



Umwelt-Campus
Birkenfeld

H O C H
S C H U L E
T R I E R

Module Descriptions

Bachelor Program
Sustainable Business and Technology
[B. Eng.]

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Curriculum

| Sustainable Business and Technology | | SWS | ECTS |
|-------------------------------------|---|------------|------------|
| 1st Semester | Mathematics I | 4 | 5 |
| | Physics | 4 | 5 |
| | Fundamentals of Sustainable Business | 8 | 10 |
| | Intercultural Communication | 4 | 5 |
| | German / Foreign Language I | 4 | 5 |
| | Total | 24 | 30 |
| 2nd Semester | Mathematics II | 4 | 5 |
| | Chemistry and Ecology | 4 | 5 |
| | Thermodynamics | 4 | 5 |
| | Principles of Engineering I | 4 | 5 |
| | Accounting and Finance I | 4 | 5 |
| | German / Foreign Language II | 4 | 5 |
| | Total | 24 | 30 |
| 3rd Semester | Principles of Engineering II | 4 | 5 |
| | Information Technology | 4 | 5 |
| | International Law and International Economic Policy | 4 | 5 |
| | Scientific Methods and Concepts | 4 | 5 |
| | Accounting and Finance II | 4 | 5 |
| | German / Foreign Language III | 4 | 5 |
| | Total | 24 | 30 |
| 4th Semester | Sustainable Technology Solutions | 8 | 10 |
| | Lab Work | 4 | 5 |
| | Production and Supply Chain Management | 8 | 10 |
| | German / Foreign Language IV | 4 | 5 |
| | Total | 24 | 30 |
| 5th Semester | Ethics and Society | 4 | 5 |
| | Elective | 4 | 5 |
| | Elective | 4 | 5 |
| | Interdisciplinary Project | 8 | 10 |
| | German / Foreign Language V | 4 | 5 |
| | Total | 24 | 30 |
| 6th Semester | Elective | 4 | 5 |
| | Elective | 4 | 5 |
| | Career Planning and Employability | 4 | 5 |
| | Bachelor Thesis (12 ECTS) and Colloquium (3 ECTS) | 12 | 15 |
| | Total | 24 | 30 |
| | Total | 144 | 180 |

| Module 1: Mathematics I | |
|--|--|
| Duration | 1 semester |
| Study Semester | 1st semester |
| Frequency | Winter semester |
| Recommended Prere- quisites | None |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject |
| Credit Points | 5 |
| Weight of Grade | Same as credit points |
| Contact Hours | 4 SWS / 60 h |
| Self-Study | 90 h |
| Total Workload | 150 h |
| Course Language | English |
| Type | Lecture, Integrated exercises |
| Responsible for Module | Prof. Dr. Rita Spatz |
| Teaching Personnel | Prof. Dr. Rita Spatz, Dr. Stephan Didas, Natalie Didas |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) Passing an intermediate test is required for registering for the final exam. |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals The students know the basics of the analysis of real functions in one and several variables and can apply them on typical problems. They can identify problem types, find the relevant mathematical tools and apply them appropriately to the given task. | |
| 2 Module Content and Course Schedule Content of the module is the understanding of mathematical models involving complex numbers and real functions of one and several variables: <ol style="list-style-type: none"> 1. Complex numbers 2. Sequences of real numbers and infinite sums | |

3. Functions
4. Limits and continuity
5. Differential and integral calculus in one real variable
6. Differential and integral calculus in more than one real variables
7. Taylor series

Course Schedule

1. Complex numbers and the basic operations with them are introduced.
2. A selection of elementary real functions is discussed in order to allow the students to understand models in engineering.
3. The basics of differential and integral calculus are presented and typical example problems are discussed.
4. The approximation of functions with polynomials via Taylor series is shown.

3 Didactic Concept

Lecture with integrated exercises, practicing by given example problems and potential tutorials.

4 Bibliography

K. A. Stroud with D. J. Booth, Engineering Mathematics, 7th edition, Macmillan Education, 2013.

A. Croft, R. Davison, Mathematics for Engineers, 4th edition, Pearson Education, 2015.

| Module 2: Physics | | |
|--|--|--|
| Duration | 1 semester | |
| Study Semester | 1st semester | |
| Frequency | Winter semester | |
| Recommended Prere- quisites | None | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Lecture, Exercises | |
| Responsible for Module | Prof. Dr. Michael Bottlinger | |
| Teaching Personnel | Prof. Dr. Michael Bottlinger | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals Students can describe, understand, and perform physical experiments of the listed contents. Based on the acquired physical skills typical problems can be solved by the students in the field of engineering. | | |
| 2 Module Content and Course Schedule The lecture deals with the basics of physics and introduces mechanics and optics. It includes the following topics: <ul style="list-style-type: none"> ▪ Scientific methods, hypotheses and verification ▪ Physical quantities and physical constants | | |

- Volume measurement, weight measurement, temperature measurement (specific procedures, calibration, monitoring)

Mechanics

- Accelerated motion
- Forces, momentum, energy, power
- Rotational movements, focus
- Vibrations, resonance
- Waves, polarization, Doppler effect

Optics

- Introduction to electromagnetic waves
- Huygens Principle
- Reflection, diffraction, refraction
- Speed of Light
- Simple optical instruments

Course Schedule

1. An introduction to the basic principles in physics is given. Physical quantities and units are explained and derived
2. The basic principles in mechanics like accelerated motion, Newton's Laws, and energy are presented.

The concept of the distribution of light is explained, simple optical instruments are introduced.

3 Didactic Concept

- Lectures
- Exercises

4 Bibliography

Matthew Sands, Richard Feynman, Robert B. Leighton. The Feynman Lectures on Physics.

Paul A. Tipler, Gene Mosca. Physics for Scientists and Engineers. W. H. Freeman. 2007

| Module 3: Fundamentals of Sustainable Business | | |
|--|--|--|
| Duration | 1 semester | |
| Study Semester | 1st semester | |
| Frequency | Winter semester | |
| Recommended Prere- quisites | None | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 10 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 8 SWS / 120 h | |
| Self-Study | 180 h | |
| Total Workload | 300 h | |
| Course Language | English | |
| Type | Lecture | |
| Responsible for Module | Prof. Dr. Christian Kammlott | |
| Teaching Personnel | Prof. Dr. Christian Kammlott, Prof. Dr. Klaus Helling, Kai Schlachter and further lecturers with specific talks | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>Students will identify organizational goals using the core principles and tools of business and management. They will understand the entire process of identifying, creating and capturing values to be realized by enterprises. Also students will gain a basic understanding of the cross-functional relationships between the different functions of a business organization. Also, they will be able to demonstrate the influence of external environmental conditions on the entrepreneurial process as well as identify potential ethical conflicts and social responsibility issues involving different stakeholders of the firm. The core objective is to understand that the integration of sustainability in the</p> | | |

business model of companies is necessary. Furthermore, students will gain a reasonable level of competency in technical accounting knowledge and will be able to apply accounting transactions.

2 Module Content and Course Schedule

The course serves as a natural starting point by identifying and analyzing the structure of modern enterprises. Therefore, transmission of basic knowledge and methods for analytic decision making are the course's main objectives. Students are provided with an overview of essential economic questions and methods and introduced with the diverse functional units a firm is composed of.

This module further enables students to develop the knowledge and skills to understand, articulate, create and critique the theory behind sustainable development, and many companies' attempts to integrate sustainable approaches into their everyday business practices.

In addition students are introduced to the basic concepts, methods and practices of accounting, and therefore students do not need any prior knowledge of the subject.

However, as accounting involves the manipulation of data expressed in numerical terms, students should have a basic grounding in mathematics.

By the end of the course, students should be in a position to understand:

- The fundamental concepts of accounting, and the various accounting conventions that apply these concepts
- The uses to which accounting information may be put
- Different types of accounting entity
- The generation of the data recorded in accounting systems
- The recording of basic transactions within the double-entry system
- The periodic measurement of profit by businesses
- The preparation of annual financial statements (statement of financial position, income statement, statement of cash flows) for simple businesses
- The various elements of financial statements: assets, liabilities and capital

Course Schedule

1. Understanding the Basics of Business

From Need to Demand

The activity of the enterprise: Creating and Capturing Values

2. Introduction to Sustainable Business

Meaning of sustainability for companies

Strategies to implement Sustainability in business models

Case studies on Sustainable Business

3. Introduction to Technical Accounting

Basic Accounting Concepts

The course will begin with an introduction of accounting and a consideration of accounting as an information system. Basic concepts of accounting will be introduced, and the alternative systems as well as conventions of accounting that have been developed to apply these concepts will be introduced and discussed.

Processing Accounting Data I

This session will examine the generation of the data recorded in accounts. The structure of the double-entry bookkeeping will be explained, and its application in different contexts illustrated.

Processing Accounting Data II

In part II, we will address the recording of transactions and the preparation of the trial balance.

Preparing Financial Statements

This session will deal with the preparation of the statement of financial position and income statement from the accounting records. By the end of this session, students should be able to prepare simple financial statements from basic accounting records, from details of transactions and apply the knowledge in case studies.

4. Functions of Sustainable Business

Production, Logistics, Economics, Human Resources, Marketing, Controlling, Industrial Ecology, Circular Economies, Ecological Economics, Corporate Finance

Wrap up and Summary

3 Didactic Concept

- The course consists of lectures and exercises
- Media-supported presentation
- Intensive media use and up-to-date examples
- Interactive Bookkeeping Tutorial

4 Bibliography

D'heur Michael (2015): Sustainable Value Chain Management, Springer

Atrill P. & McLaney E., Financial Accounting for Decision Makers, (8th ed.), Pearson, [2016]

Further literature to be announced.

| Module 4: Intercultural Communication | | |
|--|--|---|
| Duration | 1 semester | |
| Study Semester | 1st semester | |
| Frequency | Winter semester | |
| Recommended Prere- quisites | None | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Seminar, Project Workshop | |
| Responsible for Module | Prof. Dr. Stefan Diemer | |
| Teaching Personnel | Prof. Dr. Stefan Diemer, Marie-Louise Brunner M.A. | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input checked="" type="checkbox"/> Project presentation | <input checked="" type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| <p>1 Learning Goals</p> <p>Students will gain key knowledge about cultural identities in order to be able to contextualize perspectives, viewpoints and expectations in a communicative context in a wide range of cultural and identity settings. They will be able to present and critically discuss key terms in intercultural communication and to apply the terminology in the analysis of practical examples for intercultural communicative events.</p> <p>The exemplary discussion of barriers in intercultural communication will improve students' ability to recognize and understand potential obstacles and to develop and apply strategies to enhance communication across cultures (intra- and intercultural), particularly in a professional setting.</p> <p>On the basis of the acquired knowledge, students will be able to recognize structural specifics of other cultures on an individual, regional or global level. The application of</p> | | |

the skills presented and practiced in the will enable students to successfully work together with people from other cultural contexts. They can preempt or solve interpersonal conflicts in order to successfully perform professional tasks in a wide range of personal and professional settings.

2 Module Content and Course Schedule

The seminar presents and discusses key terms and theories of intercultural communication such as culture, communication, identities, stereotype, external perception, transnationality, politeness and hybridity. Up-to-date research findings from applied and job-related fields (business and economy, policy, international relations) serve to reflect and enhance participants' understanding of the complex context of both intra- and intercultural communication.

In the accompanying project workshop students apply the theoretical foundations to concrete settings building on their own experience of difference in order to recognize and understand interactions in a context of different identities and cultures. Practical exercises such as simulations, role play and critical incidents illustrate multiple instances of intercultural communication and serve as the basis for the creation of individual communication portfolios.

Course Schedule

1. Foundations of language and intercultural communication

Overview of the key terms in intercultural communication and discussion of concepts such as culture, communication, context and power, identities and interculturality.

2. Verbal/nonverbal communication and culture

Introduction to linguacultures, transnationalities and the cultural dimensions of language, nonverbal communication aspects (emotion, action, space and silence), speech acts, facework and politeness.

3. Language, identity and intercultural communication

An overview of the influence of language, social background, gender and identity as well as examples for cultural representation and othering, contexts of conflict, intercultural contact, hybridity and third space.

4. Understanding intercultural transitions: from adjustment to acculturation

Focus on communication, adaptation and transformation, accommodation and contact in intergroup and intragroup settings.

5. Intercultural communicative competence

The role of language, understanding intercultural conflicts, the intercultural speaker and the acquisition of intercultural/global competence

6. Intercultural competence in a global context

World Englishes and their role in a global environment, professional and workplace settings, legal contexts.

7. Aspects of intercultural management

Focus on working, interacting and managing in different cultures

8. Critical incidents and role play

Workshop elements to enhance communicative competence and intercultural business and interaction competence.

3 Didactic Concept

- Lecture and interactive workshop elements
- Integration of web media
- Guest lectures and expert talks
- Project workshops with international partners
- Cooperative sessions with blended learning elements
- Independent project work and portfolio design

4 Bibliography

Clyne, Michael. Inter-cultural communication at work. 1996. Cambridge: Cambridge University Press.

Hofstede, Geert, Gert Jan Hofstede, and Michael Minkov. 2010. Cultures and organizations. New York: McGraw Hill.

Jackson, Kane (ed.) 2014. The Routledge Handbook of Language and Intercultural Communication. London: Routledge.

Lewis, Richard D. 2006. When cultures collide. 3rd ed. Boston: Nicholas Brealey International.

Trompenaars, Fons, and Charles Hampden-Turner. 2012. Riding the waves of culture – Understanding diversity on global business. 3rd ed. Boston: Nicholas Brealey International.

| Module 5: German / Foreign Language I | |
|---|--|
| Duration | 1 semester |
| Study Semester | 1st semester |
| Frequency | Winter semester |
| Recommended Prerequisites | German: None / Foreign Language: See module description in the appendix. |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject |
| Credit Points | 5 |
| Weight of Grade | Same as credit points |
| Contact Hours | 4 SWS / 60 h |
| Self-Study | 90 h |
| Total Workload | 150 h |
| Course Language | <p>German, French, Spanish, Italian etc.</p> <p><i>German students will have to take at least 2 modules in foreign language for at least 2 semesters each. An individual language study plan will be discussed prior the start of lectures.</i></p> <p><i>Module contents are aligned according the respective qualification of students.</i></p> <p><i>A detailed description of language modules offered for German students is found in the appendix.</i></p> |
| Type | Seminar |
| Responsible for Module | Prof. Dr. Stefan Diemer |
| Teaching Personnel | Christina Juen, Aloisia Sens and further lecturers |
| Requirement for Awarding of ECTS Points | Passed module examination(s) |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input checked="" type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals German <u>Communicative competence</u> | |

Reading: can comprehend very short, simple texts a single phrase at a time, picking up familiar names, words and basic phrases and rereading as required.

Speaking: Can produce simple mainly isolated phrases about people and places; can e.g. introduce themselves, ask and answer questions of the type: Where do you live?

Writing: Can write simple isolated phrases and sentences.

Listening: Can follow speech, which is very slow and carefully articulated, with long pauses for him/her to assimilate meaning.

[based on Common European Framework of Reference for Languages: Learning, Teaching, Assessment, Level A 1]

Intercultural competence

Can identify the basic features of German society, daily routines and traditions.

Methodical competence [strategies for listening and reading, speaking and writing; how to deal with different text types and media]

Can listen for key words in a listening comprehension or search for them in a text to help understand what the text/listening is about.

Language correctness [grammar, pronunciation and intonation, lexis, orthographic correctness]

Can e.g. identify the verb position in main clauses, can conjugate verbs in the present tense, can differentiate and articulate the intonation of questions and positive sentences

2 Module Content and Course Schedule German

Saying hello and goodbye; questions about name and origin/language/personal data; the alphabet; saying sorry, please and thank you; How are you?; introducing others; information about family members; numbers 0-1000000

food & shopping for groceries: asking and answering questions, indication of quantity, prices (How much is it?); places (Where...?); likes/dislikes; expressing approval; colors; describing flats and houses, objects/rooms in flats/houses; searching for a flat (understanding residential property advertisements)

Time, opening hours, week days, daily routines: activities, preferences, appointments

Grammar: conjugation of regular verbs in present tense, verbs with vowel change, modal verb *möchte*, auxiliary verbs: *sein/haben*, separable verbs, personal pronouns and possessive pronouns in the nominative case; positive sentences, W-questions, yes/no questions; nouns: definite and non-definite article, singular and plural; negation: *nicht/kein*; time prepositions, formal language: *du oder Sie?*

Pronunciation: sentence stress, word stress, long and short vowels

Course Schedule

Unit 1-5

1. Hello. My name is...: The first part of this seminar deals with the very general topic of saying hello, telling your name and country of origin, as well as talking about language skills. Other important contents: 1st telephone conversation, addresses, business cards, filling in forms

2. Family: The second part of class is about family life: drawing a family tree to present family members, explain where your family members live. Another important part of

this seminar is to discuss how to address colleagues or your boss at work as there might be cultural differences.

Business focus: Du oder Sie?

3. Shopping: Students learn about typical German food items, writing shopping lists and role-play shopping on a farmer's market, using expressions of quantity, talking about prices. Moreover, students are supposed to bring a recipe from their home country in order to present it.

4. My flat: In the fourth part of this seminar a closer look is taken at reading and understanding residential property advertisements, describing a flat on campus, comparing living conditions in Germany to students' country of origin. There will be further practice on telephoning.

Business focus: rules in an office

5. My day: The last part of the seminar is about daily routines, likes and dislikes, times of the day and week days.

3 Didactic Concept German

- Primarily communicative teaching method (role plays for various every-day situations, action-oriented use of verbal patterns (e.g. shopping in the supermarket), interactive exercises)
- Intensive media use (DVD: video sequences to start each unit, free app for smartphone supports self-study)
- Course media and handouts available online
- Business focus right from the start
- communicative training (reading, listening, speaking and writing; intercultural communication)
- social competence (team & group work)

4 Bibliography German

Schritte PLUS Neu 01 Kursbuch A1.1 + Arbeitsbuch A1.1 + CDs und DVD A1.1, Hueber Verlag, Unit 1-5, App für Smartphone und Tablet

Additional material provided by lecturer (grammar und lexical exercises, interactive games, informative material/exercises about cultural knowledge, etc.)

| Module 6: Mathematics II | |
|---|--|
| Duration | 1 semester |
| Study Semester | 2nd semester |
| Frequency | Summer semester |
| Recommended Prere- quisites | Mathematics I |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject |
| Credit Points | 5 |
| Weight of Grade | Same as credit points |
| Contact Hours | 4 SWS / 60 h |
| Self-Study | 90 h |
| Total Workload | 150 h |
| Course Language | English |
| Type | Lecture, Integrated Exercises |
| Responsible for Module | Prof. Dr. Oliver Braun |
| Teaching Personnel | Prof. Dr. Oliver Braun, Markus Barth |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) Passing an intermediate test is required for registering for the final exam. |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals Students will know the basics of mathematical programming and statistics and gain experience in applying the methods on practical problems. Their ability in analytical thinking and working will be increased. | |
| 2 Module Content and Course Schedule This course gives an introduction to the basic methods of mathematical programming and statistics. Topics include linear and nonlinear programming, descriptive and inductive statistics with real-world applications. <u>Course Schedule</u> | |

1. Linear and nonlinear mathematical programming
2. Descriptive statistics (measures of central tendency, variance, regression)
3. Combinatorics
4. Inductive statistics (discrete and continuous random variables)

3 Didactic Concept

- Lectures
- Exercises

4 Bibliography

Caldwell, Sally: Statistics Unplugged, Wadsworth Publishing

Hillier, Frederick S. / Lieberman, Gerald J.: Introduction to Operations Research, McGraw-Hill

| Module 7: Chemistry and Ecology | | |
|--|---|--|
| Duration | 1 semester | |
| Study Semester | 2nd semester | |
| Frequency | Winter semester | |
| Recommended Prere- quisites | None | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Lecture, Field and Laboratory Exercise | |
| Responsible for Module | Prof. Dr. Stefan Stoll | |
| Teaching Personnel | Prof. Dr. Stefan Stoll | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input checked="" type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>The students learn about the functioning of important ecosystems. They understand the essential matter cycles, the role of biodiversity and know important environmental pollutants as well as their effect on organisms. The students can apply basic monitoring methods to assess the status of ecosystems.</p> | | |
| 2 Module Content and Course Schedule <p>This module covers basics in environmental sciences. The following topics will be covered:</p> <ul style="list-style-type: none"> ▪ Important terrestrial, freshwater and marine ecosystems ▪ Carbon, nitrogen, phosphorus and water cycle ▪ Basic chemical building blocks of life | | |

- Important metabolic processes and pathways
- The origin and role of biodiversity in ecosystems
- Environmental pollution of the atmosphere, water and soils: compounds, effects, and management strategies

Important local ecosystems will be visited and basic environmental monitoring methods will be applied to assess their condition.

3 Didactic Concept

- Lecture
- Field trip
- Laboratory

4 Bibliography

McMurry, Fay. Chemistry. Prentice Hall.

Begon, Harper, Townsend. Ecology: From Individuals to Ecosystems. Blackwell.

Walker, Sibly, Hopkin, Peakall. Principles of Ecotoxicology. Taylor & Francis.

Wetzel. Limnology - Lake and River Ecosystems. Academic Press.

| Module 8: Thermodynamics | | |
|--|--|--|
| Duration | 1 semester | |
| Study Semester | 2nd semester | |
| Frequency | Summer semester | |
| Recommended Prere- quisites | Analysis, Physics | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Lecture, Exercises | |
| Responsible for Module | Prof. Dr. Henrik te Heesen | |
| Teaching Personnel | Prof. Dr. Henrik te Heesen | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>Based on the basic knowledge of mathematics and physics, students have gained knowledge in (technical) thermodynamics. The fundamental laws can be applied to technical and physical effects in everyday life. Moreover the students have acquired the ability to see the theoretical core in a complex practical context.</p> | | |
| 2 Module Content and Course Schedule <ul style="list-style-type: none"> ▪ Fundamentals of thermodynamics (thermal state variables, work, heat, internal energy and enthalpy, first law of thermodynamics) ▪ Gas mixtures (Ideal gas mixtures, equation of state, standard state) ▪ Irreversible processes and state variables for their evaluation (second law of thermodynamics, entropy, cyclic processes, state changes in the T-S diagram) | | |

- State equations for ideal gases: Thermal and caloric state variables, entropy
- Changes of state of an ideal gas (state laws, state changes in closed and open systems, cycles, thermal efficiency, heat pump and chiller)
- Thermodynamic cycles (Carnot, Diesel, Otto, Rankine)
- Fundamentals of heat transfer

Course Schedule

1. An introduction to the basic principles of thermodynamics are given
2. The thermodynamic processes and laws are derived.

Thermodynamic circles are derived; examples of the application of these circles are explained.

3 Didactic Concept

- Lecture
- Exercises

4 Bibliography

Matthew Sands, Richard Feynman, Robert B. Leighton. The Feynman Lectures on Physics.

Paul A. Tipler, Gene Mosca. Physics for Scientists and Engineers. W. H. Freeman. 2007

| Module 9: Principles of Engineering I | | |
|---|--|--|
| Duration | 1 semester | |
| Study Semester | 2nd semester | |
| Frequency | Summer semester | |
| Recommended Prere- quisites | Mathematics I, Physics | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Lecture, Exercises | |
| Responsible for Module | Prof. Dr. Peter Gutheil, Prof. Dr. Thomas Preußler | |
| Teaching Personnel | Prof. Dr. Peter Gutheil, Prof. Dr. Thomas Preußler, Stefan Hirsch | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>It is the goal of the lecture to learn the principles of Engineering. Students can understand and customize technical drawings and know basic contents of technical descriptions. The students know terms of forces and moments and understand the freeing principle. They can determine support reactions and inner forces by means of equilibrium conditions. The Students know how to determine stresses in one-dimensional and plane state and the relation to corresponding strains.</p> | | |
| 2 Module Content and Course Schedule <p>The lecture deals with the principles of engineering. It includes the following topics:</p> <ul style="list-style-type: none"> ▪ Technical drawings by means of computer aides methods | | |

- DIN and other engineering standards
- Dimensioning and tolerances
- Forces and moments in the plane
- Freeing principle and balance of forces and moments
- Loads, reaction- and inner forces
- Normal-, shear- and equivalent stress
- Stress-strain relation and Hook's Law
- Strength and properties of materials

Course Schedule

1. Introduction on customizing technical drawings, dimensioning and tolerances.
2. Basic principles in static and mechanics of materials.
3. Calculation of forces and stress.

3 Didactic Concept

- Lectures
- Practices

4 Bibliography

Beitz, W. and K.-H. Küttner: Handbook of Mechanical Engineering, Springer

Hibbeler, R. C.: Engineering Mechanics – Statics, Pearson

Hibbeler, R. C.: Engineering Mechanics – Material Strength, Pearson

Hoischen, H.: Technisches Zeichen, Cornelsen

| Module 10: Accounting and Finance I | | |
|---|--|--|
| Duration | 1 semester | |
| Study Semester | 2nd semester | |
| Frequency | Summer semester | |
| Recommended Prere- quisites | None | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Lecture | |
| Responsible for Module | Prof. Dr. Christian Kammlott | |
| Teaching Personnel | Prof. Dr. Johannes Wirth, Kai Schlachter | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>Students will gain first insights to the importance in financial decision making as well as respective models concerning the firms' capital structure. The course should give students the capacity to understand the theory of modern corporate finance. They will become familiar and be able to differentiate the different types of funding and financing instruments. On that basis, they will be able to determine the specific financing needs of a company, with the aim to secure the financial balance and to minimize the cost of financing. The knowledge should be applied in practical situations using the techniques that have been developed in corporate finance. Furthermore, students should obtain a qualified opinion in current debates on issues of corporate finance and understand the current scientific debate in this field.</p> | | |

2 Module Content and Course Schedule

This course gives an introduction to the basic principles of modern corporate finance from the perspective of financial managers who are responsible for making significant investment and financing decisions.

Topics covered include the concept of net present value, basic methods for optimal decision making, also under the presence of economic uncertainty as well as strategic concerns. Also, an introductory overview of financial markets and financial instruments used by market participants will be provided. Furthermore, it will be discussed how investment and financing decisions interact to affect the value of the firm.

While the course is not designed to focus on abstraction only, the basic theoretical frameworks of the aforementioned topics are a prerequisite to qualified analysis and intellectual discussion. We emphasize the development of problem-solving skills based on a good understanding of the business environment. Because of the practical importance of the material and as an illustration of the relevant theory, we will discuss examples and cases.

Course Schedule

1. The role of corporate finance and the goal of the firm

Introduction to financial management as a function in the value chain and its goals. In traditional corporate finance, the main objective in decision making is to maximize the value of the firm. It will be shown how this fits into sustainable management.

2. Time value of money

Understand the concept of time value of money (TVM), which is the idea that money available at present is worth more than the same amount in the future.

3. Risk and return

The risk-return trade-off is the principle that potential return rises with an increase in risk. During the course, this core principle will be discussed and explained.

4. Financial statements and financial analysis of financial statements

Introduction to financial statement analysis, which is a powerful tool and important groundwork for different addressees of financial statements, each having different objectives in learning about the financial circumstances of the company.

5. Sources of Capital [equity, debt, mezzanine, alternatives]

Choosing the right sources of capital is a key decision that will significantly influence a company. Starting from generate money by selling part of the company in the form of shares to investors, which is known as equity funding up to borrowing money from banks or publicly through a debt issue – there is a broad range of sources for companies in different stages of their lifecycle and risk levels.

6. Capital budgeting and decision making tools and processes

Once projects have been identified, finance managers have to determine whether the project should be pursued from a financial perspective. There are common capital budgeting decision tools such as are the payback period, net present value (NPV) method and the internal rate of return (IRR) method that are addressed in this chapter.

7. Introduction to the Capital Market Theory

Capital markets are supposed to be the lifeblood of capitalism. Companies turn to them to raise funds needed to finance their needs. The course gives a first insight into the groundwork of capital market theory (portfolio selection) as a model that describes

the relationship between risk and expected return and that is used in the pricing of risky securities.

3 Didactic Concept

- The course consists of lectures and exercises
- Media-supported presentation
- Course media and handouts available online
- Intensive media use and up-to-date examples

4 Bibliography

Brealey R. and Myers S. and Allen F., Principles of Corporate Finance (12th ed.), McGraw-Hill, (2016)

Jerry J. Weygandt, Paul D. Kimmel, Donald E. Kieso, Accounting Principles, 11th Edition International Student Version

| Module 11: German / Foreign Language II | |
|---|---|
| Duration | 1 semester |
| Study Semester | 2nd semester |
| Frequency | Summer semester |
| Recommended Prerequisites | German Language I / Foreign Language: See module description in the appendix. |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject |
| Credit Points | 5 |
| Weight of Grade | Same as credit points |
| Contact Hours | 4 SWS / 60 h |
| Self-Study | 90 h |
| Total Workload | 150 h |
| Course Language | German, French, Spanish, Italian etc. <i>German students will have to take at least 2 modules in foreign language for at least 2 semesters each. An individual language study plan will be discussed prior the start of lectures.</i> <i>Module contents are aligned according the respective qualification of students.</i> <i>A detailed description of language modules offered for German students is found in the appendix.</i> |
| Type | Seminar |
| Responsible for Module | Prof. Dr. Stefan Diemer |
| Teaching Personnel | Christina Juen, Aloisia Sens and further lecturers |
| Requirement for Awarding of ECTS Points | Passed module examination(s) |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input checked="" type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals German <i>Communicative competence</i> | |

Reading: can understand very short, simple texts a single phrase at a time, picking up familiar names, words and basic phrases and rereading as required.

Speaking: Can produce simple mainly isolated phrases about people and places; can e.g. introduce themselves, ask and answer questions of the type: Where do you live?

Writing: Can write simple isolated phrases and sentences.

Listening: Can follow speech which is very slow and carefully articulated, with long pauses for him/her to assimilate meaning.

[based on Common European Framework of Reference for Languages: Learning, Teaching, Assessment, Level A 1]

Intercultural competence

Can identify the basic features of German society, daily routines, jobs, administrative offices and authorities as well as traditions.

Methodical competence (strategies for listening and reading, speaking and writing ; how to deal with different text types and media)

Can listen for key words in a listening comprehension or search for them in a text to help understand what the text/listening is about.

Language correctness (grammar, pronunciation and intonation, lexis, orthographic correctness)

Can e.g. identify verb position in main clauses, can conjugate verbs in the present and perfect and partly past tense, can understand the meaning of some modal verbs, can differentiate and articulate the intonation of questions and instructions]

2 Module Content and Course Schedule German

A1.1, 2nd part:

The weather, seasons, cardinal points; interviews about hobbies, understanding a personal portrait

School, activities in German class, making an excursion; expressing abilities, possibilities and intentions, make and deny a proposal

Business focus: job (call in sick)

Grammar: Accusative case, answering yes/no questions;; verb conjugation (nehmen, lesen, treffen, fahren), perfect tense to talk about events in the past (sein/haben), modal verbs (können, wollen)

Pronunciation: Sentence stress; e in -en; pronunciation of -sch, -st, -sp

A 1.2, 1st part:

Jobs and work, exchange private and job-related information, understanding job advertisements, telephoning

Administrative offices and authorities and their processes, understanding requests and giving instructions

Health and sickness, parts of the body, condition/well-being, giving and understanding advice, writing a sick note, calling a doctor/emergency call

Grammar: word formation nouns, prepositions of place & time, past tense of the verbs sein/haben; modal verbs (müssen, dürfen, sollen), imperative form, possessive articles

Pronunciation: -e, -er ; sentence melody (question vs. instruction), sentence stress with modal verbs; sound h

Course Schedule

A1.1, Unit 6-7

1. Free time: This semester starts with the remaining unit 6 of the book A 1.1 dealing with a typical small talk topic: the weather. There will be more conversation exercises such as talking about hobbies and things people like doing in their free-time.

Business focus: work assignments

2. School: Unit 7 deals with the topic of school and studying. Moreover, students learn how to express abilities and intentions and how to talk about events in the past.

Business focus: call in sick

A1.2, Unit 8-10

3. Jobs and work: This part of the seminar deals with the highly important topic of jobs and prior work experience. Job advertisements and applications will also be discussed.

Business focus: Allocation of tasks in a hotel

4. Administrative offices and authorities: They play an important role in Germany and this unit tries to help students fill in different forms and understand the processes of visiting public offices in Germany.

5. Health and disease: Finally, there is the issue of health and sickness, how to make a doctor's appointment and what to do in case of an emergency.

Business focus: writing a sick note

3 Didactic Concept German

- Primarily communicative teaching method (e.g. role-plays, action-oriented use of verbal patterns (e.g. shopping in the supermarket), interactive exercises)
- Business focus
- Intensive media use (DVD: video sequences to start each unit, free app for smartphone supports self-study and pronunciation/listening practice)
- Course media and handouts available online
- Communicative training (reading, listening, speaking and writing; intercultural communication)
- Social competence (team & group work)

4 Bibliography German

Schritte PLUS Neu 01 Kursbuch A1.1 + Arbeitsbuch A1.1 + CDs und DVD A1.1, Hueber Verlag, Unit 6-7, App für Smartphone und Tablet

Schritte PLUS Neu 02 Kursbuch A1.2 + Arbeitsbuch A1.2 + CDs und DVD A1.2, Hueber Verlag, Unit 1-3, App für Smartphone und Tablet

Additional material provided by lecturer (grammar und lexical exercises, interactive games, informative material about cultural knowledge, etc.)

| Module 12: Principles of Engineering II | | |
|---|--|--|
| Duration | 1 semester | |
| Study Semester | 3rd semester | |
| Frequency | Winter semester | |
| Recommended Prere- quisites | Mathematics I, Physics, Principles of Engineering I | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Lecture, Exercises | |
| Responsible for Module | Prof. Dr. Peter Gutheil, Prof. Dr. Thomas Preußler | |
| Teaching Personnel | Prof. Dr. Peter Gutheil, Prof. Dr. Thomas Preußler, Stefan Hirsch | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>The students can apply the principles of Engineering on simple structures such as rods and beams. Based on given loads, they can determine stresses and strains and transfer the knowledges on real applications. Students can understand technical systems and know basic methods to idealize machine elements and perform standardized dimensioning and analysis of machine elements. Furthermore, the students know the limits of dimensioning, strength and properties of materials and the basic definitions of static and dynamic load.</p> | | |
| 2 Module Content and Course Schedule <p>The lecture deals with the principles of Engineering. It includes the following topics:</p> | | |

- Basic load cases tension, pressure, bending and torsion
- Stress and strain on frames, rods, beams and shafts
- Smith Diagram
- Dynamic load, notch effect
- Design of machine elements
- Firmly bonded, form- and force-fitted bondings
- Bearings
- Screws and screw connections

Course Schedule

1. Basic principles in static and mechanics of materials.
2. Introduction to machine elements, basic principles and elements.
3. Design and analysis of machine elements.

3 Didactic Concept

- Lecture
- Practices

4 Bibliography

Beitz, W. and K.-H. Küttner: Handbook of Mechanical Engineering, Springer

Hibbeler, R. C.: Engineering Mechanics – Statics, Pearson

Hibbeler, R. C.: Engineering Mechanics – Material Strength, Pearson

Mott, R. L.: Machine Elements in Mechanical Design, 5th Edition, Pearson

| Module 13: Information Technology | | |
|--|---|---|
| Duration | 1 semester | |
| Study Semester | 3rd semester | |
| Frequency | Winter semester | |
| Recommended Prere- quisites | None | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Lecture, Tutorial | |
| Responsible for Module | Prof. Dr. Guido Dartmann, Prof. Dr. Peter Fischer-Stabel | |
| Teaching Personnel | Prof. Dr. Guido Dartmann, Prof. Dr. Peter Fischer-Stabel | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input checked="" type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input checked="" type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>The students will learn methods and tools computer science. They will be able to develop simple algorithms, optimize processes, and compare different approaches. The goal is to develop competences to solve a typical problem of computer engineering.</p> | | |
| 2 Module Content and Course Schedule <p>Based on the fundamentals of computer science, a structured way of thinking and program development will be conveyed.</p> <ul style="list-style-type: none"> ▪ Computer architecture and system software ▪ Algorithms (pseudo code, flow diagrams) ▪ Programming tools and languages ▪ Data types and expressions (program languages, especially Matlab) | | |

- Modularization (procedures, functions, local variables, recursion)
- Computer Networks & Internet
- Security in IT-Applications
- Green IT

3 Didactic Concept

- Lecture
- Exercises

4 Bibliography

P. Fischer-Stabel, K. Gollmer (2016): Informatik für Ingenieure. Fit für das Internet der Dinge.- utb 4645, UKV/Lucius, München

| Module 14: International Law and International Economic Policy | | |
|--|---|---|
| Duration | 1 semester | |
| Study Semester | 3rd semester | |
| Frequency | Winter semester | |
| Recommended Prere- quisites | None | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Lecture | |
| Responsible for Module | Prof. Dr. Georg Wenglorz, Prof. Reinhold Moser | |
| Teaching Personnel | Prof. Dr. Georg Wenglorz, Prof. Reinhold Moser | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input checked="" type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input checked="" type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>Students will gain the capacity to recognize, analyse, evaluate and solve law-related problems occurring in daily life when doing business in resp. with an international company, especially in connection with international contracts as well as the resolution of an international dispute amongst companies. This includes an introduction and moreover an insight in several fields of law, amongst other things: International Private Law, UN Convention on the International Sale of Goods, International Law of Dispute Resolution, International Trade Law, International Procedural Law, International Product Liability Law etc. Those topics will be approached from the practical side; thus students will be guided through those fields of law on a case to case basis.</p> | | |

In the end of the course the students shall achieve a certain sensitivity which enables them to evaluate the legal risks going along with certain business actions resp. business problems. The knowledge gained due to the course shall enable students to apply certain legal rules in situations they might be encountered with, especially in the field of international contracts resp. in international business and – moreover – to recognize when there is a need for a law specialist to assist them in solving the relevant problem. Additionally, students shall be enabled to analyze and evaluate the relevant legal risks before or when entering into a contract for a company.

Furthermore, finishing this course students will gain the capacity to recognize, analyze and evaluate occurring problems of European economic unification and international economic cooperation. They will be able to meet their own judgement in relevant areas. Students shall achieve a certain sensitivity which enables them to evaluate the measures governments and international institutions meet. The knowledge gained due to the course shall enable students to apply it to occurring new items.

By the end of this course students should also be familiar with the economics of the EU integration as well as international economic cooperation, understand key steps in EU construction, key concepts in the current EU policies as well as the design of the institutions of international economic cooperation. Students should also be able to analyze and assess developments within the European Union and the role of EU in the world. The aim of the course is to provide a institutional, theoretical and empirical framework to understand the economics and politics of the EU and institutions of international economic cooperation such as IMF, IBRD and WTO. Knowledge and capacity to understand the economic and the historical phenomena shall be provided.

The enhancement of communication skills related to the main topics of the course is also a main learning goal.

2 Module Content and Course Schedule

This course shall introduce the students to certain basic rules of international civil law, which is an enormously complex topic, as most countries in the world have their “own” international civil law. A main exception of this rule is the UN Convention on the International Sale of Goods (CISG), which is almost globally applicable (except for the UK). Additionally, certain parts of the international private law have been harmonized within the EU. Amongst other fields of law a brief introduction in basic principles of the following will be part of the lecture: (German) International Private Law, UN Convention on the International Sale of Goods, (German) International Trade Law, (German) International Product Liability Law, and International Law of Dispute Resolution.

We will collectively discuss cases, which touch the fields of law mentioned beforehand and will collectively and interactively solve the cases presented.

This course shall also introduce the students to certain basic principles of European unification and international economic cooperation. Amongst other fields a brief introduction in basic principles of international trade will be part of the lecture. We will collectively discuss current items in relevant areas.

While the course is not designed to focus on theory only, the basic theoretical frameworks is a prerequisite to qualified analysis and discussion. We emphasize the development of problem-solving skills based on a thorough understanding of the relevant theory. Because of the practical importance of the subject and as an illustration of the relevant theory, we will also discuss current issues and examples.

This is an introductory course into the economics and politics of the European Union and into the economics and politics of international economic integration. The course

focuses on core economic issues behind the integration process on a European and on an international level.

Course Schedule

Part International Law

1. Introduction into International Law in general – What is “International Law”?
2. Introduction into International Civil Law – The difference between Civil and Public Law in the international perspective
3. International Private Law / Contracts – Basic Rules of International Private Law in Germany and the EU
4. International Trade Law – Basic Rules of International Trade Law in Germany and the EU as well as the INCOTERMS
5. International Product Liability Law - Basic Rules of International Trade Law in Germany and the EU
6. UN Convention of the International Sale of Goods – Rules of the so-called Vienna Convention of 1980
7. International Dispute Resolution / International Procedural Law

Part International Economic Policy

1. History of the European Unification

Setting out after 1945, this part outlines relevant stages of the process of European unification. Current turn moils and conflicts are also addressed. Besides the EU we will look at the Council of Europe and the European Economic Area.

2. Institutions of the European Union

This chapter depicts the most relevant institutions of the EU: European Parliament, European Commission, European Council, Council of Ministers, European Central Bank, selected European Agencies.

3. Selected Items in European Economic Policy

This part gives a description of selected areas out of fields such as: Fiscal Policy, Monetary Policy, Competition Policy, Industrial Relations, Environmental Policy, Consumer Protection.

4. History and Institutions of International Economic Cooperation

On the basis of introducing relevant institutions the history of international economic cooperation since World War II will be depicted: IMF, EBRD, WTO, OECD, UNCTAD etc.

5. Foundations of International Economic Cooperation

Students are given an outline of real and monetary trade theory in its principles; insofar they are relevant for the understanding of current real word problems.

6. Selected Policy Areas and Current Items of International Economic Cooperation

In this part, the following items will be discussed: trade in commodities (goods markets), trade in services, regulation of international capital flows and forms of monetary cooperation. Conflict resolving bodies.

3 Didactic Concept

- Interactive presentation of theoretical principles and – even more important – relating cases
- Media-supported presentation
- Students’ homework as required preparation for class
- Up-to-date cases

- Tutorials and exercises
- Theoretical principles and up-to-date examples will be part of the course

4 Bibliography

Bernard, Catherine, *The Substantive Law of the EU: The Four Freedoms*, 5th ed., Oxford 2016

Carr, Indira/ Sundaram, Jae, *International Trade Law*, 5th ed., Oxford 2014

Dixon, Martin/ Mc Corquodale, Robert/ Williams, Sarah, *Cases & Materials on International Law*, 6th ed., New York 2016

Ghodoosi, Farshad, *International Dispute Resolution and the Public Policy Exception*, Oxford 2017

Paul Krugman, Maurice Obstfeld, Marc Melitz (2014). *International Economics: Theory and Policy*. 10th Edition. Prentice Hall

Richard Baldwin, Charles Wyplosz (2015). *The Economics of European Integration*. 5th Edition. McGraw-Hill Education Ltd

Schlechtriem, Peter/Butler, Petra, *UN Law on International Sales*, Heidelberg, 2009

| Module 15: Scientific Methods and Concepts | | |
|--|--|---|
| Duration | 1 semester | |
| Study Semester | 3rd semester | |
| Frequency | Winter semester | |
| Recommended Prere- quisites | None | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Lecture, Seminar | |
| Responsible for Module | Prof. Dr. Oliver Braun | |
| Teaching Personnel | Prof. Dr. Oliver Braun, Dr. Stefan Bagusche and further lecturers with specific topics | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input type="checkbox"/> Written exam <input checked="" type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input checked="" type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals Students will gain profound insights into the field of scientific work. They will be able to structure a thesis as well as present their main ideas to an audience. They will gain experience in literature research and in reading and understanding scientific papers published in top-tier journals. Their ability in analytical thinking and working will be increased. | | |
| 2 Module Content and Course Schedule This course gives an introduction to the basic principles of scientific work. Topics include the structure of a thesis, the structure of a presentation, sourcing and utilizing research literature, writing a thesis, presenting and discussing ideas. | | |

Course Schedule

1. Structure of a thesis
2. Structure of a presentation
3. Literature research
4. Scientific papers
5. Practical realization

3 Didactic Concept

- Lectures
- Homework assignments
- Presentations

4 Bibliography

Anglia Ruskin University Library. Guide to Harvard style of referencing. Available at: http://libweb.anglia.ac.uk/referencing/files/Harvard_referencing_2016.pdf [Accessed 24 February 2017]

Birmingham City University (2015). How to write references. Available at: <http://library.bcu.ac.uk/references.pdf> [Accessed 24 February 2017]

Turabian, K.L., 2013. A manual for writers of research papers, theses, and dissertations: Chicago style for students and researchers. University of Chicago Press

| Module 16: Accounting and Finance II | | |
|---|--|--|
| Duration | 1 semester | |
| Study Semester | 3rd semester | |
| Frequency | Winter semester | |
| Recommended Prere- quisites | None | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Lecture | |
| Responsible for Module | Prof. Dr. Christian Kammlott | |
| Teaching Personnel | Prof. Dr. Johannes Wirth, Kai Schlachter | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>This course aims students to provide an introduction to national and international financial reporting standards, and to develop a broad understanding of accounting proceedings, techniques, concepts and conventions as well as the links between the three financial statements. Furthermore, students will learn some of the alternative technical methods and practices of accounting. At the end of the course, students are also able to understand and prepare group accounts and get a brief introduction about Management Accounting.</p> | | |
| 2 Module Content and Course Schedule <p>The course is intended to measure and report the financial positions of an organization as well as the financial performance of an organization. Distinguishes between group</p> | | |

accounts and sole-trader accounts will be explained. At the end of the course, students will be introduced to Management Accounting, to provide an understanding to the role of management accounting in decision-making and managing an organization.

However, as accounting involves the manipulation of data expressed in numerical terms, students should have a basic grounding in mathematics.

By the end of the course, students should be in a position to understand:

- National and International Regulations of accounting
- International Financial Reporting Standards (IFRS, US-GAAP)
- Measuring and reporting the financial position of an organization
- Measuring and reporting the financial performance of an organization
- Preparation and interpretation of financial statements
- The analysis and interpretation of financial accounting information
- A broad range of accounting proceedings and accounting techniques, including international accounting principles and practices
- Basic issues relating to group accounting
- Introduction to Management Accounting

Course Schedule

1. National Regulation and International Financial Reporting Standards (IFRS)

Financial statements in Germany and other countries as well as Europe are regulated by various methods, including Company Law and Accounting standards. The need for regulation and the nature of the differences between the national regulatory systems in Germany and the International Financial Reporting Standards (IFRS, US-GAAP) will be considered.

2. Preparing Financial Statements

This session will focus on the three financial statements (Balance sheet, Income statement, Cash flow statement) and the links between them. It shows the main methods for preparing the statement of cash flows and the information that could be extracted over and above the information contained in the statement of financial position and the income statement. By the end of this session, students should be able to prepare the three financial statements.

3. Analyzing and interpreting financial statements

This chapter will provide an overview of the methods of analyzing and interpreting financial statements. It will look into how investors and others use financial statements and market information to assess the company's investment potential (i.e. invest in, hold or sell the company's shares).

4. Accounting proceedings I

This session enables students to understand and apply a range of accounting practices and techniques, including some of the alternative technical methods and practices of accounting (i.e. alternative recognition rules and valuation bases, adjustment of accounts for accruals, bad debts, bad debt provision and VAT).

5. Accounting proceedings II

In this Session, some of the problems with historical cost accounting in times of changing prices will be discussed and how they might be overcome. At the end of part I and II, students should be in a position to understand and apply a broad range of selected accounting proceedings and techniques based on alternative recognition rules, valuation bases and legal conventions.

6. Group Accounts

This session will look at accounting for groups of companies. Basic techniques for preparing group accounts will be introduced. Most large businesses (especially those listed on stock exchange) are groups. By the end of this session, students should be able to understand basic consolidation entries.

7. Introduction to Management Accounting

The introduction to Management Accounting develops the analytical skills and introduces techniques that accountants use to provide effective information to the management of an organization. This module enhances student skills in interpreting management accounting techniques and solutions.

3 Didactic Concept

- The course consists of lectures and exercises
- Media-supported presentation
- Media use and up-to-date examples

4 Bibliography

Brealey R. and Myers S. and Allen F., Principles of Corporate Finance (12th ed.), McGraw-Hill, [2016]

Jerry J. Weygandt, Paul D. Kimmel, Donald E. Kieso, Accounting Principles, 11th Edition International Student Version

| Module 17: German / Foreign Language III | | | | | | | | | |
|---|--|--|------------------------------------|---|--|---|---|---|-------------------------------------|
| Duration | 1 semester | | | | | | | | |
| Study Semester | 3rd semester | | | | | | | | |
| Frequency | Winter semester | | | | | | | | |
| Recommended Prerequisites | German I – II / Foreign Language: See module description in the appendix. | | | | | | | | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | | | | | | | | |
| Credit Points | 5 | | | | | | | | |
| Weight of Grade | Same as credit points | | | | | | | | |
| Contact Hours | 4 SWS / 60 h | | | | | | | | |
| Self-Study | 90 h | | | | | | | | |
| Total Workload | 150 h | | | | | | | | |
| Course Language | <p>German, French, Spanish, Italian etc.</p> <p><i>German students will have to take at least 2 modules in foreign language for at least 2 semesters each. An individual language study plan will be discussed prior the start of lectures.</i></p> <p><i>Module contents are aligned according the respective qualification of students.</i></p> <p><i>A detailed description of language modules offered for German students is found in the appendix.</i></p> | | | | | | | | |
| Type | Seminar | | | | | | | | |
| Responsible for Module | Prof. Dr. Stefan Diemer | | | | | | | | |
| Teaching Personnel | Christina Juen, Aloisia Sens and further lecturers | | | | | | | | |
| Requirement for Awarding of ECTS Points | Passed module examination(s) | | | | | | | | |
| Methods of Evaluation | <table border="0"> <tr> <td><input checked="" type="checkbox"/> Written exam</td> <td><input type="checkbox"/> Portfolio</td> </tr> <tr> <td><input checked="" type="checkbox"/> Oral exam</td> <td><input type="checkbox"/> Term paper or essay</td> </tr> <tr> <td><input type="checkbox"/> Laboratory performance</td> <td><input type="checkbox"/> Practical exam</td> </tr> <tr> <td><input type="checkbox"/> Project presentation</td> <td><input type="checkbox"/> Colloquium</td> </tr> </table> | <input checked="" type="checkbox"/> Written exam | <input type="checkbox"/> Portfolio | <input checked="" type="checkbox"/> Oral exam | <input type="checkbox"/> Term paper or essay | <input type="checkbox"/> Laboratory performance | <input type="checkbox"/> Practical exam | <input type="checkbox"/> Project presentation | <input type="checkbox"/> Colloquium |
| <input checked="" type="checkbox"/> Written exam | <input type="checkbox"/> Portfolio | | | | | | | | |
| <input checked="" type="checkbox"/> Oral exam | <input type="checkbox"/> Term paper or essay | | | | | | | | |
| <input type="checkbox"/> Laboratory performance | <input type="checkbox"/> Practical exam | | | | | | | | |
| <input type="checkbox"/> Project presentation | <input type="checkbox"/> Colloquium | | | | | | | | |
| 1 Learning Goals German <u>Communicative competence</u> | | | | | | | | | |

Reading: can understand short, simple texts a single phrase at a time, picking up familiar names, words and basic phrases and rereading as required.

Speaking: can produce simple phrases about people and places; can e.g. introduce herself/himself, ask and answer simple questions.

Writing: can write simple isolated phrases and sentences.

Listening: can follow speech, which is slow and carefully articulated, with pauses for him/her to assimilate meaning.

[based on Common European Framework of Reference for Languages: Learning, Teaching, Assessment, Level A1+]

Intercultural competence

Can identify the basic features and values of German society, daily routines, jobs, administrative offices and authorities as well as traditions and can compare it to own life experience. Can report cultural similarities and differences.

Methodical competence (strategies for listening and reading, speaking and writing; how to deal with different text types and media)

Can summarize paragraphs of a text.

Language correctness (grammar, pronunciation and intonation, lexis, orthographic correctness)

Can e.g. identify verb position in main clauses and subordinate clauses with weil, can conjugate verbs in the present and perfect and partly past tense, can use dative and accusative case for personal pronouns

2 Module Content and Course Schedule German

A 1.2, 2nd part

Asking for and giving directions, means of transport, places and directions, understanding announcements at train stations, reading timetables and asking for information at the ticket window

Understanding date & time specifications, talking about daily routines, expressing polite requests, telephoning: customer service, understanding service displays

Clothes, expressing approval/disapproval, asking for preferences, making a decision, asking for advice in a store, landscapes

Holidays, asking about a particular date, talking about (public) holidays, confirm or cancel an appointment, giving reasons, reading and writing invitations, understanding texts about German holidays (Easter, Christmas, etc.), writing a greeting card

Grammar: preposition mit, prepositions of place & time, conjunctive II (würde, könnte), verbs with prefixes (an-, aus-, auf-, zu-), demonstrative pronouns, personal pronouns in accusative & dative case, verbs in dative case, gut - gern - viel, conjugation of mögen, conjunction denn, conjugation of werden

Pronunciation: the z-sound, sentence melody with linking words

A 2.1, 1st part

Talking about travel experiences, ways of life and living arrangements

Grammar: conjunction weil, subordinate clauses, perfect tense of separable and non-separable verbs, perfect tense of the verbs ending in -ieren, nouns in the genitive case, preposition of

Course Schedule

A 2.1, Unit 11-14

1. In the city: The first part of this seminar deals with the topic of asking for and giving directions and all the relevant language material to use public transport.

Business focus: An appointment at a company/Business email

2. Customer service: Forming polite requests and telephoning will be dealt with.

Business focus: ordering products

3. New clothes: Students learn how to express approval/disapproval, asking for advice or preferences.

4. Celebrations: The next part of this seminar focuses on public holidays in Germany and how to celebrate them. Students also learn how to cancel appointments and how to write invitations.

Cultural knowledge: public holidays in Germany

A 2.1, Unit 1

5. Getting to know each other: The first unit of the A 2.1 book deals with travel experiences. The perfect tense will be revised as it is used to talk about past events. With regard to cultural knowledge, different family models and ways of life in Germany will be looked at.

Cultural knowledge: modern and traditional family models and way(s) of life in Germany

3 Didactic Concept German

- Primarily communicative teaching method
- Intensive media use (DVD: video sequences to start each unit, free app for smartphone supports self-study)
- Course media and handouts available online
- Communicative training (tasks and exercises for the basic skills reading, listening, speaking and writing; intercultural communication)

4 Bibliography German

Schritte PLUS Neu 02 Kursbuch A1.2 + Arbeitsbuch A1.2 + CDs und DVD A1.2, Hueber Verlag, Unit 11-14, App für Smartphone und Tablet

Schritte PLUS 3 Kursbuch A 2.1 + Arbeitsbuch A 2.1 + CDs, Hueber Verlag, Unit 1 (Vermerk: Schritte PLUS neu 03 noch nicht auf dem Markt, deshalb Vorgänger)

Additional material provided by lecturer (cultural knowledge, statistic data about forms of living and family models in Germany, etc.)

| Module 18: Sustainable Technology Solutions | | |
|--|--|--|
| Duration | 1 semester | |
| Study Semester | 4th semester | |
| Frequency | Summer semester | |
| Recommended Prere- quisites | Physics, Thermodynamics | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 10 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 8 SWS / 120 h | |
| Self-Study | 180 h | |
| Total Workload | 300 h | |
| Course Language | English | |
| Type | Lecture, Exercise | |
| Responsible for Module | Prof. Dr. Henrik te Heesen | |
| Teaching Personnel | Prof. Dr. Henrik te Heesen, Prof. Dr. Susanne Hartard and further lecturers with specific talks | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>The students will learn the different issues of sustainable questions in various fields of technology. We will focus on topics "Sustainable Energy Systems" and "Sustainable Technology Solutions". The students understand the basics in technologies and know specific applications in the field of energy systems, material flow management, and zero emission technology.</p> <p>The lecture series is divided in two separate course lines.</p> <p>Additionally, there will be excursions to several regional companies. Also, simulation games will be integrated into the module.</p> | | |

2 Module Content and Course Schedule

The course is structured as follows:

- Introduction to energy usage and consumption
- Conventional energy systems (coal, nuclear, natural gas)
- Renewable energy systems (hydro power, PV, wind, bioenergy etc.)
- Energy efficiency
- Concepts of sustainable and efficient energy usage: CHP, ventilation and air conditioning
- Sustainable biotechnology
- Waste Management
- Water and wastewater management
- Zero emission technology

3 Didactic Concept

- Course sessions
- Simulation games

4 Bibliography

Quaschnig, Volker. Understanding Renewable Energy Systems. Routledge. 2016
Further literature to be announced.

| Module 19: Lab Work | | |
|---|--|---|
| Duration | 1 semester | |
| Study Semester | 4th semester | |
| Frequency | Summer semester | |
| Recommended Prere- quisites | None | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Lecture, Laboratory exercise | |
| Responsible for Module | Prof. Dr. Stefan Stoll | |
| Teaching Personnel | Prof. Dr. Stefan Stoll and further lecturers for specific labs | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input checked="" type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input checked="" type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>Students have gained knowledge in experimental design, test execution and evaluation of test series. Moreover, they have acquired the ability to reproduce and to plan an experimental setup as well as converting the results. Furthermore, they have the capacity to present and discuss scientifically researched results.</p> <p>They have acquired the fundamentals of a good laboratory practice.</p> | | |
| 2 Module Content and Course Schedule <p>On completion of this module students will have:</p> <ul style="list-style-type: none"> ▪ Undertaken advanced experimental work, with due attention to safety in the chemical laboratory and other laboratories; | | |

- Manipulated an advanced apparatus and record data for subsequent analysis;
- Undertaken advanced independent experimental work, with due attention to safety, and demonstrated the ability to write clear, scientific reports
- Solved problems using modern experimental techniques;
- Developed an awareness of the nature of investigative chemistry, and the ability to
- Interpreted and presented experimental evidence;
- Developed their practical and problem solving skills.

Students will choose four experiments of interest from a semester catalogue of experiments.

3 Didactic Concept

- Lecture
- Internship

4 Bibliography

Brand, Ian et al., Edexcel GCSE [9-1] Combined Science Core Practical Lab: Book 1, Pearson Education Limited, 2016

Brand, Ian et al., Edexcel GCSE [9-1] Combined Science Core Practical Lab: Book 2, Pearson Education Limited, 2017

LaPlace, Stuart: Biology Practicals: Field & Lab Experiments, CreateSpace Independent Publishing Platform, 2014

| Module 20: Production and Supply Chain Management | | |
|--|--|--|
| Duration | 1 semester | |
| Study Semester | 4th semester | |
| Frequency | Summer semester | |
| Recommended Prere- quisites | Principles of Engineering I | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 10 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 8 SWS / 120 h | |
| Self-Study | 180 h | |
| Total Workload | 300 h | |
| Course Language | English | |
| Type | Lecture, Excursions | |
| Responsible for Module | Prof. Dr. Peter Gutheil, Prof. Dr. Klaus Helling | |
| Teaching Personnel | Prof. Dr. Peter Gutheil, Prof. Dr. Klaus Helling and further lecturers with specific talks | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>The goal of the lecture is to acquire basic knowledge about production processes. Students learn to understand the organization of production processes and their position within the supply chain.</p> <p>They understand the meaning of energy consumption and material use in industrial processes and are able to think about solutions for sustainable processes.</p> <p>The students get a basic understanding on how to analyze industry relations alongside their horizontal and vertical value-chains and get an appropriate toolkit to measure and monitor the results based on economic and ecological aspects.</p> | | |

2 Module Content and Course Schedule

The lecture deals with the principles of production processes, operation management and globalized supply chains. It includes the following topics:

- Manufacturing Processes
- Operations Management
- Organization of production manufacturing types
- Supply Chain Management
- Industrial Material Flow Management
- Cleaner Production
- Lean Production

3 Didactic Concept

- Lectures
- Study trips

4 Bibliography

Beitz, Wolfgang; Handbook of mechanical engineering / Dubbel; Springer

Goetschalckx, Marc.; Supply Chain Engineering; Springer

Helling, K. (2006): Principles of Industrial Material Management, Birkenfeld

Wagner, B. / Enzler, S. (2006): Material Flow Management Improving Cost Efficiency and Environmental Performance, Heidelberg

WBCSD [Ed.]: The Eco-Efficiency Learning Module, 2006.

www.cleaner-production.de

| Module 21: German / Foreign Language IV | | | | | | | | | |
|---|--|--|------------------------------------|---|--|---|---|---|-------------------------------------|
| Duration | 1 semester | | | | | | | | |
| Study Semester | 4th semester | | | | | | | | |
| Frequency | Summer semester | | | | | | | | |
| Recommended Prerequisites | German I – III / Foreign Language: See module description in the appendix. | | | | | | | | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | | | | | | | | |
| Credit Points | 5 | | | | | | | | |
| Weight of Grade | Same as credit points | | | | | | | | |
| Contact Hours | 4 SWS / 60 h | | | | | | | | |
| Self-Study | 90 h | | | | | | | | |
| Total Workload | 150 h | | | | | | | | |
| Course Language | <p>German, French, Spanish, Italian etc.</p> <p><i>German students will have to take at least 2 modules in foreign language for at least 2 semesters each. An individual language study plan will be discussed prior the start of lectures.</i></p> <p><i>Module contents are aligned according the respective qualification of students.</i></p> <p><i>A detailed description of language modules offered for German students is found in the appendix.</i></p> | | | | | | | | |
| Type | Seminar | | | | | | | | |
| Responsible for Module | Prof. Dr. Stefan Diemer | | | | | | | | |
| Teaching Personnel | Christina Juen, Aloisia Sens and further lecturers | | | | | | | | |
| Requirement for Awarding of ECTS Points | Passed module examination(s) | | | | | | | | |
| Methods of Evaluation | <table border="0"> <tr> <td><input checked="" type="checkbox"/> Written exam</td> <td><input type="checkbox"/> Portfolio</td> </tr> <tr> <td><input checked="" type="checkbox"/> Oral exam</td> <td><input type="checkbox"/> Term paper or essay</td> </tr> <tr> <td><input type="checkbox"/> Laboratory performance</td> <td><input type="checkbox"/> Practical exam</td> </tr> <tr> <td><input type="checkbox"/> Project presentation</td> <td><input type="checkbox"/> Colloquium</td> </tr> </table> | <input checked="" type="checkbox"/> Written exam | <input type="checkbox"/> Portfolio | <input checked="" type="checkbox"/> Oral exam | <input type="checkbox"/> Term paper or essay | <input type="checkbox"/> Laboratory performance | <input type="checkbox"/> Practical exam | <input type="checkbox"/> Project presentation | <input type="checkbox"/> Colloquium |
| <input checked="" type="checkbox"/> Written exam | <input type="checkbox"/> Portfolio | | | | | | | | |
| <input checked="" type="checkbox"/> Oral exam | <input type="checkbox"/> Term paper or essay | | | | | | | | |
| <input type="checkbox"/> Laboratory performance | <input type="checkbox"/> Practical exam | | | | | | | | |
| <input type="checkbox"/> Project presentation | <input type="checkbox"/> Colloquium | | | | | | | | |
| 1 Learning Goals German <u>Communicative competence</u> | | | | | | | | | |

Reading: Can understand short, simple texts containing the highest frequency vocabulary, including a proportion of shared international vocabulary items, work, family, shopping and immediate surroundings.

Speaking: Can give a simple description or presentation of people, living or working conditions, daily routines, likes/dislikes, etc. as a short series of simple phrases and sentences linked into a list. Can exchange personal ideas about specific topics. Can describe his/her background and education, immediate surroundings and other things associated with immediate needs in a simple way.

Writing: Can write a series of simple phrases and sentences linked with simple connectors like 'and', 'but' and 'because'.

Listening: Can understand phrases and expressions related to areas of most immediate priority (e.g. very basic personal and family information, shopping, local geography, employment) provided speech is clearly and slowly articulated.

[based on Common European Framework of Reference for Languages: Learning, Teaching, Assessment, Level A2]

Intercultural competence (traditions, jobs, holidays, daily routines, values of a society, etc.)

Can draw intercultural comparisons on a basic level and knows about German values of society.

Methodical competence (strategies for listening and reading, speaking and writing; how to deal with different text types and media)

Can order texts in paragraphs according to content. Can find simple headlines for paragraphs.

Language correctness (grammar, pronunciation and intonation, lexis, orthographic correctness)

Can e.g. identify sentence structure, can conjugate verbs in the present and perfect and partly past tense, can use prepositions and verbs with dative and accusative case, can make correct use of the conjunctions wenn and dass

2 Module Content and Course Schedule German

A2.1, Unit 2-6:

At home, Wo? Vs. Wohin?, giving directions, understanding written notifications in tenements, communication with neighbors, asking for help

Food and drinks, talking about habits, dinner invitations, dialogues in a restaurant

World of work, telephoning, expressing conditions, giving advice, understanding notifications at the workplace

Health & Sports, asking about interests, showing interest, reading flyers, joining a sports club

School and training, talking about wishes and plans from childhood, stating opinions, understanding biographical texts about one's professional development

Grammar: Prepositions and verbs with dative and accusative, adverbials indicating direction (hierhin, rein, etc.), conjunction wenn, conjunctive form sollte, reflexive verbs, verbs with prepositions, conjunction dass (Es ist wichtig, dass...), past tense of modal verbs

Pronunciation: ü, word and sentence stress, s (s, ss, ß), ch, r, -ig vs.-ich, f, w, b

Course Schedule

A 2.1, Unit 2-6

1. At home: This unit deals with the big topic of living in a tenement and all the rules and notifications connected to it as well as communication with the neighbors.

Business focus: looking for business premises

Special focus: Understanding rental contracts

2. Food and drinks: This unit focuses on eating habits and eating out in a restaurant.

Business focus: Healthy food at the workplace

3. World of work: This unit deals with telephoning at the workplace as well as understanding announcements at work.

Business focus: application (!)

4. Fitness: Here the students learn important vocabulary about health and different sports.

Cultural knowledge: The importance of clubs (Vereine) in Germany

Special focus: health insurance

5. School and training: This unit is about school and school systems, training and career paths.

Business focus: writing a resumé & career guidance

3 Didactic Concept German

- Primarily communicative teaching method
- Intensive media use (DVD: video sequences to start each unit, free app for smartphone supports self-study), German news sequences, songs, etc.)
- Course media and handouts available online
- Communicative training (reading, listening, speaking and writing; intercultural communication)

4 Bibliography German

Schritte PLUS neu 03 Kursbuch A 2.1 + Arbeitsbuch A 2.1 CDs and DVDs, Hueber Verlag, Unit 2-6, App für Smartphone und Tablet

Additional material provided by lecturer (cultural knowledge, etc.)

| Module 22: Ethics and Society | | |
|--|---|---|
| Duration | 1 semester | |
| Study Semester | 5th semester | |
| Frequency | Winter semester | |
| Recommended Prere- quisites | None | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Lecture, Project Workshop | |
| Responsible for Module | Prof. Dr. Klaus Rick, Prof. Dr. Stefan Diemer | |
| Teaching Personnel | Prof. Dr. Klaus Rick, Prof. Dr. Stefan Diemer | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input checked="" type="checkbox"/> Project presentation | <input checked="" type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>Students will identify and comprehend the importance of sustainable corporate governance and responsible management of persisting and often conflicting goals in modern enterprises.</p> <p>The participants are enabled to apply tools that support ethical uncritical management for the harmonization of antagonistic targets with an emphasis on employee motivation inside realistic organizational behavior. Besides, they learn how to steer, manage and communicate sustainable entrepreneurial decisions, achievements and long-range product policy aspects including public interests to support an authentic social and environmental friendly governance.</p> | | |

Students will internalize essentials and instruments of modern sustainability management underlining ethically uncritical and legal compliant decision making regarding diverging and interlacing stakeholder interests.

En passant the students will apprehend and transfer classical ethical knowledge and moral insights of famous philosophers to up-to-date business ethics in a globalized world.

In the workshop component, students will gain key knowledge about international business communication principles in order to be able to contextualize their economic performance in a wide range of societal and international interactional settings. They will be able to present and critically discuss key means of international business communication and to analyze the respective societal backgrounds influencing business interaction.

The exemplary discussion of the various ways in which societies shape economic interaction, will enable students to perform an ethics-based evaluation of the pros and cons of different market environments, particularly in the context of issues such as sustainability, globalization and the digital economy.

On the basis of the acquired knowledge, students will be able to perform business decisions in an international context and in a wide range of professional communicative settings.

2 Module Content and Course Schedule

The course explains the need for modern ethical correct business modeling and sustainable management in companies in all major functional and managerial fields. Practical real business exercises as well as virtual examples set students more and more into a manager role as decision maker or project leader. They identify the parallels between classical and business ethics and realize the positive outcome.

Learning more about classical ethically desired and accepted behavior the participants understand how to change today's established often-misleading production ways and rigid treatment of employees to a business that reduces systematically negative impacts.

The accompanying workshop on international business communication presents the pragmatic aspects of management decisions based on culture-specific and global normative settings and expectation frameworks. This includes basic intercultural mediation, in particular the effect of language use and pragmatics on economic interaction [Linguistic Awareness of Cultures].

On the basis of case studies students will look at problems and challenges in the areas of intercultural marketing, marketing to heterogeneous target groups, regional marketing styles, online business communication and adaptive customer communication as well as the use of social network and data mining to enhance business communication. As part of the workshop students will discuss ethical and societal aspects, dealing with issues such as diversity management, company cultures, time and hierarchical models and decision patterns, in an applied context.

Course Schedule

Lecture part:

1. Intro: need for change in markets and models through globalization, increasing profit and image risks for enterprises in case of unethical behaviour/mismanagement, role of today's mass communication and social media, effects of resource

shortages for own production/biodiversity aspects, need for sustainable management to fight upcoming dark development curves reg. increasing environmental and social problems.

2. Insight: differentiation of classical scientific resp. normative ethics vs. business ethics, practical and future oriented decision making in enterprises, positive productivity and turnover effects through normative management with a "moral compass". Subordination of various 'classical' needs for a future worth living, introducing corrective management systems to motivate the employees for sustainability.
3. Tools: St. Gallen Management Model, contemporary examples and implementations, successes and failures, financial disasters through ignorance of business ethics resp. sust. aspects, Sustainability Balanced Scorecard (SBSC), cooperation with non-governmental organizations, effectively conducted ISO EU DIN management standards, advanced payment models
4. Integration: examples for value chain oriented integrated ethical uncritical management: procurement, production, research, sales & marketing, transformation and professional change, technology and innovation policy
5. Summary: Positive experiences and best management practice support, comparison of approach between global players/multinationals and small/medium sized enterprises

Note: prominent current business examples accompany all lecture modules

Workshop part:

1. Intro: Linguistic Awareness of Cultures
2. Cultural and societal settings and normative frameworks, guest lectures on various applied problems and their solutions
3. Ethics and societies: different market models, diversity management, company cultures, time and hierarchical models and decision patterns
4. Intercultural marketing: Examples for approaches, case studies and discussion of adaptation in a globalized setting
5. The digital economy: Digital value chains, Compilation and transformation of data, tailored services, applications and products in retail, manufacturing, creative, educational and public sectors

Summary: Business decisions and ethics in an international communicative setting

3 Didactic Concept

- Impulse lectures incl. analysis of best practice and current state of research examples, discursive interactive approach
- Practical exercises, dialog oriented team presentations
- Cooperative sessions with blended learning elements
- All course media and materials available online, integration of web media
- Workshop elements with international partners
- Guest lectures and expert talks
- Independent project work and portfolio design

4 Bibliography

English

A. Crane, D. Matten: Managing Corporate Citizenship and Sustainability in the Age of Globalization, Oxford University Press 2016

A. Crane, D. Matten: Business Ethics, Oxford University Press 2010

K. Gibson: Ethics and Business: An Introduction, Cambridge 2007

R.R. Sims: Why Giants Fall – Ethics and Corporate Social Responsibility, 2003
Harvard Business Review on Corporate Ethics, 2003 (introductory literature)
K. Meyer, M.W. Peng: International business, 2016
D. Mendez: The culture solution, 2017
C. Storti: The art of doing business across cultures, 2017
L. Ciochetto: Globalisation and advertising in emerging economies, 2014
S. Liu, Z. Volcic, C. Gallois: Introducing intercultural communication, 2014
D.L. Rogers: The digital transformation playbook, 2016.

German

Hentze J. Thies B.: Unternehmensethik und Nachhaltigkeitsmanagement, Bern 2012

| Module 25: Interdisciplinary Project | | |
|--|---|--|
| Duration | 1 semester | |
| Study Semester | 5th semester | |
| Frequency | Winter semester | |
| Recommended Prerequisites | Scientific Methods and Concepts | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 10 (5+5) | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 8 SWS / 120 h (4 SWS / 60 h + 4 SWS / 60 h) | |
| Self-Study | 180 h (90 h + 90 h) | |
| Total Workload | 300 h (150 h + 150 h) | |
| Course Language | English | |
| Type | Project | |
| Responsible for Module | Current Program Coordinator | |
| Teaching Personnel | Lecturers according the selected topics | |
| Requirement for Awarding of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation (depends on course structure to be defined by lecturer) | <input type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input checked="" type="checkbox"/> Laboratory performance <input checked="" type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input checked="" type="checkbox"/> Term paper or essay <input checked="" type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>The student knows the different practice-oriented and/or theory-oriented techniques and methods for the independent and systematic implementation of research and development tasks. The student is able to handle problems widely autonomously by applying scientific methods and abilities. Another important qualification goal is the ability to work constructively and under pressure within a team.</p> | | |
| 2 Module Content and Course Schedule <p>The module is usually carried out through two projects, each carrying 5 ECTS. It is also possible to group this module into a large project with a scope of 10 ECTS. It is welcomed when the module is realized in the form of teamwork, but individual work is</p> | | |

also possible. The specific time and content must be clarified bilaterally with the supervising professor. In principle, it is also possible to complete the module in several semesters.

The module should impart scientific methodology and abilities under the guidance of a professor. A more complex and interdisciplinary work with relation to the degree course will be accomplished. Application-oriented problems will be worked on under supervision in such a way that the student is able to learn generic techniques and methods which are needed for a later independent implementation of research and development works. There is the possibility to work on a project with external partners from institutes, universities or industry. The module may also be covered by the technical projects ("Fachprojekt" and "Interdisziplinäres Projekt") practiced regularly in Department UP/UT faculty, as well as in cooperation with students of other programs.

3 Didactic Concept

- Group Work
- Project Work

4 Bibliography

According the selected topics.

| Module 26: German / Foreign Language V | |
|---|--|
| Duration | 1 semester |
| Study Semester | 5th semester |
| Frequency | Winter semester |
| Recommended Prerequisites | German Language I – IV / Foreign Language: See module description in the appendix. |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject |
| Credit Points | 5 |
| Weight of Grade | Same as credit points |
| Contact Hours | 4 SWS / 60 h |
| Self-Study | 90 h |
| Total Workload | 150 h |
| Course Language | <p>German, French, Spanish, Italian etc.</p> <p><i>German students will have to take at least 2 modules in foreign language for at least 2 semesters each. An individual language study plan will be discussed prior the start of lectures.</i></p> <p><i>Module contents are aligned according the respective qualification of students.</i></p> <p><i>A detailed description of language modules offered for German students is found in the appendix.</i></p> |
| Type | Seminar |
| Responsible for Module | Prof. Dr. Stefan Diemer |
| Teaching Personnel | Christina Juen, Aloisia Sens and further lecturers |
| Requirement for Awarding of ECTS Points | Passed module examination(s) |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input checked="" type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals | |
| <i>Communicative competence</i> | |

Reading: Can understand basic types of standard routine letters and faxes (enquiries, orders, letters of confirmation etc.) on familiar topics.

Speaking: Can interact with reasonable ease in structured situations and short conversations, provided the other person helps if necessary. Can manage simple, routine exchanges without undue effort; can ask and answer questions and exchange ideas and information on familiar topics in predictable everyday situations. Can generally follow changes of topic in formal discussion related to his/her field which is conducted slowly and clearly. Can exchange relevant information and give his/her opinion on practical problems when asked directly, provided he/she receives some help with formulation and can ask for repetition of key points if necessary.

Writing: Can write short, simple formulaic notes relating to matters in areas of immediate need. Can write about everyday aspects of his/her environment, e.g. people, places, a job or study experience in linked sentences. Can write very short, basic descriptions of events, past activities and personal experiences.

Listening: Can understand enough to be able to meet needs of a concrete type provided speech is clearly and slowly articulated.

[based on Common European Framework of Reference for Languages: Learning, Teaching, Assessment, Level A2]

Intercultural competence (traditions, jobs, holidays, daily routines, values of a society, etc.)

Can draw intercultural comparisons on a basic level and knows about German values of society.

Methodical competence (strategies for listening and reading, speaking and writing; how to deal with different text types and media)

Can find specific, predictable information in simple everyday material such as advertisement, menus, reference lists and timetables, has a repertoire of basic language which enables him/her to deal with everyday situations with predictable content, though he/she will generally have to compromise the message and search for words.

Language correctness (grammar, pronunciation and intonation, lexis, orthographic correctness)

Uses some simple structures correctly, but still systematically makes basic mistakes – for example tends to mix up tenses and forget to mark agreement; nevertheless, it is usually clear what he/she is trying to say. Pronunciation is generally clear enough to be understood despite a noticeable foreign accent. Can make him/herself understood in short contributions, even though pauses, false starts and reformulation are very evident.

2 Module Content and Course Schedule

A 2.1, Unit 7:

Celebrations, presents, expressing recommendations, talking about a wedding, organizing an event

A 2.2, Unit 1-3:

At the weekend, expressing wishes and suggestions, understanding event tips on the radio

My belongings, describing things/objects, comparing objects, complete statistics

Communication, a quiz about German habits, setting up a course statistic about communication, voice messages

Grammar: dative as object, position of objects in the sentence, preposition von, conjunctive II (wäre, hätte, würde, könnte), conjunction trotzdem, comparative forms, declination of adjectives with the (in)definite article, passive voice

Pronunciation: ö, consonant cluster, sentence melody and pauses, b vs. p, d vs. t, g vs. k

Course Schedule

A 2.1, Unit 7

Celebrations: This unit deals with different types of events (weddings, parties) and discusses the organization of such events and suitable presents

Business focus: Dealing with conflicts at work

A 2.2

The weekend: The first unit of the A 2.2 book deals with plans for the weekend, suggestions and event tips

Business focus: Computer and the Internet

2. My belongings: This unit is about objects in a flat, making comparisons and valuations of furniture

3. Communication: This unit deals with various types of communication (the Internet, inbox messages on voice mail, posting a parcel, filling in forms, etc.)

3 Didactic Concept

- Primarily communicative teaching method
- Intensive media use (DVD: video sequences to start each unit, free app for smartphone supports self-study), German news sequences, texts from German newspapers on the environment/sustainability) etc.)
- Course media and handouts available online
- Communicative training (reading, listening, speaking and writing; intercultural communication)

4 Bibliography

Schritte PLUS neu 03 Kursbuch A 2.1 + Arbeitsbuch A 2.1 CDs and DVDs, Hueber Verlag, Unit 7, App für Smartphone und Tablet

Schritte PLUS neu 03 Kursbuch A 2.2 + Arbeitsbuch A 2.2 CDs and DVDs, Hueber Verlag, Unit 1-4, App für Smartphone und Tablet

Additional material provided by lecturer (cultural knowledge, environmental issues, etc.)

| Module 29: Career Planning and Employability | | |
|--|---|--|
| Duration | 1 semester | |
| Study Semester | 6th semester | |
| Frequency | Summer semester | |
| Recommended Prere- quisites | None | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Seminar | |
| Responsible for Module | Prof. Dr. Stefan Diemer | |
| Teaching Personnel | Prof. Dr. Stefan Diemer and further lecturers with specific talks | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input checked="" type="checkbox"/> Career Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals A student passing this module should be able to: <ol style="list-style-type: none"> 1. Critically reflect on experiences in the workplace drawing upon appropriate material for the analysis of these experiences 2. Compare, contrast and evaluate different placement/work experiences in national and international settings 3. Critically analyze philosophical, ethical and moral issues in the workplace in relation to professional practice drawing upon the significance of personal values in relation to this area 4. Evaluate their own knowledge, skills (including soft skills) and attributes and use these to develop an action plan to meet career aspirations | | |

2 Module Content

The aim of this module is to prepare students for national and international employment by providing knowledge and understanding of the increasing importance of critical reflection and continuous professional development in the early stages of managing a graduate career. It is designed to build upon work experiences including an analysis of critical incidents and an evaluation of the skills and attitudes required for effective working and career progression related to their field of employment. Consideration will also be given to training needs, staff and professional development, how this can be planned and supported. Particular emphasis will be given to how students can confidently and articulately promote themselves to potential employers.

The module further focuses on possible Master programs as an alternative for students who want to continue studying:

- Consecutive Master program: meaning that they deepen one's knowledge acquired in a bachelor program in the same discipline
- Non-consecutive Master program: meaning they do not build on a specific bachelor's degree
- Continuing education: meaning they require one or more years of professional experience for admission

Course Schedule

1. Students will critically appraise their placement experiences at two levels, namely at an individual level in relation to their personal development and career aspirations and, at a global industry level, with a particular focus on the relationship between theory and industrial/commercial practice.
2. The module provides a learning environment in which students have the opportunity to develop and evaluate theories of professionalism, emotional intelligence, competency and employability in a variety of contexts.
3. Students will develop their skills in critical reflection and career management in order that they may become more effective practitioners in the early stages of a graduate career.

The focus throughout is on enhancing students' potential to gain a graduate job upon completion of their degree course

3 Didactic Concept

- Lecture and interactive workshop elements
- Integration of web media
- Guest lectures and expert talks
- Project workshops with international partners
- Cooperative sessions with blended learning elements
- Independent project work and portfolio design

4 Bibliography

Students will use up-to-date online career planning and development resources; a source materials and reading list will be made available via the respective learning platforms.

| Module 30: Bachelor Thesis (12 ECTS) and Colloquium (3 ECTS) | | |
|---|---|---|
| Duration | 1 semester | |
| Study Semester | 6th semester | |
| Frequency | Winter and summer semester | |
| Recommended Prerequisites | See § 20 of the Examination Regulations: Prerequisites for admission to the Bachelor Thesis | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 15 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 12 SWS / 180 h | |
| Self-Study | 270 h | |
| Total Workload | 450 h | |
| Course Language | English | |
| Type | Bachelor Thesis, Colloquium | |
| Responsible for Module | Prof. Dr. Christian Kammlott (Current Program Coordinator) | |
| Teaching Personnel | Examiner, Second Examiner | |
| Requirement for Awarding of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Bachelor Thesis <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input checked="" type="checkbox"/> Colloquium |
| 1 Learning Goals <p>Students shall provide evidence that they are able to recognize a problem involved in the respective subject and locate a solution thereof in a limited period of time and with defined means of help. They shall prove that they identify the context of the field under examination, is able to place specific problems in context and master common methodology of the subject. The Bachelor Thesis is a part of the examination by way of which the student shall prove that he or she is able to handle a particular task under guidance, working independently and successfully and can provide practical insights into the solution of the thesis' problem.</p> <p>In the colloquium, students are able to defend the results of the Bachelor Thesis and present their results in a proper form for the audience. They motivate their approach</p> | | |

and make estimations, how assumptions and simplifications may affect the validity of their results. They are able to analyze questions concerning their thesis and results and answer them properly in the context of professional reference.

2 Module Content and Course Schedule

The Bachelor Thesis can be practical as well as theoretical. It should relate the advanced standard of knowledge in the scientific field and normally deal with potential problems in the working life. The Bachelor Thesis consists of the written work and its defense.

3 Bibliography

Anglia Ruskin University Library. Guide to Harvard style of referencing. Available at: http://libweb.anglia.ac.uk/referencing/files/Harvard_referencing_2016.pdf [Accessed 24 February 2017]

Birmingham City University (2015). How to write references. Available at: <http://library.bcu.ac.uk/references.pdf> [Accessed 24 February 2017]

Turabian, K.L., 2013. A manual for writers of research papers, theses, and dissertations: Chicago style for students and researchers. University of Chicago Press

Electives

Electives modules will be announced at the beginning of each semester. A selection of possible elective modules is attached below:

| Elective 1: Environmental Management Systems | | | | | | | | | |
|--|--|--|------------------------------------|------------------------------------|--|---|---|--|-------------------------------------|
| Duration | 1 semester | | | | | | | | |
| Study Semester | 5th semester | | | | | | | | |
| Frequency | Winter semester | | | | | | | | |
| Recommended Prere- quisites | None | | | | | | | | |
| Classification | <input type="checkbox"/> Required Course <input checked="" type="checkbox"/> Compulsory Optional Subject | | | | | | | | |
| Credit Points | 5 | | | | | | | | |
| Weight of Grade | Same as credit points | | | | | | | | |
| Contact Hours | 4 SWS / 60 h | | | | | | | | |
| Self-Study | 90 h | | | | | | | | |
| Total Workload | 150 h | | | | | | | | |
| Course Language | English | | | | | | | | |
| Type | Seminar | | | | | | | | |
| Responsible for Module | Prof. Dr. Klaus Helling | | | | | | | | |
| Teaching Personnel | Prof. Dr. Klaus Helling, Jan-Christian Hansen M.A. | | | | | | | | |
| Requirement for Award- ing of ECTS Points | Passed module examination[s] | | | | | | | | |
| Methods of Evaluation | <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"><input checked="" type="checkbox"/> Written exam</td> <td style="width: 50%; border: none;"><input type="checkbox"/> Portfolio</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Oral exam</td> <td style="border: none;"><input type="checkbox"/> Term paper or essay</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Laboratory performance</td> <td style="border: none;"><input type="checkbox"/> Practical exam</td> </tr> <tr> <td style="border: none;"><input checked="" type="checkbox"/> Project presentation</td> <td style="border: none;"><input type="checkbox"/> Colloquium</td> </tr> </table> | <input checked="" type="checkbox"/> Written exam | <input type="checkbox"/> Portfolio | <input type="checkbox"/> Oral exam | <input type="checkbox"/> Term paper or essay | <input type="checkbox"/> Laboratory performance | <input type="checkbox"/> Practical exam | <input checked="" type="checkbox"/> Project presentation | <input type="checkbox"/> Colloquium |
| <input checked="" type="checkbox"/> Written exam | <input type="checkbox"/> Portfolio | | | | | | | | |
| <input type="checkbox"/> Oral exam | <input type="checkbox"/> Term paper or essay | | | | | | | | |
| <input type="checkbox"/> Laboratory performance | <input type="checkbox"/> Practical exam | | | | | | | | |
| <input checked="" type="checkbox"/> Project presentation | <input type="checkbox"/> Colloquium | | | | | | | | |
| 1 Learning Goals | | | | | | | | | |
| The course provides students with a basic theoretical coverage of the major topics in environmental management and eco-efficiency. The main objective is to understand | | | | | | | | | |

that the integration of environmental aspects in the business model of companies is necessary for a long lasting economic success.

Furthermore, students should be able to give effective oral presentations, augmented with appropriate media.

As a general learning goal, students should exercise teambuilding and collaboration to achieve group objectives. During the case studies, students will work in multi-cultural teams as they gather information, develop solutions and analyze written documents to prepare for oral presentations.

The course further provides students with a firm grip on applied financial management and planning. The main objective of the seminar is to understand the three main financial statements and how they are intertwined as well as how they can be analyzed, forecasted and sensitized. After the workshop, students should be able to set up their own financial models and critically evaluate business plans and financial metrics.

Furthermore, students should familiarize themselves and get proficient with Microsoft Excel. As part of an interactive real work case study, students will be working on their own Excel-based financial models to assess and evaluate management decisions.

2 Module Content and Course Schedule

Together, we examine the interaction between ecological and economical systems, leading to the Eco-Efficiency Approach. Sustainable industry solutions are demonstrated via international case studies. Students will experience the industry through case studies in automotive production, renewable energies, chemical or food industry. A further focus of the module will be the tools for sustainable management, such as Environmental Management Systems, Corporate Social Responsibility and Industrial Material Flow Management.

For a business to succeed sound financial planning is fundamental. In the context of this course, we will review the three financial statements, examine fundamental analysis as a key informational source for strategic decisions and discuss value-based management as a powerful tool to monitor a company's profitability. We will further apply the theoretical concepts to a real world case study, which requires students to build their own financial models using Microsoft Excel. Based on the models, we will evaluate strategic management decisions (capital expenditures, cost cutting, financial engineering etc.) with respect to their contribution towards the company's short and long term goals as well as securing future sustained growth.

Course Schedule

Part Environmental Management:

1. Simple Questions - Why should companies include social and ecological aspects into their strategy?
2. Eco-Efficiency - Make more with less - understand the principles of this approach.
3. REDUCES and the four key elements of eco-efficiency - learn how companies can implement eco- efficiency.
4. Case study Environmental Management
5. Environmental Management Systems - Principles and requirements
6. Environmental Management Systems - Costs and benefits

Part Sustainable Business Planning:

1. Excel Modeling Introduction
Master the style of xls-modeling
Basic Excel setup

2. Analyze and forecast a P&L
 - Understand the items of the P&L
 - Identify patterns and development through ratios and margins
 - Forecast the P&L based on historic trends and expectations
 - Incorporate effects of strategy shifts into the P&L
 - Calculate KPIs and evaluate strategies based on their P&L impact
 - Analyze and forecast a Balance Sheet and Cashflow Statement
3. Understand BS items and link them to the P&L and business model
 - Identify patterns via analysis, using ratios and margins
 - Forecast a BS (including CFS)
 - Integrate the three financial statements using the CFS
 - Incorporate effects of strategy and financing shifts into the BS
4. Financial Metrics and Value Based Management
 - Perform analysis based on the RoCE concept
 - Understand the inside and outside perspective of shareholder value
 - Calculate residual income metrics from financial statements
 - Evaluate investment opportunities using EVA

3 Didactic Concept

- Media-supported presentations by lecturer followed by students working individually on building their own Excel-based financial model on their laptops and group discussions to evaluate the obtained results
- Theoretical concepts will be accompanied by practical examples and applications
- Presentation materials and model solutions will be available online

4 Bibliography

Ecoefficiency Learning Module (www.wbcasd.org)
 ISO 14001:2015 and EMAS-Documents
 Brealey, Myers: Principles of Corporate Finance
 Castillo, McAniff: The Practitioners Guide to Investment Banking
 Coenenberg: Jahresabschluss und Jahresabschlussanalyse
 Baetge: Bilanzen
 Rappaport: Shareholder Value
 Stern, Shiely: The EVA Challenge
 Arnold, Davies: Value-Based Management

| Elective 2: Industrial Ecology and Life Cycle Assessment | | |
|--|--|--|
| Duration | 1 semester | |
| Study Semester | 5th semester | |
| Frequency | Winter semester | |
| Recommended Prere- quisites | None | |
| Classification | <input type="checkbox"/> Required Course <input checked="" type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Seminar | |
| Responsible for Module | Prof. Dr.-Ing. Susanne Hartard | |
| Teaching Personnel | Prof. Dr.-Ing. Susanne Hartard | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>This course provides students to get a thorough understanding of ecological principles and biological systems. The transformation of economic systems inspired by natural functions is an innovative path followed by Industrial Ecology.</p> <p>The reflection on the metabolism of Industrial systems will offer students sustainable approaches of material and energy use. Strategies will be discussed how consumers and producers can change their resources use to be less energy intensive and re-sources intensive. The course aims to finish with Industrial Ecology applications like Eco-Industrial Networks and Eco-Industrial Parks, resilience management and innovative recycling concepts for critical materials.</p> | | |

Students will calculate their own Carbon Footprint based on a Carbon Footprint and LCA software tool

for a selected product (Product Carbon Footprint). The course provides deep knowledge of all steps of the ISO based Carbon Footprint (CF) and Life Cycle Assessment (LCA). Existing international LCA software systems and databases will be presented. The results of an LCA and Carbon footprint will be discussed as a base of sustainable decision making in companies and policy. Students will contribute an application example of a product Carbon Footprint or LCA of their home country.

2 Module Content and Course Schedule

Introduction:

Nature knows best: Industrial Ecology Management is based on a thorough understanding of biological systems and their functions. Systems Thinking Training (Meadows) and Life Cycle Thinking (Töpfer) is an essential part of an excellent sustainability education.

Description:

The module starts with an introduction to the history and interdisciplinary backgrounds of Industrial Ecology. A historic view on production systems and their Environmental impact will make understand the metabolic diseases of the Industrial Society (Simonis).

Ecosystems keep in a steady state condition, following certain principles and functions like negative back coupling, circulation, resilience, adaption and convergent development. Taking nature as a standard, Economic systems will be reflected respective their future transformation towards more sustainability.

The Industrial Ecology basic teaching will sum up with Industrial Ecology applications like Eco-Industrial Networks and Eco-Industrial Parks, resilience management and innovative recycling concepts for critical materials (case studies).

A strong focus of Industrial Ecology is to quantify the metabolism of Societal and Economical systems by different analysis tools (MFA, SFA, LCA, CF). The colonization of nature (Fischer-Kowalski) has changed metabolism of the antroposphere to metabolic diseases of the Industrial society with a big throughput of resources. There is a toolbox available to calculate the sustainability of products and production systems. For the course, deepening Life Cycle Assessment and Carbon Footprint are chosen as ISO standardized and internationally accepted tools to define the sustainability of products.

The practical part of the course will enable students to calculate their own Carbon Footprint for a product. They will work with LCA and CF software in the computer lab. They will model their own system and pick out inventory data from the Swiss Ecoinvent database and public data sources. They will reflect Greenhouse gases and their contribution to the total CO₂-equivalents by their metabolism in atmosphere. They will differentiate Product Carbon Footprint calculations from Corporate Carbon Footprint calculations and their application areas. Carbon Footprint will be presented as a part of Life Cycle Assessment. LCA offers a deeper and holistic approach and includes calculation all main impacts on environment for example eutrophication and ecotoxicological effects.

Course Schedule

1. Introduction and course overview

Outline of course topics, didactic approach and individual introduction.

2. History, Theory and Principles of Industrial Ecology

interdisciplinary roots and pioneers, theory, ecosystems theory, natural principles and their adaptation in economic systems

3. Systems thinking in sustainable business

Students training in cybernetics and systems thinking, systems thinking play (Vester, Meadows)

4. Sustainable metabolism

Zero Emission factory, consumer types

5. Carbon Footprint I - Introduction and methodology

ISO standard, PCF, CCF, pilot projects, application, chances and limits

6. Carbon Footprint II - calculation of a product footprint

Lab training 1: Inventory data, model a life cycle, Greenhouse Gas impact calculation

7. Life Cycle Assessment I – Introduction and methodology

ISO, scope, aims of LCA, inventory, databases with process modules, system boundary, functional unit

8. Life Cycle Assessment II – Impact analysis

Environmental impacts and their quantitative calculation in cumulated equivalents, midpoint evaluation, endpoint evaluation, evaluation methods

9. Life Cycle Assessment III – calculation of an LCA

Lab training 2: calculation of an LCA, interpretation of results, application areas of LCA: students presentations

10. Industrial Ecology Management I – Eco-Industrial symbiosis

Lab training 3: students prepare an E-Sankey diagram; Eco-Industrial networking: resources match-making, Eco-industrial parks, International projects, European approaches

11. Industrial Ecology Management II – Resilience Management

resilience theory, challenge resources resilience (diversity, autarky)

12. Industrial Ecology Management – Recycling Concepts for Critical Materials

Gallium in LED lamps, Neodymium in Wind power plants, Indium in Solar Cells

13. Wrap-up and Course summary

3 Didactic Concept

- Alternating lecture and training in the lab (Carbon Footprint, LCA, Sankey diagram)
- Students own impulse presentation on LCA application in their home country
- Foster animating learning by didactic concepts like systems thinking play, ball bearing, kick-off presentations, mind mapping and world café.
- Intensive media use and up-to-date examples (Umberto competence centre with software ESan-key, Umberto for Carbon footprint, ESankey, ppt-presentation, film)

4 Bibliography

Allenby, Braden B. (2011) The Theory and Practice of Sustainable Engineering: International Version Prentice Hall.

Baumann, Henrikke; Tillman, Anne-Marie: The Hitch Hiker's Guide to LCA. An orientation in life cycle assessment methodology and application. Studentlitteratur. Lund. Sweden. 2004.

Niemann, JÜRGEN (Autor) (2010) Design of Sustainable Product Life Cycles. Springer.

Ciroth, Andreas; Lundie, Sven; Huppes, Gjalte: Inventory Methods in LCA. Towards Consistency and Improvement. 2008. VDM Verlag Dr. Müller.

Graedel, Tom H.; Allenby, Braden R.; Graedel, T.E. (2009) Industrial Ecology und Sustainable Engineering. Prentice Hall.

| Elective 3: Business Models | | |
|--|--|--|
| Duration | 1 semester | |
| Study Semester | 5th semester | |
| Frequency | Winter semester | |
| Recommended Prere- quisites | None | |
| Classification | <input type="checkbox"/> Required Course <input checked="" type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Seminar | |
| Responsible for Module | Prof. Dr. Christian Kammlott | |
| Teaching Personnel | Prof. Dr. Christian Kammlott | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input checked="" type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>This module teaches you how to strategically define, shape and differentiate your own business model. Learn to identify and interpret markets for your business or product idea while exercising team building and collaboration. You analyze, portray and document your idea in a professional business plan on which management and financial decisions are made. Be an entrepreneur and comprehend the reasoning behind entrepreneurial concepts, make strategic decisions and enact them.</p> <p>As a general learning goal, students should exercise teambuilding and collaboration to achieve group objectives. During the case studies, students will work in multi-cultural teams as they gather information, make strategic decisions and develop written documents and prepare for oral presentations.</p> | | |

2 Module Content and Course Schedule

Entrepreneurship and innovation management are interdisciplinary fields of debate which introduce students to various areas of economics. The workshop commences with a general introduction into the topic of entrepreneurship as a basis of corporate decision-making. Afterwards, we will address several subtopics such as leadership, team management, marketing, project management and finance. These fundamental concepts form the foundation for the development of their own business idea. In teams, students analyze, portray and document their idea in a professional business plan, which gives us the principles of decision-making used by management and external sponsors. This workshop motivates students to actively contribute through various case studies and presentations.

Course Schedule

1. Introduction and course overview

Outline of course topics, didactic approach and individual introduction

2. Entrepreneurship and the Entrepreneurial Process

What is entrepreneurship, differentiating inventors from entrepreneurs, the entrepreneurial process

3. Case Study: "Being an entrepreneur" Presentation of own business idea

Students will present own business ideas in the form of an elevator pitch, wrap-up session will make transparent the learning status and reflect with learning goals

4. Financing Ventures I

Introduction to agency theory as the theoretical background for financing in situations with high level of asymmetric information

5. Financing Ventures II

Financing in the business life cycle, differentiating equity and debt sources and balance to risk levels

6. Financing Ventures III

Introduction to Venture Capital as the key element for financing innovations, overview of market mechanism and their (VCs) business model

7. Business Models I

Introduction the Business Model Canvas as a tool to understand business models and the value creation potential

8. Business Models II

Applying the Business Model Canvas through different case studies, by decomposing known and established business models of very different natures

9. Demystifying Financial Jargon

Financial Statements will be the central part of this chapter, key ratios and the interrelation between profit-and-loss-statement, balance sheet and cash flow will be discussed

10. Financial Modelling Basics

Using MS Excel as a tool to design a basic financial statement for a business concept

11. Synthesis of the work done

Students will present their business idea and connect the course topics such as presentation skills, financing options, value creation model and financial issues in a business plan

12. Presentation of own business plans

Presentation of business plans

13. Wrap-up and Course summary

3 Didactic Concept

- Alternating lecture and cooperative project phases
- Media-supported presentation phases at the beginning of each lecture block
- Motivational and interaction phases with innovative teaching methods (co-operative learning such as jigsaw, mind mapping and world café)
- Flexible course concept and adjustment of topics depending on individual student background and input
- Intensive media use and up-to-date examples

4 Bibliography

Timmons, J. / Spinelli, S. (2007): New venture creation, entrepreneurship for the 21st century, McGraw Hill (classic, basic principles, written comprehensible, many case studies)

Schwetje, G. / Vaseghi, S. (2007): The business plan, how to win your investors' confidence, Springer (guide-style, very practical)

Dyson, J.R. (2007): Accounting for Non-Accounting Students, FT Prentice Hall (clear and accessible style, especially helpful for non-business students)

Osterwalder, A., Pigneur, Y. (2010): Business Model Generation - A Handbook for Visionaries, Game Changers, and Challengers, 1st ed., Wiley (easy-to-understand, hands-on, many examples)

| Elective 4: Ecological Economics and Policies | | |
|---|--|--|
| Duration | 1 semester | |
| Study Semester | 5th semester | |
| Frequency | Winter semester | |
| Recommended Prere- quisites | None | |
| Classification | <input type="checkbox"/> Required Course <input checked="" type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Seminar | |
| Responsible for Module | Prof. Dr. Dirk Löhr, Dr. Michael Knaus | |
| Teaching Personnel | Prof. Dr. Dirk Löhr, Dr. Michael Knaus | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>The course provides students with a basic theoretical coverage of the major topics of ecological economics. The main objective is to make the students understand in basic concepts such as external effects, means of internalization and the consequences in regard of distribution.</p> <p>As a general learning goal, students should exercise group work and teambuilding. They should be able to work independently on theoretical and practical issues, regarding the different institutional and cultural context of their homelands. Students will work on case studies, which are related to their home countries and prepare for oral presentations.</p> | | |

In addition, students have learned to analyze vital community development issues from environmental, economical, technical backgrounds. They understood the different forms of value (generations) of different regional infrastructural facilities: resource, energy and integrated water management. Based on an overview on key Zero Emission technologies to implement regional Zero Emission strategies the students get the ability to predict regional added value potentials.

2 Module Content and Course Schedule

Ecological economics is not the same as environmental economics. For instance, ecological economics explicitly includes distributional aspects, since many environmental policies result in an increase of resource prices. In addition, aspects such as thermodynamics are adapted. Some neoclassical concepts are regarded critically.

The module starts with an introduction about the concept of sustainability. It discusses the concept of external effects and different means of internalization. All this is regarded on the background of the impacts on property rights. Examples shall be given from several fields (land, water, atmosphere as CO₂-store etc.). A critical view is taken on the GDP as a wealth indicator. The course also wants to discuss effects of a positive interest rate on resource economics and the actual degrowth campaign, which is actually going on in many Western countries.

Course Schedule

Part Ecological Economics:

1. Introduction and course overview

Outline of course topics, didactic approach and learning goals

2. The sustainability concept

Effectiveness, efficiency and social aspects.

3. External effects and property rights

Different types of external effects and how the internalization efforts impacts on property rights

4. More tools (taxation, command and control etc.)

More tools are discussed, such as cap and trade, taxation or command and control approaches.

5. Examples

Examples are given from the fields of land, water and atmosphere.

6. GDP and economic growth

GDP is an indicator of limited quality for the human welfare

7. Money, interest and sustainability

A positive interest rate has impacts in the path of resource depletion and economic growth

9. Wrap-up and Course summary

Part Policy:

1. Introduction to regional Material Flow Management and Zero Emission as community development strategies

2. New regional Material Flow Management and Zero Emission based community management strategies

3. New management strategies and technologies for regional renewable energy production
4. New management strategies and technologies for regional waste management
5. New management strategies and technologies for regional water management
6. Prediction of Local added value strategies on a regional scale

3 Didactic Concept

- Alternating lecture and cooperative project phases
- Flexible course concept and adjustment of topics depending on individual student background and input

4 Bibliography

Farley, J./Daly, Herman E.: Ecological Economics: Principles and Applications 1st Edition, Island Press

| Elective 5: Sustainable Technology | | |
|--|--|--|
| Duration | 1 semester | |
| Study Semester | 5th semester | |
| Frequency | Winter semester | |
| Recommended Prere- quisites | None | |
| Classification | <input type="checkbox"/> Required Course <input checked="" type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Seminar | |
| Responsible for Module | Prof. Dr. Henrik te Heesen | |
| Teaching Personnel | Prof. Dr. Henrik te Heesen and further lecturers | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>Students will learn the different issues of sustainable questions in various fields of technology. We will focus on topics in engineering, ventilation and air conditioning, informatics, biotechnology, electric grid structure, and environmental geotechnics. The lecture series will be framed by an introduction and a conclusion of actual questions in renewable and sustainable energy technology.</p> <p>The lectures will be completed by excursions to several regional companies and simulation games.</p> | | |
| 2 Module Content and Course Schedule <p>Globally, we will face more and more questions regarding sustainability in the field of environmental engineering. Rising costs for resources and energy, a limited range of</p> | | |

fossil energy sources, and the climate change are only three main issues which have to be solved by mankind within the mid-term future.

First, an introduction to the status quo of global power supply and the consequences is given. After-wards, we will step through the different fields of environmental technology and discuss actual topics in research for a sustainable world: How can we switch our power generation to renewable systems? Is a higher efficiency in engineering and production achievable? How can IT help us to get greener? How will our grids and energy supply look like in future?

Course Schedule

The course is structured as follows:

1. Introduction to energy technology
2. Renewable energy systems worldwide
3. Greenhouse gases and climate change
4. Engineering and energy efficiency
5. Green IT
6. Ventilation and air conditioning
7. Sustainable biotechnology
8. Grid Structure
9. Environmental geotechnics

3 Didactic Concept

- Excursions
- Simulation Games

4 Bibliography

Quaschnig, Volker. Renewable Energy and Climate Change. Wiley. 2010

| Elective 6: Solar Energy | | |
|--|---|--|
| Duration | 1 semester | |
| Study Semester | 6th semester | |
| Frequency | Summer semester | |
| Recommended Prere- quisites | None | |
| Classification | <input type="checkbox"/> Required Course <input checked="" type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Seminar | |
| Responsible for Module | Prof. Dr. Henrik te Heesen | |
| Teaching Personnel | Prof. Dr. Henrik te Heesen | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input type="checkbox"/> Written exam <input checked="" type="checkbox"/> Oral exam <input checked="" type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>Students will learn the basics of solar energy in particular photovoltaic. The main objective is to understand how to plan, build and operate a PV system. Students will see how the components of a PV plant work from the electro technical point of view, what regulations have to be considered, and which issues a PV operator has to pay attention to.</p> <p>After this course, students will be able to take part in (engineering) project teams for the development of new PV projects worldwide and they can face the daily topics of the operation of PV systems and parks.</p> | | |
| 2 Module Content and Course Schedule | | |

Solar energy is one of the most rising global renewable energies systems. After the PV boom in Europe, in particular in Germany, the PV industry faces its first consolidation and is maturing within the next years. The module "Solar Energy" will cover topics like the construction of solar cells, modules, and inverter, the circuitry of a PV system, issues of quality assurance and O&M, as well as yield prognosis and simulation.

This module starts with the sun – where does the sun light come from and how much energy from the sun can be transformed into electric energy? Next, there is a brief introduction to the electro technical basics of solar cells, solar modules, and inverter. We will discuss the circuitry of a PV system in respect to issues like shading, quality assurance and O&M. In addition, the different global regulations for PV systems will be gathered. The focus of the module will be the operation phase of a PV system: How can the performance of a PV plant be evaluated. Does the predicted energy yield correspond to the actual yield?

Course Schedule

1. The sun
 2. Solid state physics of solar cells
 3. Construction of solar modules
 4. Inverter
 5. Circuitry of a PV system
 6. Regulations for PV systems
 7. Shading
 8. Quality assurance
 9. Operation & Maintenance
 10. Performance Ratio
 11. Yield simulation
 12. Feed-In management and own consumption
- The future of solar energy

3 Didactic Concept

- Lectures, exercises and internship
- Carry out of exercises and internship in international project teams
- Course media and hand-outs available online

4 Bibliography

Quaschnig, Volker. Renewable Energy and Climate Change. Wiley. 2010
DGS. Planning and Installing Photovoltaic Systems. Routledge. 2013

| Elective 7: Challenges of Climate Change and Water Resources | | |
|--|--|--|
| Duration | 1 semester | |
| Study Semester | 6th semester | |
| Frequency | Summer semester | |
| Recommended Prere- quisites | None | |
| Classification | <input type="checkbox"/> Required Course <input checked="" type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Seminar | |
| Responsible for Module | Prof. Dr. Peter Fischer-Stabel | |
| Teaching Personnel | Prof. Dr. Peter Fischer-Stabel | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input checked="" type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>This course provides students with the fundamentals of meteorology and climate sciences, the basic principles of climate modelling but also with an overview to the drivers and impacts regarding climate change. In addition, participants will be confronted with adoption and mitigation strategies, especially in the field of water management.</p> <p>As a general learning goal, students should to be able to follow the ongoing discussion regarding climate change and its effects on an objective science based level. In addition, they should be able to develop first generic concepts to climate change adoption in their home countries.</p> | | |
| 2 Module Content and Course Schedule | | |

We already face with the challenge of understanding its global effects. Beside its impact in different regions of the earth, we discuss a variety of measures regarding local adoption and mitigation strategies. The scarcity of water plays a crucial role in this scenario. Accordingly, we strive to comprehend human, political, ecological and water management requirements and tools for European and developing countries.

The theoretical content of the course will be accompanied by case studies to apply the course topics. For example, students will analyze climate change scenarios in the country of their origin based on global available databases.

3 Course Schedule

1. Introduction and course overview

Outline of course topics, didactic approach and individual introduction

2. Fundamentals of Meteorology

Brief overview in the meteorology and climate science, definition of terms, fundamentals of meteorological measurement networks

3. The Difference between Weather and Climate

Climate zones, factors affecting climate, climate variation, historical aspects

4. Climate Change: Drivers and Impacts

Drivers, observed changes, causes of changes, projections of surface warming, impacts on systems and sectors

5. Climate Change Modeling

Introduction to different actors, modeling concepts and results of the modeling process

6. Adoption and Mitigation Strategies – Overview I

General overview to adoption and mitigation concepts and strategies regarding the impacts of Climate Change

7. Adoption and Mitigation Strategies – Overview II

General overview to adoption and mitigation concepts and strategies regarding the impacts of Climate Change

8. Adoption and Mitigation Strategies: Irrigation and Drainage Engineering

Fundamentals and objectives of irrigation and crop production, irrigation in developing countries

9. Adoption and Mitigation Strategies: Irrigation and Drainage Engineering

Irrigation methods

10. Adoption and Mitigation Strategies: Irrigation and Drainage Engineering

Irrigation water requirements and scheduling, drainage and salt problems

11. Final individual Presentation

Presentation of a special topic in the thematic frame of the module

12. Wrap-up and Course summary

3 Didactic Concept

- Alternating lecture and cooperative project phases
- Media-supported presentation phases at the beginning of each lecture block

- Flexible course concept and adjustment of topics depending on individual student background and input
- Intensive media use and up-to-date examples

4 Bibliography

IPCC 2015: climate change 2014: Synthesis report.- <http://www.ipcc.ch/report/ar5/syr/>

www.climatechangeconnection.org

Meteorology – Understanding the Atmosphere.- Ackermann S. & J.A. Knox; fourth edition, 2015, Jones & Bartlett Learning

The Atlas of Climate Change.- Dow K. & T.E. Downing, 2007, Earthscan

| Elective 8: Land Use and Material Flow Management | | |
|---|--|--|
| Duration | 1 semester | |
| Study Semester | 6th semester | |
| Frequency | Summer semester | |
| Recommended Prere- quisites | None | |
| Classification | <input type="checkbox"/> Required Course <input checked="" type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Seminar | |
| Responsible for Module | Prof. Dr. Dirk Löhr, Dr. Michael Knaus | |
| Teaching Personnel | Prof. Dr. Dirk Löhr, Dr. Michael Knaus | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| <p>1 Learning Goals</p> <p>This course provides students with a basic theoretical coverage of the major topics of land use management. The main objective is to make students understand the economics of land, the necessity of planning the land (also in a market economy) and the social consequences.</p> <p>As a general learning goal, students should exercise group work and teambuilding. They should be able to work independently on theoretical and practical issues, regarding the different institutional and cultural context of their homelands. Students will work on case studies, which are related to their home countries and prepare for oral presentations.</p> <p>The course further aims to provide an overview on important topics covered introducing the conceptual approaches of Zero Emission and Material Flow Management as</p> | | |

suitable strategies to establish new economy forms on a regional level. The learning outcomes are:

- Provide an overview on international policy and management strategies on Zero Emission
- Provide a first overview on key Zero Emission technologies to implement regional Zero Emission strategies
- Acquire basic knowledge in regional material flow management strategy design and understand the methodical approach as well as the tools

In addition, the institutional roots of global GHG abatement and its international implications on micro to macro levels are introduced. Students learn to understand, analyze and evaluate national policy-based as well as project-based GHG abatement programs and projects. Based on a thorough analysis of the Clean development Mechanism students are enabled to create, calculate and document GHG abatement and carbon trading projects in various sectors such as energy, transport, waste and waste water.

2 Module Content and Course Schedule

Land is beginning and the end of the value chain. Classical economists had even a broader perception of "land"; it included natural resources such as water, air etc. From this point of view land has to be treated together with other natural resources, as it is done e.g. in the integrated water resource management approach.

The module starts with an overview about land economics. Land can be considered as a real option, thus it has particular features. A particular view is taken on the centripetal and centrifugal forces, which cause the land rent and shape agglomerations. The second part looks on the necessity of planning and on the problems, considering the creation of good land use plans and the compliance to land use plans. Last but not least, the course discusses the social aspects, such as access to land, gentrification etc.

The course focuses mainly on urban land. However, a side glance is also taken to rural land.

The theoretical content will be permanently accompanied by case studies to apply the course topics.

Furthermore, the historical and future-oriented development of the global GHG abatement and adaptation regimes based on the United Nation Framework Convention on Climate Change (UNFCCC) are explained and the complexity, provisions and implications of international climate protection negotiation processes analyzed.

An in-depth analysis of existing UNFCCC instruments and national strategies from a macro-level (Intended Nationally Determined Contributions (INDC)) to meso-level (National Abatement and Mitigation Action (NAMA)) and to micro-level (programmatic Clean Development Mechanism (POA & CDM)) with its embedded assessment of baseline, additionality, sustainability and Monitoring, Reporting and Verification (MRV). INDC and NAMA case studies will be analyzed in order to get familiar with the context, scientific language and potentials.

Course Schedule

Part Land Use Management:

1. Introduction and course overview

Outline of course topics, didactic approach and learning goals

2. Land economics: Land rents and land values

Rural and urban land rents, how they are created and what the impact on the value of real estate is.

3. Land economics: The Shaping force of Land rents

Description about how centripetal and centrifugal forces cause land rents and shape agglomerations.

4. Land market failure

Land as real option and the consequences for the land markets.

5. Land use planning and neutrality of planning

Why land use plans are not "neutral" and the compliance to land use plans is often missing.

6. Social aspects

Access, gentrification, conflict of goals

7. Examples

Case studies from the homelands.

8. Wrap-up and Course summary

Part Material Flow Management:

1. Principles and (international) Strategies on Zero Emission, Circular Economy and Material Flow Management
2. Introduction of regional material flow management methodology and tools
3. Selected case studies on Zero Emission technologies
4. Regional Material Flow Management and CO₂ balancing
5. Global GHG abatement and adaptation regimes based on the United Nation Framework Convention on Climate Change
6. In-depth analysis of existing UNFCCC instruments and national strategies

3 Didactic Concept

- Alternating lecture and cooperative project phases
- Media-supported presentation phases at the beginning of each lecture block
- Flexible course concept and adjustment of topics depending on individual student background and input

4 Bibliography

BMU [2009], Zero Emission: Recognising the potential , Optimising processes, creating added value [Free download at: https://www.mf.tu-berlin.de/fileadmin/fg267/veranstaltungen/gcsm/Case_St._Material/BMU_Bro_Null-Emissionen_ENG_07_RZ2_web1.pdf]

Fujie, Koichi and Goto, Naohiro: Materials Flow Analysis and Modeling to Establish a Zero-Emission Network in Regional Areas, in: Integrative Approaches towards Sustainability Proceedings of a German-Japanese Workshop Munich, 2000 [Free download at: http://archive.unu.edu/zef/publications_e/fujie_and_goto.pdf]

Kuehr, Ruediger: Towards a sustainable society: United Nations University's Zero Emissions Approach, in: Journal of Cleaner Production, Vol 15 (2007), p. 1198-1204

Suzuki, Motoyuki: Realization of a Sustainable Society - Zero Emissions Approaches [Free download at: http://archive.unu.edu/zef/publications_e/suzuki_intro_ZE.pdf]

UNFCCC (2016): Third Edition of the NAMA Guidebook (2015) (Download at: http://www.oecc.or.jp/pdf/NAMA+Guidebook_Third+Edition.pdf)

World Resource Institute (2015): Designing and Preparing Intended Nationally Determined Contributions (Download at: <https://www.wri.org/sites/default/files/designing-preparing-indcs-report.pdf>)

World Resource Institute (2015): Decoding Intended Nationally Determined Contributions (Download at: http://www.wri.org/sites/default/files/uploads/Decoding_INDCs.pdf)

http://www.namapipeline.org/Publications/Guidance_for_NAMA_Design_2013_.pdf

| Elective 9: Fundamentals of Entrepreneurial Management | | |
|--|--|--|
| Duration | 1 semester | |
| Study Semester | 6th semester | |
| Frequency | Summer semester | |
| Recommended Prere- quisites | None | |
| Classification | <input type="checkbox"/> Required Course <input checked="" type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Seminar | |
| Responsible for Module | Prof. Dr. Christian Kammlott | |
| Teaching Personnel | Prof. Dr. Christian Kammlott | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input checked="" type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals <p>The course provides students with a basic theoretical coverage of the major topics entrepreneurship and venture finance. The main objective is to understand business models and value generation through ventures and how to compose business texts (business plans) that demonstrate excellent content, organization, writing, and design, including business visuals. Furthermore, students should be able to give effective oral presentations, augmented with appropriate media.</p> <p>As a general learning goal, students should exercise teambuilding and collaboration to achieve group objectives. During the case studies, students will work in multi-cultural teams as they gather information, make strategic decisions and develop written documents and prepare for oral presentations.</p> | | |

2 Module Content and Course Schedule

Good ideas need entrepreneurs! This module aims to raise fundamental elements of managerial competences needed in the field of entrepreneurship. Lessons will cover topics such as business models, financing of ventures and funding alternatives, corporate financial modelling as well as areas such as marketing and cost accounting. We strive to improve the chances of entrepreneurial success for our students and their ideas for a more sustainable future.

The module starts with an introduction to entrepreneurship and the entrepreneurial process. As a theoretical background for financing ventures, agency theory is discussed. In a next step, basic elements of venture financing are covered. Furthermore, the nature of business models and value generation is systematically discussed in order to understand, design & differentiate business models. This leads to the discussion of how one should organize his thoughts on a possible business venture into a business plan. Finally, as a very important part of business planning, some financial accounting basics as well as financial model basics are addressed.

The theoretical content will be permanently accompanied by case studies to apply the course topics. For example, students will pitch for their own business idea on an individual basis. The three most convincing promising business cases are elected by the group. In teams, students will prepare business plans for those business ideas during the semester.

Course Schedule

1. Introduction and course overview

Outline of course topics, didactic approach and individual introduction

2. Entrepreneurship and the Entrepreneurial Process

What is entrepreneurship, differentiating inventors from entrepreneurs, the entrepreneurial process

3. Case Study: "Being an entrepreneur" Presentation of own business idea

Students will present own business ideas in the form of an elevator pitch, wrap-up session will make transparent the learning status and reflect with learning goals

4. Financing Ventures I

Introduction to agency theory as the theoretical background for financing in situations with high level of asymmetric information

5. Financing Ventures II

Financing in the business life cycle, differentiating equity and debt sources and balance to risk levels

6. Financing Ventures III

Introduction to Venture Capital as the key element for financing innovations, overview of market mechanism and their (VCs) business model

7. Business Models I

Introduction the Business Model Canvas as a tool to understand business models and the value creation potential

8. Business Models II

Applying the Business Model Canvas through different case studies, by decomposing known and established business models of very different natures

9. Demystifying Financial Jargon

Financial Statements will be the central part of this chapter, key ratios and the inter-relation between profit-and-loss-statement, balance sheet and cash flow will be discussed

10. Financial Modelling Basics

Using MS Excel as a tool to design a basic financial statement for a business concept

11. Synthesis of the work done

Students will present their business idea and connect the course topics such as presentation skills, financing options, value creation model and financial issues in a business plan

12. Presentation of own business plans

Presentation of business plans

13. Wrap-up and Course summary

3 Didactic Concept

- Alternating lecture and cooperative project phases
- Media-supported presentation phases at the beginning of each lecture block
- Motivational and interaction phases with innovative teaching methods (co-operative learning such as jigsaw, mind mapping and world café)
- Flexible course concept and adjustment of topics depending on individual student background and input
- Intensive media use and up-to-date examples

4 Bibliography

Timmons, J. / Spinelli, S. (2007): New venture creation, entrepreneurship for the 21st century, McGraw Hill (classic, basic principles, written comprehensible, many case studies)

Schwetje, G. / Vaseghi, S. (2007): The business plan, how to win your investors' confidence, Springer (guide-style, very practical)

Dyson, J.R. (2007): Accounting for Non-Accounting Students, FT Prentice Hall (clear and accessible style, especially helpful for non-business students)

Osterwalder, A., Pigneur, Y. (2010): Business Model Generation - A Handbook for Visionaries, Game Changers, and Challengers, 1st ed., Wiley (easy-to-understand, hands-on, many examples)

| Elective 10: Consumer Culture and Strategic Marketing | | |
|--|--|--|
| Duration | 1 semester | |
| Study Semester | 6th semester | |
| Frequency | Summer semester | |
| Recommended Prere- quisites | None | |
| Classification | <input type="checkbox"/> Required Course <input checked="" type="checkbox"/> Compulsory Optional Subject | |
| Credit Points | 5 | |
| Weight of Grade | Same as credit points | |
| Contact Hours | 4 SWS / 60 h | |
| Self-Study | 90 h | |
| Total Workload | 150 h | |
| Course Language | English | |
| Type | Seminar | |
| Responsible for Module | Prof. Dr. Thorsten Schaper, Dr. Silvia Carvalho | |
| Teaching Personnel | Prof. Dr. Thorsten Schaper, Dr. Silvia Carvalho | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation | <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| <p>1 Learning Goals</p> <p>In this course we will explore the bigger picture of the consumer culture background we were all born into and which therefore conditions the way we live.</p> <p>Together, we will discuss evidence from all over the world, which proves that our consumer culture has now become the global norm. We will also see that this consumer culture is equally unsustainable in all political and socio-economic systems.</p> <p>Students should also be able to:</p> <ul style="list-style-type: none"> ▪ apply various methods to analyze different aspects of the marketing environment and the company itself ▪ define measurable marketing targets ▪ develop effective marketing strategies | | |

- integrate the sustainable marketing approach within the strategy profile of a company
- define and select appropriate management ratios

As a general learning goal, students should exercise teambuilding and collaboration to achieve group objectives. During the case studies, students will work in multi-cultural teams and develop solutions for oral presentations.

2 Module Content and Course Schedule

We will question the continuing validity of the traditional equation: human progress = economic growth, and discuss the impact on corporate social responsibility generally of consumers' developing sense of responsibility towards our environment. Systematically we will illustrate how companies have to employ strategic marketing management in order to understand markets and optimize the relations between companies and customers.

We will start by asking ourselves why we believe economic growth is a valid aim. We will examine the concept of a national economy, the economic principles on which every economy is based, the inter-action of supply and demand, which fuels trade and economic growth.

Why do we have this consumer culture? Are we what we have? We will try to identify the roles played by the social institutions responsible for our consumerist culture: enterprise, media, governments, and education. Only these institutions can correct the present unsustainable course of human development.

Because of the negative externalities, which result from our unsustainable lifestyles, there is growing awareness that a new cultural model is necessary: sustainable development. We will see that sustainable development does not mean leading unhappy, unfulfilled lives on the brink of subsistence.

In the past, "progress" meant economic growth and so it was measured in strictly economic terms. Today, all over the world, people are realizing that the quality of life cannot be expressed in GDP. Now, it is "human progress" which is being measured.

In many parts of the world, new indices to measure and compare human progress have been worked out. These new indices go beyond mere material values; they attempt to quantify what really makes our lives worth living: life satisfaction. We will examine some of these new indices, in particular the Happy Planet Index, and discuss how they measure human progress in the sense of sustainable development.

Companies want to ensure their survival and growth, medium- and long-term by using the approach of strategic marketing management. To fulfill these targets companies have to make decisions about effective marketing strategies. This module illustrates step-by-step the development of strategic marketing decisions. Firstly an analysis and outlook of the marketing environment and the company itself is conducted. Based on this the different marketing strategies like product/market strategies, competitive strategies and regional market strategies are discussed. A key aspect of the marketing strategies is sustainable marketing strategies.

Course Schedule

Part Consumer Culture:

1. Introduction and course overview, student requirements
2. Basic economic principles
3. Basic economic principles contd.
4. Student Presentations

Part Strategic Marketing:

Chapter A: Basics of Strategic Marketing Management

1. Marketing Decision-making Process
2. Marketing Strategy
3. Sustainable Marketing Management

Chapter: B Analysis and Outlook of the Marketing Environment and the Company Itself

1. Analysis of Markets and Customers
2. Analysis of Branch Attractiveness
3. Analysis of Competitors
4. Analysis of the Company
5. Summary: Analysis of the Marketing Environment and the Company Itself

Chapter C: Marketing Concept

Chapter D: Marketing Targets

Chapter E: Marketing Strategy

1. Product/Market Strategies
2. Competitive Strategy/Positioning
3. Strategies of Market Management
4. Regional Marketing Strategies
5. Combination of Marketing Strategies

Chapter F: Marketing Controlling

3 Didactic Concept

- Alternating lecture and cooperative project phases
- Media-supported presentation phases at the beginning of each lecture block
- Flexible course concept and adjustment of topics depending on individual student background and input

4 Bibliography

Hollensen, S., Opresnik, M.: Marketing. A Relationship Perspective. Vahlen 2015

Homburg, C., Kuester, S., Krohmer, H.: Marketing Management. A Contemporary Perspective. McGraw-Hill Education 2009

Kaffke, Pamela, Spree - A Cultural History of Shopping, Arsenal Pulp Press, 2003

Kotler, P., Keller, K.L., Brady, M., Goodman, M., Hansen, T.: Marketing Management. Pearson Education Limited 2009

Mantle, Jonathan, Companies that Changed the World - From the East India Company to Google Inc. Quercus 2014

Solomon, Barnossy, Askegaard and Hogg, Consumer Behaviour, 5th Edition, Pearson Education Limited, 2014

Solomon, Michael and Barnossy, Gary, Consumer Behavior - A European Perspective, Pearson Education Limited, 2013

Appendix

| Foreign Language: French I | | | | | | | | | |
|---|--|--|------------------------------------|---|--|---|---|---|-------------------------------------|
| Duration | 1 semester | | | | | | | | |
| Study Semester | According the individual language study plan. | | | | | | | | |
| Frequency | Winter semester and if required | | | | | | | | |
| Recommended Prere- quisites | None | | | | | | | | |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject | | | | | | | | |
| Credit Points | 5 | | | | | | | | |
| Weight of Grade | Same as credit points | | | | | | | | |
| Contact Hours | 4 SWS / 60 h | | | | | | | | |
| Self-Study | 90 h | | | | | | | | |
| Total Workload | 150 h | | | | | | | | |
| Course Language | French <i>German students will have to take at least 2 modules in foreign language for at least 2 semesters each. An individual language study plan will be discussed prior the start of lectures.</i> <i>Module contents are aligned according the respective qualification of students.</i> | | | | | | | | |
| Type | Seminar | | | | | | | | |
| Responsible for Module | Prof. Dr. Stefan Diemer | | | | | | | | |
| Teaching Personnel | Christina Juen, Aloisia Sens and further lecturers | | | | | | | | |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) | | | | | | | | |
| Methods of Evaluation | <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"><input checked="" type="checkbox"/> Written exam</td> <td style="width: 50%; border: none;"><input type="checkbox"/> Portfolio</td> </tr> <tr> <td style="border: none;"><input checked="" type="checkbox"/> Oral exam</td> <td style="border: none;"><input type="checkbox"/> Term paper or essay</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Laboratory performance</td> <td style="border: none;"><input type="checkbox"/> Practical exam</td> </tr> <tr> <td style="border: none;"><input type="checkbox"/> Project presentation</td> <td style="border: none;"><input type="checkbox"/> Colloquium</td> </tr> </table> | <input checked="" type="checkbox"/> Written exam | <input type="checkbox"/> Portfolio | <input checked="" type="checkbox"/> Oral exam | <input type="checkbox"/> Term paper or essay | <input type="checkbox"/> Laboratory performance | <input type="checkbox"/> Practical exam | <input type="checkbox"/> Project presentation | <input type="checkbox"/> Colloquium |
| <input checked="" type="checkbox"/> Written exam | <input type="checkbox"/> Portfolio | | | | | | | | |
| <input checked="" type="checkbox"/> Oral exam | <input type="checkbox"/> Term paper or essay | | | | | | | | |
| <input type="checkbox"/> Laboratory performance | <input type="checkbox"/> Practical exam | | | | | | | | |
| <input type="checkbox"/> Project presentation | <input type="checkbox"/> Colloquium | | | | | | | | |
| 1 Learning Goals French <u>Communicative competence</u> | | | | | | | | | |

Reading: can comprehend very short, simple texts a single phrase at a time, picking up familiar names, words and basic phrases and rereading as required.

Speaking: Can produce simple mainly isolated phrases about people and places; can e.g. introduce themselves, ask and answer questions of the type: Where do you live?

Writing: Can write simple isolated phrases and sentences.

Listening: Can follow speech, which is very slow and carefully articulated, with long pauses for him/her to assimilate meaning.

[based on Common European Framework of Reference for Languages: Learning, Teaching, Assessment, Level A 1]

Intercultural competence

Can identify the basic features of French society, daily routines and traditions.

Methodical competence (strategies for listening and reading, speaking and writing; how to deal with different text types and media)

Can listen for key words in a listening comprehension or search for them in a text to help understand what the text/listening is about.

Language correctness (grammar, pronunciation and intonation, lexis, orthographic correctness)

Can e.g. can conjugate verbs in the present tense, can differentiate and articulate the intonation of questions and positive sentences

2 Module Content and Course Schedule French

Saying hello and goodbye; questions about name and origin/language/personal data; the alphabet; presenting oneself and introducing other people others; information about family members; numbers 0-1000000

Time, opening hours, week days, daily routines: activities, preferences, appointments

At the bar / at the restaurant: which shops can you find in a city? What to buy there? How to order? How to ask for the way? How to describe it?

food & shopping for groceries: asking and answering questions, indication of quantity, prices (How much is it?); places (Where...?); likes/dislikes; expressing approval; colors; describing flats and houses, objects/rooms in flats/houses; searching for a flat (understanding residential property advertisements)

On the phone: common expressions

Grammar: conjugation of regular verbs and common irregular verbs in the present tense as well as the modal verbs vouloir, pouvoir, savoir, devoir and the imperative

Future tense with "aller + inf."

Aimer, adorer, préférer...

personal pronouns and possessive pronouns, en, y

positive and negative sentences and questions

prepositions to describe the location of things, shops...

Course Schedule

Unit 1-5

1. Hello. My name is...: The first part of this seminar deals with the very general topic of saying hello, telling your name and country of origin, your age, your profession,

your hobbies, your faculty as well as talking about language skills. Other important contents: 1st telephone conversation, addresses, business cards, filling in forms .

2. You ask questions about your partners – changing roles (student / business partner),
You learn to talk about persons (il / elle)

3. My day: The last part of the seminar is about daily routines, likes and dislikes, times of the day and week days.

Business focus: tu or vous?

4. Shopping: Students learn about typical French food items, writing shopping lists and role-play shopping on a farmer's market, using expressions of quantity, talking about prices. They make and confirm appointments in a bar and a restaurant. They read menus and order drinks / meals. Moreover students are supposed to bring a recipe from their home country in order to present it.

5. My flat: In the fourth part of this seminar a closer look is taken at reading and understanding residential property advertisements, describing a flat on campus, comparing living conditions in France to students' country of origin. There will be further practice on telephoning as making appointments

Business focus: rules in an office; look at an office building and the different departments [how to describe the way?]

3 Didactic Concept French

- Primarily communicative teaching method (role plays for various every-day situations, action-oriented use of verbal patterns (e.g. shopping in the supermarket), interactive exercises)
- Intensive media use (DVD: video sequences to start each unit, free app for smartphone supports self-study),
- Course media and handouts available online
- Business focus right from the start
- Focus on oral production while including Information and Communication Technology Tools such as voicethread, glogster, PowToon
- Communicative training (reading, listening, speaking and writing; intercultural communication)
- Social competence (team & group work)

4 Bibliography French

Material provided by lecturer (grammar und lexical exercises, interactive games, informative material/exercises about cultural knowledge, etc.)

| Foreign Language: Spanish I | |
|---|---|
| Duration | 1 semester |
| Study Semester | According the individual language study plan. |
| Frequency | Winter semester and if required |
| Recommended Prere- quisites | None |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject |
| Credit Points | 5 |
| Weight of Grade | Same as credit points |
| Contact Hours | 4 SWS / 60 h |
| Self-Study | 90 h |
| Total Workload | 150 h |
| Course Language | Spanish <i>German students will have to take at least 2 modules in foreign language for at least 2 semesters each. An individual language study plan will be discussed prior the start of lectures.</i> <i>Module contents are aligned according the respective qualification of students.</i> |
| Type | Seminar |
| Responsible for Module | Prof. Dr. Stefan Diemer |
| Teaching Personnel | Christina Juen, Aloisia Sens and further lecturers |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input checked="" type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals Spanish <u>Communicative competence</u> Reading: Can comprehend very short, simple texts a single phrase at a time, picking up familiar names, words and basic phrases and rereading as required. | |

Speaking: Can produce simple mainly isolated phrases about people and places; can e.g. introduce themselves, ask and answer questions of the type: Where do you live?

Writing: Can write simple isolated phrases and sentences.

Listening: Can follow speech which is very slow and carefully articulated, with long pauses for him/her to assimilate meaning.

(based on Common European Framework of Reference for Languages: Learning, Teaching, Assessment, Level A 1)

Intercultural competence: Can identify daily routines and traditions of the Spanish speaking world.

Methodical competence (strategies for listening and reading, speaking and writing; how to deal with different text types and media): Can listen for key words in a listening comprehension or search for them in a text to help understand what the text/listening is about.

Language correctness: Can e.g. identify the verb position in main clauses, can conjugate verbs in the present tense, can differentiate and articulate the intonation of questions and positive sentences.

2 Module Content and Course Schedule Spanish

Saying hello and goodbye; questions about name and origin/language/personal data; the alphabet; saying sorry, please and thank you; How are you?; introducing others; numbers 0-100, daily routines, time, week days, jobs and work places, formal and informal communicative situations

Grammar: conjugation of regular and irregular verbs in present tense, positive and negative sentences, questions; definite and non-definite article, singular and plural of nouns, reflexive verbs, future form "ir a", adjectives, ser/estar/hay, adjectives

Pronunciation: word stress, general pronunciation rules

Course Schedule

1. Intro: saying hello, telling your name and country of origin, meeting friends in a bar, ordering food and drinks and paying
2. Jobs and workplaces, formal and informal communicative situations
3. Daily routines and schedules
4. Visiting and describing places, phone calls, writing post cards, giving directions

3 Didactic Concept Spanish

- Primarily communicative teaching method
- Intensive use of audios, course media and handouts available online, business focus
- Communicative training (reading, listening, speaking and writing; intercultural communication, role plays for various every-day situations)
- Social competence (team & group work)

4 Bibliography Spanish

Bürsgens, Claudia et al. 2012: *Perspectivas A1. Al vuelo*. Berlin: Cornelsen & additional material provided by the lecturer

| Foreign Language: Italian I | |
|---|---|
| Duration | 1 semester |
| Study Semester | According the individual language study plan. |
| Frequency | Winter semester and if required |
| Recommended Prere- quisites | None |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject |
| Credit Points | 5 |
| Weight of Grade | Same as credit points |
| Contact Hours | 4 SWS / 60 h |
| Self-Study | 90 h |
| Total Workload | 150 h |
| Course Language | Italian <i>German students will have to take at least 2 modules in foreign language for at least 2 semesters each. An individual language study plan will be discussed prior the start of lectures.</i> <i>Module contents are aligned according the respective qualification of students.</i> |
| Type | Seminar |
| Responsible for Module | Prof. Dr. Stefan Diemer |
| Teaching Personnel | Christina Juen, Aloisia Sens and further lecturers |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input checked="" type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals Italian <u>Communicative competence</u> Reading: can comprehend very short, simple texts a single phrase at a time, picking up familiar names, words and basic phrases and rereading as required. | |

Speaking: Can produce simple mainly isolated phrases about people and places; can e.g. introduce themselves, ask and answer questions of the type: Where do you live?

Writing: Can write simple isolated phrases and sentences.

Listening: Can follow speech, which is very slow and carefully articulated, with long pauses for him/her to assimilate meaning.

(based on Common European Framework of Reference for Languages: Learning, Teaching, Assessment, Level A 1)

Intercultural competence

Can identify the basic features of Italian society, daily routines and traditions.

Methodical competence (strategies for listening and reading, speaking and writing; how to deal with different text types and media)

Can listen for key words in a listening comprehension or search for them in a text to help understand what the text/listening is about.

Language correctness (grammar, pronunciation and intonation, lexis, orthographic correctness)

Can e.g. can conjugate verbs in the present tense, can differentiate and articulate the intonation of questions and positive and negative sentences

2 Module Content and Course Schedule Italian

Saying hello and goodbye; questions about name and origin/language/personal data; the alphabet; presenting oneself and introducing other people others; information about family members; numbers 0-1000000

Time, opening hours, week days, daily routines: activities, preferences, appointments

At the bar / at the restaurant: which shops can you find in a city? What to buy there? How to order? How to ask for the way? How to describe it?

Food & shopping for groceries: asking and answering questions, indication of quantity, prices (How much is it?); places (Where...?); likes/dislikes; expressing approval; colors; describing flats and houses, objects/rooms in flats/houses; searching for a flat (understanding residential property advertisements)

Grammar: conjugation of regular verbs and common irregular verbs in the present tense as well as the modal verbs, piacere, personal pronouns and possessive pronouns, positive and negative sentences and questions, prepositions to describe the location of things, shops...

Course Schedule

1. Hello. My name is...: The first part of this seminar deals with the very general topic of saying hello, telling your name and country of origin, your age, your profession, your hobbies, your faculty as well as talking about language skills. Other important contents: 1st telephone conversation, addresses, business cards, filling in forms

2. You ask questions about your partners – changing roles (student / business partner), you learn to talk about persons (lui/ lei / Lei)

3. My day: The last part of the seminar is about daily routines, likes and dislikes, times of the day and week days.

4. Shopping: Students learn about typical Italian food items, writing shopping lists and role-play shopping on a farmer's market, using expressions of quantity, talking about prices. They make and confirm appointments in a bar and a restaurant. They read

menus and order drinks / meals. Moreover, students are supposed to bring a recipe from their home country in order to present it.

5. How to describe a city/ how to describe a way?

3 Didactic Concept Italian

- Primarily communicative teaching method (role plays for various every-day situations, action-oriented use of verbal patterns (e.g. shopping in the supermarket), interactive exercises)
- Intensive media use (DVD: video sequences to start each unit, free app for smartphone supports self-study),
- Course media and handouts available online
- Focus on oral production while including Information and Communication Technology Tools such as voicethread, glogster, PowToon
- Communicative training (reading, listening, speaking and writing; intercultural communication)
- Social competence (team & group work)

4 Bibliography Italian

D. Piotti. UniversItalia 2.0. A1/2. Hueber Verlag.

Material provided by lecturer (grammar und lexical exercises, interactive games, informative material/exercises about cultural knowledge, etc.)

| Foreign Language: French II | |
|--|---|
| Duration | 1 semester |
| Study Semester | According the individual language study plan. |
| Frequency | Summer semester and if required |
| Recommended Prere- quisites | French I |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject |
| Credit Points | 5 |
| Weight of Grade | Same as credit points |
| Contact Hours | 4 SWS / 60 h |
| Self-Study | 90 h |
| Total Workload | 150 h |
| Course Language | French <i>German students will have to take at least 2 modules in foreign language for at least 2 semesters each. An individual language study plan will be discussed prior the start of lectures.</i> <i>Module contents are aligned according the respective qualification of students.</i> |
| Type | Seminar |
| Responsible for Module | Prof. Dr. Stefan Diemer |
| Teaching Personnel | Christina Juen, Aloisia Sens and further lecturers |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input checked="" type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals French <u>Communicative competence</u> Reading: can understand very short, simple texts a single phrase at a time, picking up familiar names, words and basic phrases and rereading as required. | |

Speaking: Can produce simple mainly isolated phrases about people and places; can e.g. introduce themselves and others, ask and answer questions of the type: Where do you live?

Writing: Can write simple isolated phrases and sentences.

Listening: Can follow speech which is very slow and carefully articulated, with long pauses for him/her to assimilate meaning.

(based on Common European Framework of Reference for Languages: Learning, Teaching, Assessment, Level A 1)

Intercultural competence

Can identify the basic features of French society, daily routines in an office, jobs, administrative offices and authorities as well as traditions.

Methodical competence (strategies for listening and reading, speaking and writing; how to deal with different text types and media)

Can listen for key words in a listening comprehension or search for them in a text to help understand what the text/listening is about.

Language correctness (grammar, pronunciation and intonation, lexis, orthographic correctness)

Can e.g. conjugate verbs in the present, simple future tense and the past tense (avoir /être, can understand the meaning of the modal verbs, can differentiate and articulate the intonation of questions and instructions, prepositions of time and place, adjective endings

2 Module Content and Course Schedule French

The weather, seasons, cardinal points;

Description of regions and hotels and planify a trip/ an excursion: book a hotel, buy tickets, go to a restaurant, describe a city and its monuments,... expressing abilities, possibilities and intentions, make and deny a proposal

Talk about the trip / arrange a trip for a business partner

Jobs and work, exchange private and job-related information, understanding job advertisements, telephoning

Grammar: irregular verbs in the present, prepositions of place & time, past tense with avoir / être; possessive article, demonstrative pronouns, questions with quel..., adjectives

Course Schedule

1. Free time: There will be conversation exercises such as talking about hobbies and things people like doing in their free-time or during their work. You learn about jobs and describe what you have to do as f.ex. a teacher.
2. You learn how to express abilities and intentions and how to talk about events in the past.
3. You discover different regions and cities and learn how to present them
4. You learn about different possibilities of travelling (à la gare/ à l'aéroport ..) and how to book tickets
5. You learn how to describe a hotel and book one
6. You planify a trip for a business partner to a city / a region

3 Didactic Concept French

- Primarily communicative teaching method (e.g. role-plays, action-oriented use of verbal patterns, interactive exercises)
- Business focus
- Intensive media use (DVD: video sequences to start each unit, free app for smartphone supports self-study and pronunciation/listening practice and use of Information and communication tools while focusing on oral production)
- Course media and handouts available online
- Communicative training (reading, listening, speaking and writing; intercultural communication)
- Social competence (team & group work)

4 Bibliography French

Material provided by lecturer (grammar und lexical exercises, interactive games, informative material about cultural knowledge, etc.)

| Foreign Language: Spanish II | |
|--|---|
| Duration | 1 semester |
| Study Semester | According the individual language study plan. |
| Frequency | Summer semester and if required |
| Recommended Prere- quisites | Spanish I |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject |
| Credit Points | 5 |
| Weight of Grade | Same as credit points |
| Contact Hours | 4 SWS / 60 h |
| Self-Study | 90 h |
| Total Workload | 150 h |
| Course Language | Spanish <i>German students will have to take at least 2 modules in foreign language for at least 2 semesters each. An individual language study plan will be discussed prior the start of lectures.</i> <i>Module contents are aligned according the respective qualification of students.</i> |
| Type | Seminar |
| Responsible for Module | Prof. Dr. Stefan Diemer |
| Teaching Personnel | Christina Juen, Aloisia Sens and further lecturers |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input checked="" type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals Spanish <u>Communicative competence</u> Reading: Can understand short, simple texts containing the highest frequency vocabulary, including a proportion of shared international vocabulary items, work, family, shopping and immediate surroundings. | |

Speaking: Can give a simple description or presentation of people, daily routines, likes/dislikes, etc. as a short series of simple phrases and sentences linked into a list. Can exchange personal ideas about specific topics. Can describe his/her background and education, immediate surroundings and other things associated with immediate needs in a simple way.

Writing: Can write a series of simple phrases and sentences linked with simple connectors like 'and', 'but' and 'because'.

Listening: Can understand phrases and expressions related to areas of most immediate priority (e.g. very basic personal and family information, shopping, local geography, employment) provided speech is clearly and slowly articulated.

[based on Common European Framework of Reference for Languages: Learning, Teaching, Assessment, Level A2]

Intercultural competence: Can identify the basic features and values of the Spanish speaking world, daily routines, jobs, as well as traditions and can compare it to own life experience. Can report cultural similarities and differences.

2 Module Content and Course Schedule Spanish

Formal and informal letters, jobs and workplaces, office communication, discussing statistics, numbers 100-1,000,000, making complaints, the weather, families, accepting/refusing proposals, planning activities/events, describing a flat, talking about events in the past

Grammar: pretérito perfecto, pretérito imperfecto, pretérito indefinido, gerund, direct & indirect object, comparative forms, subordinate sentences, imperative

Course Schedule

1. Making reservations, public transport, express likes/dislikes, food, daily routines
2. Talking about hobbies, planning activities, talking about the past
3. Flats and houses, furniture
4. Discussing statistics, travelling
5. Family, clothes, colors, weather & seasons
6. Jobs and work places, talking about different positions in a company, office communication, formal letters

3 Didactic Concept Spanish

- Primarily communicative teaching method
- Intensive media use (audios & videos, and real computer mediated communication, e.g. chats), course media and handouts available online,
- Business focus, communicative training (reading, listening, speaking and writing; intercultural communication, role plays for various every-day situations),
- Social competence (team & group work)

4 Bibliography Spanish

Alvarez, Vicente et al. 2016. Perspectivas. Curso rápido. A1/A2. Berlin: Cornelsen

Further material provided by the lecturer

| Foreign Language: Italian II | |
|---|---|
| Duration | 1 semester |
| Study Semester | According the individual language study plan. |
| Frequency | Summer semester and if required |
| Recommended Prere- quisites | Italian I |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject |
| Credit Points | 5 |
| Weight of Grade | Same as credit points |
| Contact Hours | 4 SWS / 60 h |
| Self-Study | 90 h |
| Total Workload | 150 h |
| Course Language | Italian <i>German students will have to take at least 2 modules in foreign language for at least 2 semesters each. An individual language study plan will be discussed prior the start of lectures.</i> <i>Module contents are aligned according the respective qualification of students.</i> |
| Type | Seminar |
| Responsible for Module | Prof. Dr. Stefan Diemer |
| Teaching Personnel | Christina Juen, Aloisia Sens and further lecturers |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input checked="" type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals Italian <u>Communicative competence</u> Reading: can understand very short, simple texts a single phrase at a time, picking up familiar names, words and basic phrases and rereading as required. | |

Speaking: Can produce simple mainly isolated phrases about people and places; can e.g. introduce themselves and others, ask and answer questions of the type: Where do you live?

Writing: Can write simple isolated phrases and sentences.

Listening: Can follow speech, which is very slow and carefully articulated, with long pauses for him/her to assimilate meaning.

(based on Common European Framework of Reference for Languages: Learning, Teaching, Assessment, Level A 1)

Intercultural competence

Can identify the basic features of Italian society, daily routines in an office, jobs, administrative offices and authorities as well as traditions.

Methodical competence (strategies for listening and reading, speaking and writing; how to deal with different text types and media)

Can listen for key words in a listening comprehension or search for them in a text to help understand what the text/listening is about.

Language correctness (grammar, pronunciation and intonation, lexis, orthographic correctness)

Can e.g. conjugate verbs in the present and the past tense (avere /essere, can understand the meaning of the modal verbs, can differentiate and articulate the intonation of questions and instructions, prepositions of time and place, adjective endings

2 Module Content and Course Schedule Italian

The weather, seasons, cardinal points;

Description of regions and hotels and planify a trip/ an excursion: book a hotel, buy tickets, go to a restaurant, describe a city and its monuments,... expressing abilities, possibilities and intentions, make and deny a proposal

Talk about the trip

Description of a flat: reading flat advertisements, how to make appointments for viewing a flat? Etc.

Describe a person: its physical appearance + character

Jobs and work, exchange private and job-related information, understanding job advertisements, telephoning

Grammar: irregular verbs in the present, prepositions of place & time, past tense with avere/ essere; possessive article, demonstrative pronouns, questions, adjectives, adverbs and pronouns (direct and indirect)

Course Schedule

1. Free time: There will be conversation exercises such as talking about hobbies and things people like doing in their free-time or during their work. You learn about jobs and describe what you have to do as f.ex. a teacher.
2. You learn how to express abilities and intentions and how to talk about events in the past.
3. You discover different regions and cities and learn how to present them
4. You learn how to book tickets
5. You learn how to describe a hotel and book one
6. You plan a trip for a business partner to a city / a region
7. You describe persons: physical appearance, character, clothes ...

8. You describe and rent a flat

3 Didactic Concept Italian

- Primarily communicative teaching method (e.g. role-plays, action-oriented use of verbal patterns, interactive exercises)
- Business focus
- Intensive media use (DVD: video sequences to start each unit, free app for smartphone supports self-study and pronunciation/listening practice and use of Information and communication tools while focusing on oral production)
- Course media and handouts available online
- Communicative training (reading, listening, speaking and writing; intercultural communication)
- Social competence (team & group work)

4 Bibliography Italian

D. Piotti, *UniversItalia 2.0*, Hueber, 2016.

Material provided by lecturer (grammar and lexical exercises, interactive games, informative material about cultural knowledge, etc.)

| Foreign Language: French III | |
|---|--|
| Duration | 1 semester |
| Study Semester | According the individual language study plan. |
| Frequency | Winter semester and if required |
| Recommended Prere- quisites | French I – II |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject |
| Credit Points | 5 |
| Weight of Grade | Same as credit points |
| Contact Hours | 4 SWS / 60 h |
| Self-Study | 90 h |
| Total Workload | 150 h |
| Course Language | French <i>German students will have to take at least 2 modules in foreign language for at least 2 semesters each. An individual language study plan will be discussed prior the start of lectures.</i> <i>Module contents are aligned according the respective qualification of students.</i> |
| Type | Seminar |
| Responsible for Module | Prof. Dr. Stefan Diemer |
| Teaching Personnel | Christina Juen, Aloisia Sens and further lecturers |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input checked="" type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals French <u>Communicative competence</u> Reading: Can understand short, simple texts containing the highest frequency vocabulary, including a proportion of shared international vocabulary items, work, family, shopping and immediate surroundings. | |

Speaking: Can give a simple description or presentation of people, living or working conditions, daily routines, likes/dislikes, etc. as a short series of simple phrases and sentences linked into a list. Can exchange personal ideas about specific topics. Can describe his/her background and education, immediate surroundings and other things associated with immediate needs in a simple way.

Writing: Can write a series of simple phrases and sentences linked with simple connectors like 'and', 'but' and 'because'.

Listening: Can understand phrases and expressions related to areas of most immediate priority (e.g. very basic personal and family information, shopping, local geography, employment) provided speech is clearly and slowly articulated.

[based on Common European Framework of Reference for Languages: Learning, Teaching, Assessment, Level A2]

Focus on business French

Intercultural competence (traditions, jobs, holidays, daily routines, values of a society, etc.)

Can draw intercultural comparisons on a basis level and knows about French values of society.

Methodical competence (strategies for listening and reading, speaking and writing ; how to deal with different text types and media)

Can order short texts in paragraphs according to content. Can find simple headlines for paragraphs.

Language correctness (grammar, pronunciation and intonation, lexis, orthographic correctness)

Can e.g. describe events in the past (passé composé and imparfait), prepositions of time and space, verbs with à / de , relative pronouns, future tenses, adjectives and its degrees, difference between adjectives and adverbs

2 Module Content and Course Schedule French

Online Activities

You revise and deepen grammar and vocabulary of everyday situations with the help of the online activities and in class time you transfer your knowledge to business situations

World of work, applying for a job, telephoning, expressing conditions, giving advice, understanding notifications at the workplace, describe the workplace, make/ accept/ confirm / cancel appointments, writing a mail

Planify a business trip as you participate at a trade fair: talking about a town, asking for information ...

Giving basic information about your society

Grammar: Prepositions of time and space / the tenses (past/ present/ future), conjunctions , adjectives and its degrees

Course Schedule

Focus on business French

1. On the phone at work: make/ accept/ confirm/ cancel appointments
2. Confirm an appointment in a mail
3. Reading and studying job advertisements and applying for a job
4. Describe your working place and talk about your tasks at work

5. Planify a business trip
6. Talk about your society

3 Didactic Concept French

- Primarily communicative teaching method
- Intensive media use (DVD: video sequences to start each unit, free app for smartphone supports self-study), newspapers, Internet research etc.)
- French Rallye A2 on OpenOlat
- Course media and handouts available online
- communicative training (reading, listening, speaking and writing; intercultural communication)

4 Bibliography French

M.P. Rosillo et al. Quartier d’Affaires 1, A2. CLE international, 2013.

B. Tauzin et al. Objectif Express 1, Hachette.

Additional material provided by lecturer (cultural knowledge, etc.)

| Foreign Language: French IV | |
|---|--|
| Duration | 1 semester |
| Study Semester | According the individual language study plan. |
| Frequency | Summer semester and if required |
| Recommended Prere- quisites | French III |
| Classification | <input checked="" type="checkbox"/> Required Course <input type="checkbox"/> Compulsory Optional Subject |
| Credit Points | 5 |
| Weight of Grade | Same as credit points |
| Contact Hours | 4 SWS / 60 h |
| Self-Study | 90 h |
| Total Workload | 150 h |
| Course Language | French <i>German students will have to take at least 2 modules in foreign language for at least 2 semesters each. An individual language study plan will be discussed prior the start of lectures.</i> <i>Module contents are aligned according the respective qualification of students.</i> |
| Type | Seminar |
| Responsible for Module | Prof. Dr. Stefan Diemer |
| Teaching Personnel | Christina Juen, Aloisia Sens and further lecturers |
| Requirement for Award- ing of ECTS Points | Passed module examination(s) |
| Methods of Evaluation | <input checked="" type="checkbox"/> Written exam <input checked="" type="checkbox"/> Oral exam <input type="checkbox"/> Laboratory performance <input type="checkbox"/> Project presentation <input type="checkbox"/> Portfolio <input type="checkbox"/> Term paper or essay <input type="checkbox"/> Practical exam <input type="checkbox"/> Colloquium |
| 1 Learning Goals French <u>Communicative competence</u> Reading: Can understand the main points of clear standard input on familiar matters regularly encountered in work, school, leisure, etc. | |

Listening: can deal with most situations likely to arise while travelling in an area where the language is spoken.

Writing: can produce simple connected text on topics that are familiar or of personal interest.

Speaking: can describe experiences and events, dreams, hopes and ambitions and briefly give reasons and explanations for opinions and plans.

(based on Common European Framework of Reference for Languages: Learning, Teaching, Assessment, Level B1)

Focus on business French

Intercultural competence (traditions, jobs, holidays, daily routines, values of a society, etc.)

Can draw intercultural comparisons on a basis level and knows about French values of society and in business.

Language correctness (grammar, pronunciation and intonation, lexis, orthographic correctness)

Can e.g. describe events in the past, know the different kinds of phrases and can use them, can use pronouns (double pronouns) and the sequence of tenses, can differentiate between the "indicatif / subjonctif".

2 Module Content and Course Schedule French

You discover the world of work as an employer and an employee.

You can present your firm, talk about figures, develop and describe a product, start a marketing campaign, think of publicity slogans and a way to commercialize your product.

You discover the different services of a firm, you treat clients orders and complaints.

You think of alternative methods of work.

Course Schedule

Focus on business French

1. Oral presentations: different kinds and how to speak in the public
2. How to present a firm and how to talk about figures?
3. Invent your product and commercialize it.
4. Start a marketing campaign and think about a publicity
5. How to react to complaints?
6. How can an employer motivate his employees?

3 Didactic Concept French

- Primarily communicative teaching method
- Intensive media use (DVD: video sequences to start each unit, free app for smartphone supports self-study), newspapers, Internet research etc.)
- Project based working.
- Course media and handouts available online
- Communicative training (reading, listening, speaking and writing; intercultural communication)

4 Bibliography French

M.P. Rosillo et al. Quartier d’Affaires 2, B1. CLE international, 2013.

B. Tauzin et al. Objectif Express 2, Hachette.

Additional material provided by lecturer (cultural knowledge, etc.)