

MENA3001 – from H2020 – including comments from H2021 (course responsible Martin Valldor)

Hva dere opplever som emnets viktigste styrker og utfordringer, både med tanke på læringsutbyttet og praktisk gjennomføring

This course has its focus on functional materials with has a large impact in our society – almost all technology is based on the principles that are shown during the seminars. Hence, it is a subject that contains many case studies and strong relation to our immediate surroundings. The challenge is to cover enough ground to give a broad overview to all interested students. The aim is set very high but the execution can be difficult sometimes due to the generalizations needed that do not always apply, i.e. there are several exceptions to the “rules” and it might be difficult to give the students this overview that cannot contain all exceptions.

- Hvordan/om emnet passer inn i studieløpet (plassering, forkunnskaper, samspill med andre emner som går samtidig o.l.)

The content of the seminars is perfectly matching the MENA program because the pensum contain both physics (measurements, properties, interpretations) as well as chemistry (compounds, crystal structures, chemical manipulations to improve properties). The most difficult part here is to related to previous courses – the closest one being MENA2000 – and giving enough knowledge build-up for the later courses in different topics. Especially the latter part is very difficult, because there are not really any topic within the MENA program that build on MENA3001 – there are courses on Nanoscience and similar but not really any in-depth course on electric or magnetic properties.

- Spesielle grep som er tatt de siste årene for å utvikle og forbedre emnet, eller planer fremover.

The mandatory assignments that were employed in 2019-2020 (written hand-ins with calculations) have been completely replaced by something new: We (Lasse Vines and I) discussed the idea to let each student present a scientific paper on the “topic of the week”, i.e. something related to what was presented in the seminars in the same week. With seminars on Tuesdays and Thursdays it was perfect to have the student seminars on Fridays. During these seminars, the student are meant to present paper in-front of each other without any of the two lecturers – so that an internal discussion can start with a more student-like language. Focus was to look as the figures in the papers to see what they show and how to interpret them. One PhD candidate is present in the seminars to help them in their discussion.