UNIVERSITY OF BORÅS

Smart textiles
Smarta textilier
7.5 credits
7.5 högskolepoäng

Ladok Code: AT2ST1
Version: 1.0
Established by: Committee for Education in Technology 2018-06-28
Valid from: Autumn 2018

Education Cycle: Second cycle
Main Field of Study (Progressive Specialisation): Textile Engineering (A1F)
Disciplinary Domain: Technology
Prerequisites: Textile electronics 7.5 credits.
Subject Area: Textile Technology
Grading Scale: Seven-degree grading scale (A-F)

Content

The smart Textile course is based on basic knowledge of textile electronics, which is hereby implemented and further investigated
based on various aspects of functional and smart textiles. Mandatory elements in the form of laboratory work and projects include:
Electrical characterization of conductive materials
Practical measurements of electrical impedance.
Conductive functionalization of textiles
Coating
Pressure
Design and characterization of textile sensors
resistive
capacitive
Integration of textile electronics
Combination of materials and technology
The course also gives the student the opportunity to influence the content and to independently demonstrate in-depth knowledge in the field of smart
textiles when problem and project-based learning is the starting point.

Learning Outcomes

Upon completion of the course, with an approved result, the student should demonstrate:
Knowledge and understanding:
1.1 explain the relevant materials and characteristics of smart textiles based on the central concepts of the area.
1.2kunna describe different types of functionalization and characterization methods for conductive textiles and to discuss which and how different parameters affect the conductive properties.
1.3 show an in-depth understanding of textile sensors
1.4 Describe materials and methods suitable for the implementation of textile electronics

Skills and Abilities:
2.1 be able to measure electrical properties of conductive textiles, such as t.e.x. resistance, electrical impedance
2.2 Demonstrate independent responsibility for their own learning, critically acquire knowledge to produce and characterize conductive sensors, and demonstrate this during laboratory work.
2.3 be able to plan and control project work, put it in its context and take into account social demands.

Evaluation ability and approach:

3.1 critically explain the possibilities and limitations offered by electrically conductive textiles.
3.2 demonstrate the ability to verbally and in writing document and describe practical work, prototypes, analysis of results and discuss conclusions based on relevant arguments for researchers, industry and laymen.

Forms of Teaching

Teaching in the course consists of
- lectures
- laboratory
- project

The language of instruction is English.

Forms of Examination

Assignment 1: Laboratory diary
Learning outcomes:
Higher Education Credits: 2.0
Grading scale: ECTS

Assignment 2: Project report (problem-based)
Learning outcomes:
Higher Education Credits: 2.5
Grading scale: ECTS

Assignment 3: Project report (project-based)
Learning outcomes:
Higher Education Credits: 3.0
Grading scale: ECTS

Examination 1 is a laboratory diary of the laboratory.
Exams 2 and 3 are a summary project report of each PBL assignment.
Grading scale: ECTS, All elements must be approved and the final grade of the course is determined by the combined partial results.

Student rights and obligations at examination are in accordance with guidelines and rules for the University of Borås.

Literature and Other Teaching Materials

During the progression of the course the students will identify their lacking skills and acquire the necessary literature to meet that demand. Scholars will offer guidance in this process.

L. van Langenhove. Smart textiles for medicine and healthcare. (2007). (1st) Cambridge, England: Woodhead Publishing. ISBN 1845690273.

Student Influence and Evaluation

Miscellaneous

This course is primarily a programme course in the Master programme in textile engineering.