

Description of Energy Science

A	PURPOSE	
	To provide students with a general knowledge in natural sciences with focus on energy sciences, thus preparing the students for employment and for further studies at master level.	
B	CHARACTERISTICS	
1	DISCIPLINE(S) / SUBJECT AREA(S)	Engineering and Natural sciences; Elective subjects (70:30).
2	GENERAL / SPECIALIST FOCUS	General programme in physical and mathematical sciences with focus on sustainable energy engineering.
3	ORIENTATION	An academic degree based on previous as well as current research, with specialisation in energy engineering science, giving wide opportunities for employability and further studies.
4	DISTINCTIVE FEATURES	<ul style="list-style-type: none"> - Elective courses make up more than a quarter of all ECTS, giving the opportunity for individual specialisation. - The programme takes examples from the Faroese community whenever possible. - The programme is thought in Faroese, Danish (Nordic) and English
C	EMPLOYABILITY & FURTHER EDUCATION	
1	EMPLOYABILITY	Positions that require bachelor level expertise with solid skills in physical and mathematical sciences and energy science.
2	FURTHER STUDIES	Master programmes with a broad intake. Master programmes in engineering with a broad engineering intake. Master programmes in science with broad intake. Master programmes specialising in energy engineering.
D	EDUCATION STYLE	
1	LEARNING & TEACHING APPROACHES	Student centred, teacher centred, problem based learning, task based learning, research based learning, learning through laboratory exercise, group work and individual study.
2	ASSESSMENT METHODS	Written examinations, oral examinations, case studies, essays, presentations, reports, continuing assessments, project work and self- or peer reflection.
E	PROGRAMME COMPETENCES	
1	GENERIC	
	<ul style="list-style-type: none"> • Teamwork: Ability to work as part of a team and to assume responsibility for tasks. • Management ability: Ability to plan and manage projects taking into account resource constraints. • Problem solving: Ability to handle stress and effectively solving practical and theoretical problems. • Creativity: Ability to be creative in developing ideas and in formulating and solving problems. • Communication skills: Ability to communicate efficiently and to present complex information in a concise manner. 	

	<ul style="list-style-type: none"> • Abstract and analytical thinking: Ability to apply abstract and analytical thinking, and in this way reach conclusions based on facts and logic.
2	SUBJECT SPECIFIC
	<ul style="list-style-type: none"> • Research skills: Ability to demonstrate knowledge of, and ability to use, research techniques and technology. • Mathematical skills: Ability to use mathematics to describe and solve problems in engineering and physics. • General Engineering skills: Ability to understand engineering problems; to design solutions for the problems; to implement the solutions as part of engineering systems; and to operate systems, thus solving the engineering problems. • Skills in Energy System analysis: Ability to analyse energy supply systems, to suggest and implement solutions to increase their environmental, technical and social sustainability. • Computational skills: Ability to use appropriate software such as programming languages and packages in mathematical and engineering investigations and to gather and interpret relevant data.
F	COMPLETE LIST OF PROGRAMME LEARNING OUTCOMES
	<p>On the completion of the study programme in BSc in Energy Science the successful student will be able to:</p> <ol style="list-style-type: none"> 1. Combine research based knowledge and practical knowhow to solve technical problems. 2. Apply basic standard methods from mathematics, physics and chemistry to evaluate and solve problems in energy-supply and demand 3. Apply and demonstrate basic knowledge of programming languages. 4. Demonstrate knowledge of scientific methods in energy analyses and to identify solutions for energy supply problems. 5. Demonstrate knowledge of relevant information sources and be able to carry out critical literature review. 6. Communicate technical information, theory and results to a wide audience with the aid of graphic, written and oral communication. 7. Acquire new knowledge and critically appraise acquired knowledge. 8. Apply acquired skills to contribute to problem solving through project work, both independently and as a team member. 9. Apply and demonstrate knowledge in solving problems in energy supply. 10. Assess the societal and technical implications of the different solutions for energy supply (fossil fuel, wind, hydro, tidal. wave, solar). 11. Analyse energy problems with help of mathematical modelling of the demand site and the supply technology.