



SD2709 Undervattensteknik 7,5 hp

Underwater Technology

Fastställande

Kursplan för SD2709 gäller från och med VT15

Betygsskala

A, B, C, D, E, FX, F

Utbildningsnivå

Avancerad nivå

Huvudområden

Maskinteknik

Särskild behörighet

The course is aimed at students in the first or second year at a Masters program in engineering. Bachelor of engineering with working knowledge in Matlab, mechanics, algebra and calculus is required.

Undervisningsspråk

Undervisningsspråk anges i kurstillfällesinformationen i kurs- och programkatalogen.

Lärandemål

The course aims at giving basic understanding, knowledge and skills in design and operation of underwater vessels (UV). The course will treat basic conditions, performance issues, subsystems and integrated systems of both small and large vessels.

After the course you will be able to:

- Define and explain the fundamental mechanics of UV,
- Define and describe some basic types of UV,
- In a UV development process consider system architecture and performance in relation to stakeholder expectations and system requirements,
- Solve and judge basic power/energy need, range and performance calculations of UV,
- Define and explain fundamental control systems aspects for UVs,
- Solve and judge the planning, execution and evaluation of a UV mission at sea,
- Design a conceptual UV for a specific mission,
- Judge and argue for/against various design choices to assess the optimality of an UV, also considering sustainability and environmental aspects.

Kursinnehåll

The course is problem based, where you develop towards the learning objectives by working with requirements, design, analysis, synthesis, and system evaluation for a particular underwater system. The design work is supported by a number of seminars, which treat the basic principles of the field in general and some detailed aspects in particular. The seminars are based on a number of articles, standards and other literature according to the literature list below and very importantly - discussions around the progress of your design work. In the final seminar the different designs are presented, compared and evaluated. The design assignment and details of what you are expected to do and deliver are specified in a separate document.

Kurslitteratur

Kurshäfte samt vetenskapliga artiklar som delas ut vid under kursen.

Examination

- PRO1 - Projekt, 7,5 hp, betygsskala: A, B, C, D, E, FX, F

Examinator beslutar, baserat på rekommendation från KTH:s handläggare av stöd till studenter med funktionsnedsättning, om eventuell anpassad examination för studenter med dokumenterad, varaktig funktionsnedsättning.

Examinator får medge annan examinationsform vid omexamination av enstaka studenter.

När kurs inte längre ges har student möjlighet att examineras under ytterligare två läsår.

Examination is done through active participation in the seminars, including literature reviews and other preparation and deliveries as described in the agenda below and in a separate document specifying your design mission. To pass the course you should participate actively in all seminars and complete and deliver all deliveries on time. One or two missed seminars can be accepted if the stated deliveries for that seminar are met.

Övriga krav för slutbetyg

To pass the course you should participate actively in all seminars and complete and deliver all deliveries on time. One or two missed seminars can be accepted if the stated deliveries for that seminar are met.

Etiskt förhållningssätt

- Vid grupparbete har alla i gruppen ansvar för gruppens arbete.
- Vid examination ska varje student ärligt redovisa hjälp som erhållits och källor som använts.
- Vid muntlig examination ska varje student kunna redogöra för hela uppgiften och hela lösningen.