KTH SK184N Environmental Physics

This e-course covers the physics of solar energy, the carbon cycle, carbon-based, nuclear, and renewable energy, the Green-house effect, and how mankind affects the environment. The emphasis is on understanding the relevant physical principles and the ability to apply them to solving simple practical problems. This course is based on courses given at KTH (F) Engineering Physics and at Stockholm University since the 90-ies. It is continuously upgraded with recent research from relevant fields.

Layout

This is a fully online course (distanskurs), with self-study and web-based examination, at a pace that suits the student. The individual online tests (Quizzes or Q's) should be approached as regular written tests - each 6 hours long, with 10 qualitative questions/quantitative problems each. A good study pace is one Chapter/Quiz per 1-2 weeks. E.g., Chapter 2 is tested by Q2, and the chapter numbering from the course textbook B&vG 2011.

- Study & exams entirely online, no physical presence at any time during course.
- Online access info is emailed to those enrolled by antagning.se at start of each term.
- Course application is exclusively via www.antagning.se – no direct enroll by KTH.

Literature

The course follows the textbook "Environmental Physics, Sustainable Energy and Climate Change", by E. Boeker and R. van Grondelle, Wiley 2011 (3rd edition). The textbook is available as e-text (English) for free for enrolled students (via KTHBib). A brief compendium based on an earlier edition of the book and a set of practice problems with solutions are available within the on-line examination system as additional study material. The textbook, study materials and exams are in English; course administration, teacher communication - in English or Swedish.

Exams and grading

The course follows the textbook, with some slight modifications in the ordering of the topics to make the tests approximately equal in weight. The examination is subdivided into 9 sections:

- 9 tests of max 10 points each are blocked into three Parts I,II,III (TEN1,2,3 in Ladok); each Part is 3 x 10 points = 30 points maximum.
- A-F scale is in 10% increments: 30-27p=A; 27-24p=B; 24-21p=C; 21-18p=D; 18-15p=E.
- Final grade scale: 90-81p=A; 81-72p=B; 72-63p=C; 63-54p=D; 54-45p=E.

Each test consists of 10 questions/problems from the corresponding chapter/section of the textbook. You have a maximum of 6 hours for completing the test - so, do prepare and study the course material prior to the test. You must attempt all 9 tests to complete the entire course. You must score >=15p (50%) in each of the Parts in order to pass them and get the respective credits in LADOK (3 hp per Part). If you have done the three tests and have the total <15p in any of the Parts, contact the teacher by email to request a re-exam on a specific chapter (one chapter at a time; no new attempts for improving the pass-grades A-E – ingen plussning). While waiting for a re-exam, you can continue working on the other Parts.