



Skeiðslýsing Course description

Skeiðsnummar <i>Course number</i>	3174.22
Heiti <i>Title</i>	Orkuskipanir og umhvørvi
ECTS <i>ECTS</i>	7,5
Fortreytir <i>Prerequisites</i>	Termodynamik
Stig <i>Level</i>	Bachelor
Endamál <i>Purpose</i>	At geva tí lesandi vitan um og fatan av eyðkenning av orkuskipanum og um greining av bygnaðinum og avmarkingunum í nútímans orkuskipanum og atbundnum umhvørvisavbjóðingum og -trupulleikum.
Innihald <i>Content</i>	• Innleiðing til orkuskipanir • Alheims orkuskipanin, tilfeingi, tilfengisgoymslur og orkunýtsla. • Primer, endalig og gagnlig orka. • Burðardygd, definitiónir. • Vakstrarmørk í orkuframleiðslu. • Dømi fyri ymisk lond. • Orkunýtsla í ymsum geirum (t.d. matvøru-, privatnýtslu-, ídnaðar-, ferðslu-, tænastrageirum). • Gagnnýstluketur í ymsum geirum. • Umhvørvisávirkan, klassisk dálking, CO₂. • Umhvørvisávirkan av varandi tøkniþróð. • Lívsringrásmeting av umhvørvisávirkan. • Dømi um tøkniþróð til minkaða ávirkan úr ymsum geirum. • Skeiðsverkætlan: Stakkanning av ávirkan av orkuverkætlan, við úrslitunum bornum framm sum vísindalig grein.
Læru- og undirvísingarrættir <i>Learning and teaching approaches</i>	Fyrilestrar, seminarframløgur av lesandi, bólkaarbeiði, sjálvlestur og verkætlanar-bygd læring, skeiðsverkætlan.
Læruúrtøka <i>Learning outcomes</i>	Eftir skeiðslok skal lesandi vera fær/ur fyri at:



Próvtøkuháttur Assessment method	Tann lesandi skrivar eina vísindaliga grein um eitt skeiðsviðkomandi evni og hevur eina munnliga framløgu um greinina. Próvtalið er eitt samlað próvtal fyri greinina og framløguna, við eini 2/3 og 1/3 vekt á grein og framløgu ávikavist.
Próvdøming Examination	Innanhýsis
Próvtalastigi Marking scale	7-trinsstigin
Lestrarlisti Bibliography	Everett, Peake, Warren (Eds), Energy Systems and Sustainability, Oxford University Press, 3rd ed. 2021. Ein lestrarlisti við tíðarsvarandi viðkomandi greinum og annað tilfar, verður gjørt tøkt fyri teimum lesandi gjøgnum skeiðið. Høvudsparturin av undirvísingini (og av lestrartilfarinum) er grundað á viðkomandi vísindaligar greinar.
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Skeiðsnummar <i>Course number</i>	3174.22
Heiti <i>Title</i>	Energy systems and the environment
ECTS <i>ECTS</i>	7,5
Fortreytir <i>Prerequisites</i>	Thermodynamics
Stig <i>Level</i>	Bachelor
Endamál <i>Purpose</i>	To give students knowledge about and understanding of the characterization of energy systems and the analysis of the structure and constraints of today's energy systems and related environmental problems.
Innihald <i>Content</i>	• Introduction energy system. • The global energy system, resources and reserves, energy consumption. • Primary, final and useful energy. • Sustainability, definitions • Limits of growth in energy production. • Examples for different countries. • Energy consumption in the different sectors (e.g. food, domestic energy, industry, transport, services) • Efficiency chains in the various sectors. • Environmental impacts, classical pollution, CO₂. • Environmental impact of renewable technologies. • Life cycle assessment of environmental impact. • Examples from different sectors for reduced impact technology. • Course project: Case study on impact assessment for an energy project with results presented in the form of a scientific paper.
Læru- og undirvísingarhættir <i>Learning and teaching approaches</i>	Lectures, seminar presentations by students, group work, self-study and project-based learning, semester project.
Læruúrtøka <i>Learning outcomes</i>	A student who has met the objectives of the course will be able to: • Describe, discuss and evaluate energy supply



	situations with respect to primary energy requirements, energy carrier mix and conversion losses • Describe, discuss and evaluate energy systems by related environmental challenges including their contribution to the CO₂ balance. • Describe, discuss and evaluate environmental problems related to renewable energy projects. • Present results in the form of a scientific paper
Próvtøkuháttur Assessment method	The student writes a scientific paper on a course-relevant subject and presents it orally. The grade is given as a combination of the two contributions, with 2/3 and 1/3 weight on the paper and presentation respectively.
Próvdøming Examination	Internal
Próvtalastigi Marking scale	7-step marking scale
Lestrarlisti Bibliography	Everett, Peake, Warren (Eds), Energy Systems and Sustainability, Oxford University Press, 3rd ed. 2021. A reading list including actual relevant articles and other material will be made available to the students during the course. The major part of the teaching (and of the reading material) is based on relevant scientific papers.
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