Hochschule
Albstadt-Sigmaringen
Albstadt Sigmaringen University

Study Abroad - Certificate in Textile Engineering – Spring semester

30 ECTS credit program

Programme Modules:

Module	ECTS
Digital Construction 1	3
Digital Construction 2	2
Textile Ecology and Sustainability	3
Social Aspects and Ethics	3
Quality Management 1	2
Field Testing	3
Knit and Wear	2
Industry-related project	12

Further Information / Contact:

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Study Abroad Certificate in Textile Engineering
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Study Abroad Certificate in Textile Engineering - Spring
Module: Digital Construction 1

Key facts

Workload		**ECTS**
90 h		3
Parts of the module	**Contact time**	**Self-study time**
	30 h	60 h
Module leader	**Assessment**	
Prof. Marina Baum	Homework Assignment	

Curriculum Outline

Students will get specialized theoretical knowledge in the areas of researching international trends for clothing, developing a mood board, basics of pattern design, pattern development and modification of pattern pieces.

Key content

- Construction process in the clothing industry
- Basic terms and definitions: Construction systems, body measurements, construction measurements, finished measurements
- Structure of sizing systems, serial measurements, size charts, fit classes
- Basic construction of ladies' blouse with bust dart (1:4)
- Development of production pattern with seam allowances, labelling and markings
- Construction of small parts, pattern variations, dart placement
- The above topics are constructed on a scale of 1:4.

Study Abroad Certificate in Textile Engineering - Spring
Module: Digital Construction 2

Key facts

Workload		**ECTS**
60 h		2
Parts of the module	**Contact time**	**Self-study time**
	20 h	40 h
Module leader	**Assessment**	
Prof. Dr. Christian Kaiser	Homework assignment	

Curriculum Outline

Students have integrated professional knowledge in the field of activity of patternmaking. This also includes in-depth specialised theoretical knowledge. They know the scope and limits of the learning areas of construction in the clothing industry, construction systems, body measurements, construction measurements, working out production patterns with seam allowances, labelling, markings and drill holes, markings and drill holes, construction of geometric bodies, complex product development on the PC, virtual sewing processes.

Key content

- Introduction to the virtual sewing process (3D software)
- Simulation of pleats
- Basics of digital fit assessment
- Basics of 3D visualisation including rendering
- Development of simulation details for photorealistic requirements
- Realisation of your own 3D work piece from pattern creation to rendering

Study Abroad Certificate in Textile Engineering - Spring
Module: Textile Ecology and Sustainability

Key facts

Workload		**ECTS**
90 h		3
Parts of the module	**Contact time**	**Self-study time**
	30 h	60 h
Module leader	**Assessment**	
Mr. Kai Nebel	Written Exam (60 minutes)	

Curriculum Outline

In the lecture, we examine and elaborate possible strategies for textile and clothing companies, how to setup an efficient working CSR team. We compare certification facilities and best available technologies within the complete global textile supply chain. From the idea, through efficient product development processes of garments and textile products, social and sustainable production processes and facilities, logistics to the retail and end of use of the products, we try to leave as little as possible footprint.

Key content

- Case Studies, Eco labels, Textile Alliances, Green
- Technologies, Restricted Substance lists, EMAS, GRI,
- GOTS, Bluesign, Ökotex, Fair Wear Foundation,
- SA8000, Carbon Footprint, Textile Exchange, ….

Study Abroad Certificate in Textile Engineering – Spring
Module: Social Aspects and Ethics

Key facts

Workload		**ECTS**
60 h		2
Parts of the module	**Contact time**	**Self-study time**
	30 h	30 h
Module leader	**Assessment**	
Prof. Marina Baum	Homework Assignment	

Curriculum Outline

The students have integrated specialist knowledge in the area of responsible ethical behaviour. This also includes in-depth theoretical knowledge of the fundamentals of ethics. They are familiar with the scope and limits of national and international guidelines for morally appropriate behaviour.

Key content

In this course, the basics of ethics (such as guidelines for morally appropriate behaviour, law, justice, basic needs and human rights) are presented. The foundations are based, among other things, on the 17 UN sustainability goals of Agenda 2030.
In the further course, a current ethical problem from industry or society is critically discussed and a possible course of action is outlined. Sustainability is seen as the guiding principle for ethical behaviour. A distinction is made between three dimensions: the ecological (conservation of natural resources), the economic (sustainable economic (sustainable economy) and the social (fair distribution between individuals and generations and the further development of solidarity principles).
The following areas can be dealt with here:

- Technology ethics (ethics of action with reference to new technological developments e.g. Industry 4.0, Internet of Things, Big Data, AI, e-mobility, etc.)
- Labour ethics (work in transition: modern slavery, fair trade)
- Business ethics (justice and social responsibility)

Study Abroad Certificate in Textile Engineering - Spring
Module: Quality Management 1

Workload		**ECTS**
60 h		2
Parts of the module	**Contact time**	**Self-study time**
	30 h	30 h
Module leader	**Assessment**	
Prof. Sven Gerhards	Written exam	

Curriculum Outline

The students have integrated specialist knowledge in the area of multichannel retail, supply chain in clothing industry as well as product development in retail.

Key content

At the end of the semester, students will

- know the steps of product development in retail and online shops.
- understand the influence of methods/tools of quality management to the process of product development.
- apply the QM-tools and transfer the contents to the process of product development.
- analyze which QM-tool gains better results for several products / retails.
- discuss in group work several QM-tools and work out complete forms.
- present the result of the group work to the other students.

Study Abroad Certificate in Textile Engineering - Spring
Module: Field-testing

Key facts

Workload		**ECTS**
90 h		3
Parts of the module	**Contact time**	**Self-study time**
	30 h	60 h
Module leader	**Assessment**	
Prof. Matthias Kimmerle	Laboratory work + presentation	

Curriculum Outline

Students have broad and integrated knowledge including the scientific principles and practical application of clothing physiology. They can independently plan and carry out a test scenario in the field of sport and outdoor activities and evaluate and interpret the results. They are able to carry out test scenarios cooperatively, even in heterogeneous groups, and to design and plan them for the future. Students can independently understand their own and others' learning and work objectives in field tests and in the laboratory and pursue them in a targeted manner. They can recognize consequences for the set parameters and correct them independently if necessary.

Key content

The field-testing of sports and outdoor products refers to the process of carrying out tests and reviews of sports equipment or products in the real world. It is an important phase in product development in which the developers can collect feedback from users to ensure that the product meets and works.

In some cases, the field-testing is used to check basic functions and properties of the product, while in other cases testing includes the evaluation of performance, durability and user -friendliness.

Typically, data on various parameters is collected during a field-testing of sports products, such as the performance of the athlete, the movement patterns or the comfort and safety factors.

The aim of the field-testing of sports products is to ensure that the end product meets the needs and requirements of the target group and achieves the expected services and results. It is an important step in product development to ensure that the final product meets the high requirements in the sports area and can be successfully positioned on the market.

Study Abroad Certificate in Textile Engineering - Spring
Module: Knit and Wear

Key facts

Workload		**ECTS**
60 h		2
Parts of the module	**Contact time**	**Self-study time**
	20 h	40 h
Module leader	**Assessment**	
Prof. Marina Baum + Helene Leibinger	Homework assignment + presentation	

Curriculum Outline

Students have integrated specialised knowledge in knitting technology. This also includes in-depth specialised theoretical knowledge. They know the scope and limits of the learning area or professional field of activity.

Key content

- Development and production of a Knit & Wear product (complete garment) for the flat knitting machine
- 3D simulation and documentation of pattern development and knitting production of the individual Knit & Wear product
- Knowledge of flat knitting technology, particularly with regard to the patterning possibilities of Knit & Wear products

Study Abroad Certificate in Textile Engineering - Spring
Module: Industry-related project

Key facts

Workload		**ECTS**
360 h		12
Parts of the module	**Contact time**	**Self-study time**
	120 h	240 h
Module leader	**Assessment**	
Prof. M. Bräuning	Homework assignment + Presentation,	

Curriculum Outline

Students work independently and intensively on a problem set by a project partner (from a company or institute in the textile and clothing industry) and develop solutions that are prepared, documented and presented in a scientifically sound manner. You will familiarise yourself with the tools of project management and apply them to your project. You will develop a deep understanding of the challenges and potential of team and project work.

You will also be able to transfer experience and solutions from this completed project to other projects and tasks.

Key content

- Independent processing of a project task on topics from the areas of product development, research, quality management or a company-specific focus.
- Kick-off event with presentation of the framework conditions, important dates and expectations of the students, as well as formation of groups.
- Lecture on topics relevant to the project and project management.
- Independent planning of the project and development of a project plan with defined milestones.
- Independent work on the project (research, practical development of the project idea, creation of a product and documentation).
- The project work is documented in a scientific paper (printed and digital) and the results are presented in a final public presentation.