

**Course:****BAE 2173 Sustainable Product Development 2 (English)**

LV: 2 hr per week, 2 credits

Language: English

Level: advanced (B2-C1)

SG WI International, 4. Semester

**Location and schedule**

LV: please check in LSF.

## COVID 19 Information:

As of August 24, 2020, it is expected that the **lecture** will be held online. Live online teaching on the regular lecture date in the winter term is expected. The online classroom is

<https://app.alfaview.com/#/join/alfaview-technik/c15e2587-db1c-4395-a2f4-1b1478ba456b/a11ad794-74a2-41a7-a631-d8d17c59ed1d>

Please check presentation uploads in the e-learning tool to retrieve most recent information on dates and venues.

No.	NPE 2 VL English
1	Introduction
2	Product Development Process
3	Material Selection
4	Streamlined LCA
5	Environmental Protection approaches
6	Material recycling
7	Raw materials exploitation
8	Failure mode and effects analysis
9	Design for recycling
10	Write your own exam
11	House of Quality
12	Lightweight construction and design
13	Environmental labelling
14	Material production

**Lecturer:**

Prof. Dr.-Ing. Jörg Woidasky

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Office hours according to appointment in list in front of the lecturers room (T2.2.14)

Please do not hesitate in case you have any questions regarding the course. You are also welcome to make suggestions on the course.

**Overview (catalogue description):**

During this seminar, students learn about procedures for product development, the requirements of sustainability, and learn and apply miscellaneous methods for structuring the work and assessment in product design.

**Prerequisites:**

You should have good command over the English language.

You should have attended Sustainable Product Development 1 lecture to have attained basic knowledge about sustainability and methods for its assessment.

**Learning Objectives:**

After completing this course students

- know how to apply streamlined LCA
- are able to assess material generation, selection, processing, and recycling processes from a sustainability point of view
- have learned about and applied the FMEA and streamlined LCA method.

**Course topics:**

- Simplified Life Cycle Assessment
- material generation, selection, processing, and recycling
- examples of sustainable products and processes

**Teaching and learning approach:**

Learning will be achieved through presentation and through group discussion. The class is designed to intensely involve the students, so please prepare for interactions in class and bring your own computer.

**Contribution to program goals:**

	<b>Learning outcome</b>	<b>Contribution</b>	<b>Assessment</b>
1.3	Students demonstrate key knowledge in Business Administration.	Strategic decisions, theories and instruments of International Management	Participation in class + outcome of assignment
1.4	Students demonstrate key knowledge in Economics.	Background to international economics and international trade	Participation in class + outcome of assignment
2.2	Students demonstrate the ability to use information systems effectively in real world business settings.	Research on different countries	Participation in class + outcome of assignment
3.1	Students are able to apply analytical and critical thinking skills to complex problems.	Develop own case study in international business	Class work, presentations
4.1	Students are able to develop business ethics-based strategies and are able to apply them to typical business decision-making problems	Ethical decision making in international management	Discussion in Class + outcome of assignment
5.1	Students demonstrate their ability to express complex issues in writing.	assignments	assignments
5.2	Students demonstrate their oral communication skills in presentations and lectures.	Communication of knowledge in International Management and Cross-Cultural Management	Discussion in class
6.1	Students show that they are able to work successfully in a team by performing practical tasks.	Conducting group work	Outcome of group work

**Course Material:**

- Handouts (e-learning based)

**Background reading:**

- Wimmer, W. et al.: ECODESIGN – The competitive advantage. Springer Verlag, Dordrecht/Heidelberg, 2010, ~60 €
- Engeln, W.: Methoden der Produktentwicklung. Oldenbourg Industrieverlag, München, 2011, ~25 €
- Schäppi, B., et al.: Handbuch Produktentwicklung. Hanser Verlag, München, 2005, ~150 €
- Martens, H.: Recyclingtechnik. Spektrum Verlag, Heidelberg, 2011, ~35 €
- Ponn, J.; Lindemann, U.: Konzeptentwicklung und Gestaltung technischer Produkte. 2. Aufl. Springer VDI-Verlag. Berlin/Heidelberg, 2011, ~70 €
- Fleischer, G. (Hrsg.): Eco-Design – Effiziente Entwicklung nachhaltiger Produkte mit euroMat. Springer Verlag, Berlin, 2000
- Behrend, S. et al.: Umweltgerechte Produktgestaltung – ECO Design in der elektronischen Industrie. Spinger Verlag, Berlin, 1996
- VDI-Richtlinien, u. a.  
2206 (V-Modell/Mechatronik),  
2221 (Entwicklungsmethodik),  
2243 (Recyclinggerechte Produktentwicklung)
- Ashby, M.: Materials and the Environment. Butterworth-Heinemann/Elsevier, 2013

**Assessment:**

- by written exam
- Exam questions will be discussed in class before the exam writing.

**Grading:** based on seminar / assignment results

- 'Sehr gut' represents exceptional work, far above average.
- 'Gut' represents good work, above average.
- 'Befriedigend' represents average work.
- 'Ausreichend' represents below average work with considerable shortcomings.
- And 'mangelhaft' is just exceptional work in the wrong direction or with unacceptable shortcomings.