77 %
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Associated to the course, there was also 4 re-registered students who took the written exam and 3 of them passed the examination.

The grades on TEN2 were distributed as follows among the students participating in the examination:

A: 2 students                      B: 5 students  
C: 4 students                      D: 5 students  
E: 2 students                      FX: 2 students  
F: 1 student

The results are better than last year, which to some extent can have been caused by a smaller number of re-registered students and a somewhat easier exam.

### **Results from student questionnaire**

8 students out of 22 active students answered the questionnaire. Students were in general satisfied with the course and the way it was given. Half of the respondents estimated that the course was as a normal course or slightly better than a normal course, while the other half considered it to be much better than a normal course of very good. All parts of the education in the course were appreciated (considered as good or very good) by the students and there were only very few suggestions for improvement. These few suggestions were (each from one single student):

- Introduce some demonstrations on the lectures
- Spend a little bit more time on explanations during the tutorials
- Explain the theory on the band structure laboration better
- Some of the material is covered in the elective course in statistical physics

### **Prioritized course development**

A better and clearer division between material offered on the lectures and material made available as on-line videos would probably be useful. That could potentially also give some time for adding some demonstrations during the lectures. A minor update of the laboratory instructions for the band structure laboratory work is natural after having used the laboratory instructions for the first time.