WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Module Manual
International Online Semester
1 September 2023 – 14 February 2024

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

General English - B2

Susanne Kroner, Thomas Bartl

Aims:

- Students will be able to understand and appropriately use the language in written and spoken forms at an upper-intermediate level in a certain number of professional, academic, and higher education-related situations.
- They will be able to perceive cultural differences in the professional and higher education domains and to respond appropriately and comprehensibly.

Contents:

- Development of language skills (listening and reading comprehension, speaking, writing, grammar, vocabulary).
- Training of professional and academic communication forms (presentations, role-plays, writing functional emails, phone calls, writing a CV, etc.).
- Talking about practical everyday topics and intercultural questions such as preparation for a stay abroad (short texts of simple to moderate difficulty and projects on practical everyday topics, role-plays, reading short texts of intermediate complexity on current events, TV shows, etc.).

Modul number: 960700010

Hours per week / Credits
4 SWS / 5 ECTS

Exam
Written exam (Listening: 25%; Reading: 25%; Text production: 25%; Oral presentation: 25%)

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Business English for Agricultural Engineering

Thomas Bartl

Aims:

- Students will be able to understand a larger number of situations relevant to study and work in the foreign language in written and spoken forms of communication at an upper-intermediate level.
- They will express themselves appropriately and comprehensibly about the fields of agricultural engineering, marketing, sales, and quality management in agricultural technology companies, as well as recognize and comment on aspects of advice in new agricultural technological applications and the organization of cross-company machine usage.

Contents:

- Development of language skills (listening and reading comprehension, speaking, writing, grammar, vocabulary).
- Training study-related communication forms (presentations, role-playing, for example, conversations with business partners; reading complex academic texts; creating complex written reports).
- Training in subject-oriented communication situations (projects, presentations, and discussions about subject-related material).

Modul number: 960200020

Hours per week / Credits
4 SWS / 5ECTs

Exam
Written exam (Listening: 25%; Reading: 25%; Text production: 25%; Oral presentation: 25%)

WEIHENSTEPHAN · TRIESDORF
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English UNIcert® II - Practical English for the Workplace

Susanne Kroner

Aims:

- Students will be able to understand and appropriately use the language in written and spoken forms at an upper-intermediate level in a certain number of professional, academic, and higher education-related situations.
- They will be able to perceive cultural differences in the professional and higher education domains and to respond appropriately and comprehensibly.

Contents:

- Development of language skills (listening and reading comprehension, speaking, writing, grammar, vocabulary).
- Training of professional and academic communication forms (presentations, role-plays, writing functional emails, phone calls, writing a CV, etc.).

Modul number: 960500140

Hours per week / Credits
2 SWS / 3 ECTS

Exam
Written exam (Listening: 25%; Reading: 25%; Text production: 25%; Oral presentation: 25%)

WEIHENSTEPHAN · TRIESDORF
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German as a Foreign Language - Course 1 (A1)

Dr. Gabriel Jesus Dorta Mendez

Aims:

- Students will be able to to manage some simple everyday situations in written and spoken communication forms in the foreign language, as well as to provide basic information about studying, university, and career aspirations.
- They will be able to perceive cultural differences and express themselves in simple statements about them.

Contents:

- Development of language skills (listening and reading comprehension, speaking, writing, grammar, vocabulary).
- Training of professional and academic communication forms (presentations, role-plays, composing functional emails, making phone calls, writing a resume, etc.)

Modul number: 960400030

Hours per week / Credits
4 SWS / 5ECTS

Exam
Written exam (Listening: 25%; Reading: 25%; Text production: 25%; Oral presentation: 25%)

WEIHENSTEPHAN · TRIESDORF
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Data Collection (to manage enterprise)

PhD, Associate Professor Inna Koblianska

Abstract
Information is essential for good management. Marginal analysis is a modern method of economic analysis used in decision-making on the business profitability/efficiency in different sectors of the economy. At the same time, the success of such analysis is determined by the reliability, relevance, reliability, sufficiency and accuracy of the information used. This course aims to form the system of necessary theoretical knowledge and practical skills for collecting internal and external information essential for decision-making at agricultural enterprises according to marginal analysis methodology. Students will learn basic principles and methods of production data collection; trainees will acquire practical skills in statistical reports' analysis, surveys, market data search, and production database scheduling. This course will be helpful for students of different branches of knowledge and specialities, promoting their competence in data collection for decision making at different levels of managerial hierarchy, in various spheres of economy, and when managing their own business.

Course structure
1. Introduction to the course (goal of production data collection at the enterprise; principles of marginal analysis).
2. Production database format.
3. Types and sources of data in economic analysis.
4. Data collection: legal and ethical issues.
5. Methods of data collection and processing.
6. Formation of the database on internal processes (main indicators for different types of agricultural production, processing of the statistical reports, preparation of the primary data collection, preparation of the questionnaire).
7. Formation of market and price databases.

Modul number: 950400010

Hours per week / Credits
2 hours of contact work / 3 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
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Life Cycle Analysis

PhD, Associate Professor Inna Koblianska

Abstract

Life cycle analysis (LCA) is a modern sustainable production and consumption decision-making methodology. This approach constitutes the core of current European product policy. This course disseminates European experience on the content, procedures and methods of the life cycle analysis and introduces the software used for the LCA. The main goal of the course is to provide systematic knowledge about the LCA content, methods, and tools and to form relevant practical skills.
During the study, students will get acquainted with the history and prerequisites of the LCA methodology development and the modern vision of LCA in decision making; they will learn the primary documents regulating the LCA, the LCA procedures, and the standard LCA software. Now LCA is a necessary element of any organisation's environmental management system implementation; it is also needed for sustainability reporting. Thus, acquiring such competencies will facilitate better students' professional realisation in all spheres and organisations.

Course structure
1. LCA concept and its application.
2. Material flows mapping as the initial stage of the LCA.
3. Standardisation of the LCA procedures: the main documents.
4. Stages, procedures, and techniques of the LCA.
5. An overview of the LCA software.
6. LCA software: the use of OpenLCA.
7. Use of the LCA results in decision-making.

Modul number: 951200010

Hours per week / Credits
2 hours of contact work / 3 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
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Academic Research and Writing

PhD, Associate Professor Inna Koblianska

Abstract

Science is the driving force of human development. The higher school forms and develops scientific research skills realising the mission of the academic community in society. Scientific research has its problems and goals, methodology, and style inherent to scientific texts in any branch of science. This course aims to provide students with the necessary knowledge about the organisation, research methods, and peculiarities of findings' presentation (both published and oral); to form appropriate skills. Students will learn basic rules of formulation of the problem statement, research goal and objectives; basic universal research methods; stylistics and lexical structures peculiar to academic writing; rules of academic text's structuring, conference papers and journal article formatting, and oral research presenting. The course also provides an overview of the most common social networks that unite scientists worldwide and serve as a "visiting card" for the researcher. The course lays the basis for further improvement of scientific research skills at the following levels of education (and in the appropriate institutions). Skills of academic and analytical texts preparation also promote the better professional realisation of the future specialist.

Course structure
1. Academic research: problem statement, goal & objectives.
2. Research preparation; sourcing and processing of literature.
3. Scientific research methodology.
4. Academic style.
5. Preparation of tables and graphs.
6. Preparation of scientific papers (conference paper, journal article)
7. Oral presentation of research results.
8. Researcher's digital ecosystem.

Modul number: 950100040

Hours per week / Credits
2 hours of contact work / 3 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
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Production economics

PhD, Associate Professor Nataliia Kovalenko

Abstract

The main aim of the proposed course is to get knowledge of objective laws, conditions, processes and specific features of economic activity and development of agriculture, agrarian trade, as well as acquiring skills for their practical application.

1. Knowledge of the methodical bases of the production economy
2. Ability to distinguish and assess important trends of development and production and economic problems of crop production
3. Ability to determine the natural and monetary data of the most important processes of agricultural production, discuss and critically evaluate the results of activities in the context of the entire enterprise, general economic and social development
4. Ability to apply computer information management systems

Course structure

1. Impact of climate change on agriculture in Ukraine
2. Fundamentals of production economics.
3. Methodology of Assessment of Farm Enterprises
4. Economic evaluation of the production of marketable plant production
5. Economic evaluation of the production of fodder crops
6. Economic evaluation of the production processes: dairy farming
7. Economic evaluation of the production processes: Cattle breeding (fattened bull, heifer).
8. Economic evaluation of the production processes: Sow breeding (piglets production).
9. Economic evaluation of the production processes: Fattening pigs.
10. Determination of the capital requirements for livestock and current assets.
11. Simplified planning of the enterprise's economic activity using software planning I.

Modul number: 951600050

Hours per week / Credits
4 SWS / 5 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
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Machinery Cost

Vadym Petrenko

Objectives of the course

The goal of the course is to provide the theoretical basis for decision-making in production and the subsequent illustration on specific practical examples. In this case, the course deals primarily with the issue of purchasing long-term means of production such as tractors. In the process, the question is addressed whether the long-term means of production should preferably be purchased or leased. With the example of such questions, the theoretical basics of economic decisions are illustrated and discussed. Subsequently the developed theoretical principles are applied to specific practical examples. The results are discussed and evaluated from the perspective of decision-makers. Additionally, the course is utilizing Moodle. For each module, there is time for questions and discussions in a virtual chat room scheduled, to which all users have access to.
Next to acquiring theoretical knowledge, students will conduct a project based on the course content: students will calculate typical machinery combination of their country and presents the results.

Learning outcome:
- To accurately define costs, to explain cost categories and to apply the terms to typical examples of agriculture
- To define and apply machinery costs, procedural costs and comparative costs
- To calculate and appropriately interpret the total costs per year and costs per unit of output such as tractors hours or hectares
- To calculate the Minimum Extent of Utilization for machinery, equipment and typical agricultural means of production and to appropriately evaluate the results
further information: https://ima.hswt.de/en/triesdorf-en/mooc-en

Modul number: 951300050

Hours per week / Credits
2 SWS / 3-5 ECTS

Exam
The module is examined by a written exam 45 min (50%) and the presentation of the project (50%).

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Interdisciplinary Group Research Project

Dr. Kateryna Tuzhyk, Carsten Hümmer

Objectives of the course/Learning outcome

Students are enabled to answer agricultural related questions in a scientific manner. During this course all steps of scientific work will be realized: starting with the formulation of a research question, stating a hypothesis, identification of suitable methods to answer proposed questions, data collection and “re-search”, summarizing and presenting results, and finally prepare a written document in paper format.

The following topics are proposed:
• Water-Food-Energy-Nexus,
• Principles of sustainable agriculture,
• Climate-Smart Agriculture,
• Caring about the “unseen” – soils and groundwater
• Agriculture in 2050
Course format: Seminar / working groups of 4-5 students

Modul number: 950900020

Hours per week / Credits
4 SWS / 5 ECTS

Exam
Project paper and oral presentation

WEIHENSTEPHAN · TRIESDORF
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Business management

Dr.Prof.Larysa Kalachevska

Abstract
Business management, as an educational discipline, ensures the formation of skills in the selection and use of management concepts, methods and tools, as well as the skills and abilities to independently plan and implement informational, methodical, material, financial and personnel support of the organization.
The purpose of the course is to provide students with a clear understanding of the functions and tools of business management, which can be used directly or by analogy to solve existing management situations, as well as to accumulate knowledge on determining the impact of management concepts on the success of an enterprise with the help of applied situations and business games.
The educational discipline "Business Management" is aimed at students gaining knowledge about: theoretical foundations of enterprise management; factors of production; classification of expenses and income in agricultural enterprises; fixed assets: essence and effectiveness of their use; main aspects of saving labor resources; theoretical foundations of enterprise planning using program planning II and simplified enterprise planning using the method of program planning I; input into multiperiod calculations of investment efficiency.

Course structure
1. Course introduction.
Content module 1. Theoretical foundations of business management
Topic 1. Scientific and economic foundations of business management.
Topic 2. Factors of production.

Content module 2. Basics of enterprise economy
Topic 3. Classification of agricultural expenses and income
enterprises.
Topic 4. Fixed assets: essence and effectiveness of their use

Content module 3. Economics of labor resources
Topic 5. Basic aspects of the economy of labor resources.

Content module 4. Methods of simplified activity planning
enterprises.
Topic 6. Planning the enterprise's activities with the help of
program planning II.

Topic 7. Simplified enterprise planning by the software method planning I.

Topic 8. Introduction to multiperiod efficiency calculations investments.

Modul number: 950200050

Hours per week / Credits
4 SWS / 5 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
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Production economics

PhD, Associate Professor Svitlana Lukash

Aims
The purpose of studying the discipline "Production Economics" is the formation of students' theoretical and practical knowledge in the field of production economics, necessary for achieving commercial goals in business, as well as the formation of economic thinking, entrepreneurial and commercial approach to solving production tasks.

Contents:
Introduction to Production economics.
Topic 1. Methods of evaluating production processes.
Topic 2. Assessment of the need for circulating capital.
Topic 3. General economic aspects of crop production.
Topic 4. Economic evaluation of production process: Production of marketable plant products.
Topic 5. Economic evaluation of the production process: Production of fodder crops.
Topic 6. General economic aspects of livestock production.
Topic 7. Economic evaluation of the production process: Dairy farming.
Topic 8. Economic evaluation of production process: Breeding and fattening of cattle (breeding heifers and fattening bulls).
Topic 9. Economic evaluation of the production process: Breeding pig farming.
Topic 10. Economic evaluation of production process: Pig fattening.

Modul number: 951600050

Hours per week / Credits
4 SWS / 5 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Strategies of international agrarian marketing

PhD, Associate Professor Svitlana Lukash

Aims
The purpose of studying the discipline "Strategies of international agrarian marketing" is the formation of students' theoretical and practical knowledge in conducting marketing activities in agriculture needed to achieve commercial objectives of the business.
Objectives: holistic formation of students' imagination about the specifics of marketing in agriculture; mastering categorical apparatus used in carrying out marketing activities; forming a system of knowledge about the theoretical foundations marketing environment analysis and evaluation of its attractiveness for activities in the agricultural sector; assimilation methods for processing and marketing information in business; identification of key components and features of building marketing policy on agricultural markets; forms of cooperation between business partners in trading networks; features of communication policy on agricultural markets; especially the formation of a marketing policy on agricultural commodity markets; studying the peculiarities of different marketing strategies; understanding of marketing communication policy on agricultural markets; acquiring skills in shaping marketing policies of the company; provide a framework for the usage of theoretical knowledge in practice.

Contents:
Introduction to Strategies of international agrarian marketing
Topic 1. View of the marketing process
Topic 2. Agrarian marketing
Topic 3. Nature of strategic international marketing
Topic 4. Trade theories and economic development
Topic 5. Trade distortions and marketing barriers
Topic 6. Consumer behavior in the international context
Topic 7. Marketing research and information system
Topic 8. Foreign market entry strategies
Topic 9. Product strategies: Basic decisions and product planning
Topic 10. Product strategies: Branding and packaging decisions
Topic 11. Channels of distribution
Topic 12. Physical distribution and documentation
Topic 13. Promotion strategies: personal selling, publicity, and sales promotion
Topic 14. Promotion strategies: advertising
Topic 15. Pricing strategies: basic decisions
Topic 16. Pricing strategies: countertrade and terms of sale/payment
Topic 17. Sources of financing and international money markets
Topic 18. Currencies and foreign exchange

Hours per week / Credits
4 SWS / 5 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
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Food Technology and Quality

Prof. Dr. habil. agr. Dr. Ing. Dr. Iryna Smetanska

Objectives of the course/Learning outcome

The course provides overview of food processing technologies and food quality.

Recently, a variety of innovative techniques has been developed, based on advances in food technology. Particularly the modern technologies for the production of nutraceuticals, functional and customized food through the application of modified atmosphere storage, high-pressure and microwave processing, high voltage electric pulses, ultraviolet, intensive light and plasma treatments has been established. Topics on minimally processed food as well as innovative non-thermal technologies for food processing are represented in this course.

Over last years the interest of consumers and market in alternative meat and milk products, such as plant-based milk, plant protein products and cultured meat and milk is increasing tremendous. Therefore, the main techniques for production of plant-based products are described in this course.

Emerging technologies aim to develop sustainable ways for obtaining valuable products from in vitro cultures (cell, transformed root, and organ cultures), algae, moos, and fungi. They include numerous aspects as genetic resources, cultivation strategies, techniques for gene overexpression and targeted genome editing by CRISPR/Cas technology. Several lectures about this field of science and technology are also included in this course.

However, independent on food processing techniques, the issue of food quality and safety remains to be a priority issue for food producers and consumers. Therefore, during purposed course of lectures it will be given an overview on regulatory requirements related to food quality and safety including quality standards, principles of quality assurance, hazard analysis of critical control points, flow charts and identification of hazards and critical points and Nutrition Labelling.

During the seminar part students will learn to review technological tasks and exercise decision-making skills. This will improve team work and contribute to students' communication skills.

After this course students will be expected:

- to understand the processes, functions, constructions, and applications of technical equipment for food processing,
- to evaluate process parameters and estimate critical point in term of food quality and safety requirements
- to possess and be able to demonstrate knowledge in traditional and innovative bioprocessing methods and techniques.

After this course students will be able to use the acquired technical and methodological skills for the production of innovative food commodities with the required quality parameters.

Modul number: 930600070

Hours per week / Credits
4 SWS / 5 ECTS

Exam
- Presentation of individual tasks (Weighting 20%)
- Individual term work (ca. 15 pages) (Weighting 30%)
- Final exam (online, individual interview, apprx. 20 minutes) (Weighting 50%)

WEIHENSTEPHAN · TRIESDORF
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English for Studying, Working, and Living Abroad (B2.2)

Emma Phelan, Anna Tüchert, Vincenzo Spagnolo
Julius-Maximilians-Universität Würzburg

Abstract
This is an online skills course for students from all academic fields. This course is designed for the student that would like to go abroad to study and/or work and is oriented on the B2 level of the Common European Framework. “English for Studying, Working, and Living Abroad” will concentrate on covering letters, email communication and banking, housing/accommodation, and survival skills all with a touch of intercultural training. It is a task-based course where students learn to identify key vocabulary in job adverts and assess their skills using a SWOT (strengths, weaknesses, opportunities, and threats) analysis. The participants write a covering letter and improve email writing skills through:

- email register
- correct word usage

Furthermore, they improve intercultural skills through vocabulary and terminology in:

- banking
- finding accommodation
- arranging a medical appointment and going to the doctor

Course structure

1. Job Descriptions and Covering Letters
2. Email Communication
3. Banking/Housing/Accommodation and Dealing with Medical Appointments

Hours per week / Credits
2 SWS / 3 ECTS

Exam
Modular tests

WEIHENSTEPHAN · TRIESDORF
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German as a Foreign Language A1: German After English

German as a second foreign language –
a German course using the English language knowledge of the learners

Dr. Thomas Stahl
Universität Regensburg

Abstract
Based on tertiary language didactics, the course provides basic knowledge on the A1 level for learners of German who want to learn German quickly and efficiently with the help of their English skills. The focus is on receptive skills.

Course structure Module 1: Vocabulary

- Internationalisms and anglicisms
- Similar words, important differences
- Strategies for vocabulary learning Module 2: Grammar
- The verb in focus
- The noun in focus
- The adjective in focus Module 3: Reading comprehension
- Reading strategies
- Different text types e.g. advertisements, e-mails, articles Module 4: Typical everyday situation
- Travel
- Food
- At the university

Hours per week / Credits
2 SWS / 3 ECTS

Exam
Assessed tasks and module tests (online)

WEIHENSTEPHAN · TRIESDORF
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Preparatory Technical English B1/B2

Introduction to Technical English

Mike Schwer
Technische Hochschule Nürnberg Georg Simon Ohm

Abstract

The demand for individuals who can read and communicate in English is steadily growing. Needless to say, English is definitely important in any career field!

This course is designed for self-study. This means that the participants are required to read articles, technical papers, watch videos in order to solve regular quizzes. Each module (five modules in total) introduces elements of Technical English found in mandatory classes and in the business world.

If you want to increase your ability to read journals and papers written in English, If you want to practise and improve your English grammar skills,

If you are interested in science,

...then this course is for you. Engineer or not.

Course structure

Module 1: Welcome to Technical English Module 2: Applied Physics and Mathematics Module 3: Biology

Module 4: Chemistry Module 5. Business English

The sixth module contains information pertaining to the final examination. Because of this, it will remain closed until the month before in-house final examination in Nürnberg.

Hours per week / Credits

2 SWS / 2 ECTS

Exam

Written examination

WEIHENSTEPHAN · TRIESDORF
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Deep Learning for Beginners

Prof. Dr. Thomas Meier
Friedrich-Alexander-Universität Erlangen-Nürnberg

Abstract
Deep Learning (DL) has attracted much interest in a wide range of applications such as image recognition, speech recognition, and artificial intelligence, both from academia and industry. In this course, you will learn the core elements of neural networks and deep learning, such as convolutional layers, activation and loss functions, and regularization techniques.

Course structure

1. Introduction
2. Signal Processing
3. Image Processing
4. Feedforward Networks
5. Loss and Optimization
6. Activations, Convolution and Pooling
7. Regularization
8. Common Practices
9. Architectures
10. Unsupervised Learning
11. Segmentation and Object Detection

Hours per week / Credits
2 SWS / 2,5 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Advanced Business English (C1)

Prof. Dr. Thomas Steger, Dr. Thomas Stahl
Universität Regensburg

Abstract
This advanced English language course is designed for students of business, economics or related disciplines with the objective of improving their use of Business English for academic and professional purposes. It consists of five units focusing on listening, reading and writing skills. The content is based on real-world scenarios within a wide range of business contexts, generating functional language which can be instantly transferred to your academic or business setting.

Course structure Orientation
Unit 1: Leadership in Contemporary Business Unit 2: Culture in International Business
Unit 3: Digital Innovation
Unit 4: Strategic Branding and Financial Performance Unit 5: Succeeding in Business
Team Assignment
Thank you and Evaluation

Hours per week / Credits
2 SWS / 3 ECTS

Exam
The course assessment includes five unit tests (counts 50% of your final grade, to be completed in weeks 1-10) and one team assignment (counts 50% of your final grade, to be completed in weeks 11-14). For your team assignment, you will have to complete numerous activities together. All activities are based on course materials from our course.

WEIHENSTEPHAN · TRIESDORF
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English for Sustainable Technologies – Re-newable Energy, Smart Buildings and Electric Mobility (CEFR Level B2)

Introductory Course

Prof. Dr. Mona Riemenschneider, Bill Field
Hochschule für angewandte Wissenschaften Landshut

Abstract
This course covers the three topics of renewable energy, smart buildings, and e-mobility. The learners will gain a deeper understanding of these topics and their development in Germany, and, very importantly, improve their English skills as they relate to these subjects. Learners will use their listening, reading, writing and grammatical skills in completing the course units for all subjects.

Course structure Unit 1: Introduction

Module: Renewable Energy Unit 2: Solar Technologies Unit 3: Wind Technology Unit 4: Hydropower
Unit 5: Renewable Energy for the Future

Module: Smart Buildings Unit 6: Building Design
Unit 7: Building Management Systems Unit 8: Passive Buildings
Unit 9: Intelligent Workplaces and Dwellings

Module: Electric Mobility Unit 10: Hybrid Technology Unit 11: Electric-only Cars
Unit 12: Other Renewable-mobility Technologies Unit 13: The Future of Transport

Hours per week / Credits
2 SWS / 3 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
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Business English Scenario Training BEST4Engineers

Prof. Dr. Sylvana Kraußе
Technische Hochschule Aschaffenburg

Abstract
The online course Business English Scenario Training for Engineers (or in short BEST4Engineers) is designed for engineering students who want to acquire basic skills for writing e-mails, telephoning and business-related small talk situations. BEST4Engineers consists of two task-based scenarios with six units each. Every unit contains preliminary exercises in which the students gain a deeper understanding of the respective topic. The acquired skills are subsequently applied in their assignments.

Course structure
Scenario 1: A Technical Visit

1. Addressing Requests
2. Exchanging Contact Details
3. Fixing Appointments
4. Rescheduling Appointments
5. Enjoying Dinner Talk
6. Expressing Appreciation

Scenario 2: A Sales Situation

2. Finding Suitable Equipment
3. Talking Numbers
4. Visiting Trade Fairs
5. Calls for Offers and Procurement
6. Handling Complaints
7. Solving Problems

Hours per week / Credits
2 SWS / 2 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
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SoundAdvice. A university training course for the pronunciation of British English

Dr. Gunter Lorenz
Friedrich-Alexander-Universität Erlangen-Nürnberg

Abstract
"SoundAdvice" is an intensive training course for the main features of the pronunciation of British English. The course was specifically designed for German-speaking English students who are familiar with the main theoretical concepts of English phonetics. Students from other fields with a high proficiency level of English (B2+), however, are perfectly welcome to join "SoundAdvice", too.
This online course serves as a learning tool for the pronunciation of English; it seeks to support and strengthen the following areas of proficiency:

- accurate pronunciation
- self-monitoring and -correction
- reading skills/structuring longer text passages
- familiarity with authentic speech contexts and idiomaticity
- spoken English fluency

Course Structure

A. Pronunciation Pitfalls, Rhythm, and Weak Forms
B. Articulation: The Sounds of English
C. Intonation: Basic Tones and Reading Fluency

Hours per week / Credits
2 SWS / 2.5 ECTS

Exam
Oral Examination

WEIHENSTEPHAN · TRIESDORF
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SoundAdvice. A university training course for the pronunciation of American English

Dr. Gunter Lorenz
Friedrich-Alexander-Universität Erlangen-Nürnberg

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- accurate pronunciation
- self-monitoring and -correction
- reading skills/structuring longer text passages
- familiarity with authentic speech contexts and idiomaticity
- spoken English fluency

Course Structure

A. Learning to See the Bigger Picture
B. Individual Sounds
C. Intonation

Hours per week / Credits
2 SWS / 2.5 ECTS

Exam
Oral Examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Technical English for Mechanical Engineering B2

Mike Schwer
Technische Hochschule Nürnberg Georg Simon Ohm

Abstract
The main objective of this course is to introduce students to English grammar and vocabulary relating to Mechanical Engineering. Although this course is specifically aimed at Mechanical Engineering students, any student who wishes to improve their English skills, specifically within mechanical engineering, is a perfect candidate for this course.
Subjects include material technologies, alternative energy as well as machining and forming methods. You, the student, will interact with the English language from a technical aspect by reading relevant articles and papers and by completing grammar, listening and reading comprehension exercises.
The course is designed for self-study, where participants are required to solve regular quizzes and complete assignments. The main goals of this course are to improve your vocabulary and ability to read and comprehend technical papers in English.

Course Structure

- Module 1: Tools of the Trade
- Module 2: Thermodynamics
- Module 1 & 2 Review
- Module 3: Materials Science
- Module 4: Automobiles
- Module 3 and 4 Review
- Module 5: Machining Techniques
- Module 6: Renewable Energy
- Module 5 and 6 Review
- Module: Mock Examination

Hours per week / Credits
2 SWS / 2 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

ReMedial Verb Grammar Advanced

An online error correction module for advanced learners of English (C1)

Dr. Gunter Lorenz
Friedrich-Alexander-Universität Erlangen-Nürnberg

Abstract

"ReMedial Verb Grammar Advanced" is intended to help advanced learners of English better to understand how grammar works in context – at their respective individual paces. The course is not intended as yet another grammar of English; there are plenty of good student grammars available already. Nor is it strictly a grammar course, with basic structures at the beginning and a systematic progression to more complex ones. In the exercises, all finite and non-finite verb forms can come up, and in our explanations we presuppose a reasonable awareness of the actual rules and give reminders of how they are to be applied in context. "ReMedial Verb Grammar Advanced" is intended as an online component of a classroom course; it is not to be recommended for use without backup at your university or polytechnical college.

In order to get credits (ECTS) for this course, you need to fulfil the following conditions:

- Certificate of participation for completing the course
- 1 ECTS for course completion plus extra exam in Erlangen
- 1-4 ECTS for course completion plus regular exam as part of a university course

Please note also that you need to indicate your interest in a certificate and/or ECTS at the beginning of the semester. In that case, please contact the FAU tutors (sz-englisch-online@fau.de). You also need to find out from the course tutors/lecturers of your home university whether you can use the ECTS for your programme/course of study.

Course structure

- Finite and non-finite verb forms
- 6 + 6 test units (exam mode and exercise mode)

Hours per week / Credits

2 SWS / 1-4 ECTS

Exam

Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Foreign language learning and teaching with digital media

Prof. Dr. Thorsten Piske
Friedrich-Alexander-Universität Erlangen-Nürnberg

Abstract
Through the nine modules of this course, students of foreign language didactics become acquainted both with basic issues of digital media in EFL classrooms and with the practical usage of digital tools therein. The latest digital media will be introduced against their theoretical background and will be analyzed, critically reviewed and creatively adapted to meet the requirements of contemporary FL didactics. This course examines various pros and cons of digital tools for learning processes and prepares students to reasonably integrate digital instruments into their own future teaching, with a prime focus on aspects of Task Based Language Learning, Intercultural Communicative Competence and Content And Language Integrated Learning.
Digital tools introduced in this course are: - Authoring systems - Blogs - CALL/CMC - Corpora - Digital slide presenters / posters - Editing and displaying tools - EduApps - File sharing tools - LMS - MALL - Podcasts - Screencasts - Social networks - Wikis
Within each module, course participants are required to read embedded PDFs and sometimes do exercises to check their comprehension (multiple-choice, true-false-questions,…). Some modules also include developing your own schedular outline of lessons and sharing your ideas with other course members in a task-specific forum. This course aims for proficiency in the field of media didactics and a thorough understanding of how to enrich foreign language learning and teaching efforts with digital media. Students become aware of innovative ways to digitally enhance EFL lessons and reflect upon both the benefits and disadvantages of digital tools.

Course structure

1. 01 The importance of media didactics for FL learning and teaching
2. 02 Teaching and learning with digital media
3. 03 Creating digital media
4. 04 Aspects of presenting with digital media
5. 05 TBLL and digital media
6. 06 ICC and digital media
7. 07 CLIL and digital media
8. 08 Mobile learning and digital media
9. 09 Social media and cyberbullying

Hours per week / Credits
2 SWS / 3-5 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Scientific Writing

Prof. Dr. Katja Radon
Ludwig-Maximilians-Universität München

Abstract
"Scientific Writing" in English is a crucial qualification course for students of all disciplines and all skill levels (Bachelor's, Master's, PhD). Specifically for students of natural sciences who are often required to draft texts in English (ranging from letters & e-mails about papers, to abstracts, to posters, to scientific publication and third party applications), this course shall not only help them encounter the "fear of blank page" but also help them overcome the language barrier.
The online seminar "Scientific Writing" aims at targeting students of natural sciences and health sciences who wish to improve their academic writing skills in English. The course helps attaining skills in literature search, drafting various parts of scientific publication & publishing and presenting the results of the scientific publication in English. The objective of the seminar is to provide a brief theoretical introduction on each topic of the course. Exercises with clearly defined tasks give students the opportunity to test what they have learned and applied directly during the flow of the seminar. Thus for example the student has the opportunity to draft one's own scientific publication step-by-step. Immediate feedback from the tutor can help the students with their queries if they are stuck.

Course structure
1. Preparation of the Article
2. The Writing Process
3. Publishing and Presenting

Hours per week / Credits
2 SWS / 3 ECTS

Exam
Seminar paper / Online examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Data Collection Methods in the Social and Behavioral Sciences

Prof. Dr. Klaus Moser
Friedrich-Alexander-Universität Erlangen-Nürnberg

Abstract
This course provides students with a broad overview of data collection methods in the social and behavioral sciences. The goal is to prepare students to write a thesis in which the collection and/or evaluation of primary data on individuals, groups, or organizations plays a key role. Students will therefore learn where to find these methods and how to evaluate them, but will also gain insight into their application in scientific research. Furthermore, examples from HR, organizational psychology and consumer research will prepare them for using the methods appropriately in their future careers.
The course is offered in a 3 ECTS version and in a 6 ECTS version. You will receive more detailed information inside the course.

Course structure

I. BACKGROUND
I.1 Basics of data collection in the social and behavioral sciences
I.2 The process of empirical research
II. DATA COLLECTION METHODS IN THEORY AND PRACTICE
II.1 Interviewing I
II.2 Interviewing II
II.3 Rating, judging, comparing
II.4 Psychological testing I
II.5 Psychological testing II
II.6 Observation and simulation
II.7 Unobtrusive measures
II.8 Physiological measures
III. LEGAL AND ETHICAL ASPECTS: HANDLING DATA RESPONSIBLY

Hours per week / Credits
2 SWS / 6 ECTS

Exam
Written examination for 3 ECTS
Written examination and case study elaboration for 6 ECTS

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

International Project Management B2

Prof. Dr. Mona Riemenschneider, Bill Field
Hochschule für angewandte Wissenschaften Landshut

Abstract
This course covers the four themes of Communication Media, Tools for International Project Management, Intercultural Conflicts/Challenges in an International Environment, and Project Management. The learner will gain a deeper understanding of these themes, their development in Germany, and very importantly, improve their English skills as they apply to these subjects. Learners will use their listening, reading, writing and grammatical skills in completing the course units for all subjects.

Course structure

2. Introduction
3. E-Mail/Informal Written
4. Presentations
5. Teleconferences/Telephoning
6. Software Tools
7. Rapid Prototyping
8. 3-D Printing
9. High and Low Context Cultures
10. Verbal and Non-verbal Communication
11. Dealing with Intercultural Conflicts
12. Documentation
13. Managing People
14. Managing Across Boarders

Hours per week / Credits
2 SWS / 2 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Electronic Human Resources Management

Prof. Dr. Sven Laumer
Friedrich-Alexander-Universität Erlangen-Nürnberg

Abstract
The course deals with the management of one of the most important resources in a company: its employees. In addition to teaching the basics of Human Resources Management (HRM), the course focuses on the use and development of digital technologies and considers how digital work systems are changing HRM. The fundamentals of strategic and electronic human resources are discussed, the use of social media in HR is considered, data-driven approaches and their use in HR are addressed, and the challenges and opportunities of electronic human resources management (E-HRM) are discussed.

Course structure

1. Fundamentals of strategic and electronic HRM
   - The Digital HR Organization
   - Human Resources Information Systems
   - Workflow Management and HRM
2. Social Media
   - Enterprise Social Media and Network Analysis for HRM
   - Social Media, Employer Branding, and Gamification
3. Data-driven approaches and their use in HRM
   - People Analytics – Big Data, AI, and HRM
   - Recommender Systems
   - Chatbots in HRM
4. Challenges and opportunities of E-HRM
   - E-Performance, E-Learning, and employer development
   - Technology Acceptance

Hours per week / Credits
4 SWS / 6 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Elementary Quantitative Risk Assessment

Prof. Dr. Rainer Göb
Julius-Maximilians-Universität Würzburg

Abstract
There are often considerable methodological deficits in risk management, for example when, in a popular but simplistic approach, risks are assessed as a mathematical product of probability of occurrence and impact of damage. If a very low probability and a very high impact of damage are used to quantify the current situation, this would result in a low to moderate risk. It is obvious that such risk measures are illusive. In practice, there are still considerable differences between existing risk management and effective risk management. Effective risk management therefore goes far beyond simplistic approaches and requires – in addition to a practiced risk culture in the company – a deeper understanding and correct use of quantitative risk assessment procedures. Quantitative assessment procedures and simulations based thereon can provide valid statements about a company's overall risk position (e.g., in the form of risk measures). Only then the company's capital requirements (= risk buffer) required for the risk situation can reasonably be determined. However, this requires that risk managers are also familiar with the necessary mathematical-statistical procedures. This challenge is addressed by the present course, which teaches these competencies at a basic level for bachelor students.

Course structure
Learning module 1: Concepts and terminology of quantitative risk modeling. Learning module 2: Mathematical and Statistical Foundations of Risk Modelling

A) Data
B) Mathematical and statistical principles of risk modelling
C) Distribution parameters as risk indicators
D) Right tail behaviour of distributions Learning module 3 | Stochastic Risk Measures
    A) The purpose of stochastic risk measures
    B) The Value at Risk
    C) Conditional Value at Risk (CVaR)

Hours per week / Credits
2 SWS / 3 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Global Retail Logistics

Prof. Dr.-Ing. Evi Hartmann
Friedrich-Alexander-Universität Erlangen-Nürnberg

Abstract
This course offers specific insights on the logistic processes in the global retail industry. Upon completion of the course, the students should understand the peculiarities of logistics for fast moving consumer goods. The course consists of ten lectures, which are enriched by case studies, additional readings as well as exercises and tests.

Course structure

1. Overview
2. Characteristics & basics
3. Trends & challenges
4. Point of sale & E-Commerce
5. Interfaces
6. Load units & transport logistics
7. Cross docking
8. Warehousing & distribution
9. Food supply chain
10. Sustainability

Hours per week / Credits
4 SWS / 6 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Humanitarian Supply Chain Management

Prof. Dr. Ronald Bogaschewsky
Julius-Maximilians-Universität Würzburg

Abstract
Despite the solidarity-based nature of humanitarian aid, up to 70% of the activities of humanitarian aid organizations are related to both, the design and the coordination of logistical processes. Humanitarian assistance is delivered through humanitarian supply chains, systems concerned with planning, executing, and controlling the effective, cost-efficient flow and storage of materials, goods, and related information from the point of origin to the point of consumption in order to meet the needs of the beneficiaries. The requirements for managing humanitarian supply chains effectively and efficiently are fundamentally comparable to those of commercial supply chains. Similarly, humanitarian organizations often employ business managers to manage their business processes. The management of the supply chain of a humanitarian organization, therefore, requires basic business knowledge that will be addressed in this course.
The course will provide you with a basic understanding of factors influencing humanitarian supply chains and fundamental insights in managing them efficiently and effectively. You will learn about the different roles of humanitarian organizations and the challenges they face. Furthermore, you will be introduced to general SCM concepts that can also be applied in the humanitarian context, and that can provide a significant positive impact on the organization of humanitarian operations.

Course structure
1. Humanitarian View and Context
2. Fundamentals of Humanitarian Supply Chain Management
3. Disaster Management
4. Coordination, Stakeholders and relevant Organizations
5. Procurement
6. Humanitarian Logistics
7. Information Management and Risk Management
8. Building a sustainable Humanitarian Supply Chain
9. Refugee Camp Management

Hours per week / Credits
4 SWS / 6 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

International Marketing

Prof. Dr. Dirk Holtbrügge
Friedrich-Alexander-Universität Erlangen-Nürnberg

Abstract
The participants acquire detailed expertise in the field of international marketing. Effective international marketing is increasingly important for companies due to rising international connectivity between countries and companies, and companies' need to grow by selling their products and services globally. They can understand, explain, reflect, and apply the theories, concepts, and terminology of the field and are familiar with empirical studies in the field of international marketing. The participants understand the challenges of international marketing and can independently develop solutions for problems to questions of standardization and differentiation in an international context, of international market entry, and of the design of the marketing mix in an international context. They also understand these aspects with regard to different industries (B2B, B2C) and different countries Special attention is paid to the transfer of theoretical contents to practical examples. Therefore, different country and company case studies are included in the form of video interviews. The participants are provided with interesting insights into the international marketing activities of several international companies headquartered in the Nürnberg Metropolitan Area.

Course structure

I. Foundations
1. Challenges and Opportunities of International Marketing

II. Methods
2. International Market Research

III. Strategies
3. International Market Entry Strategies
4. Standardization vs. Differentiation of International Marketing

IV. Policies: International Marketing Mix
5. International Product Policy
6. International Price Policy
7. International Placement Policy
8. International Promotion Policy

Hours per week / Credits
2 SWS / 5-6 ECTS

Exam
Seminar paper

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

International Supply Chain Management

Prof. Dr.-Ing. Jörg Franke
Friedrich-Alexander-Universität Erlangen-Nürnberg

Abstract
Supply chain management "[…] encompasses the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners [...]. In essence, Supply Chain Management integrates supply and demand management within and across companies."

Course structure

1. Integrated Logistics, Procurement, Materials Management, and Production
2. Material Inventory and Material Requirements in the Enterprise
3. Strategic Procurement
4. Management of Procurement and Purchasing
5. In-Plant Material Flow and Production Systems
6. Distribution Logistics, Global Tracking and Tracing
7. Modes of Transport in International Logistics
8. Disposal Logistics
9. Logistics Controlling
10. Network Design in Supply Chains
11. Global Logistic Structures and Supply Chains
12. IT Systems in Supply Chain Management
13. Sustainable Supply Chain Management

Hours per week / Credits
4 SWS / 5 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Fundamentals of Strategic Management
A Cross-Sectoral Perspective

Prof. Dr. Markus Westner
Ostbayerische Technische Hochschule Regensburg

Abstract
In this course students acquire fundamental knowledge about key aspects of strategic management. The course can be attended without any prerequisites although having attended an introduction course to general management ("Allgemeine Betriebswirtschaftslehre") can be helpful. The course covers fundamental aspects of strategic management such as main terms, the strategic management process and the corporate environment in which strategic management happens. The subsequent chapters then cover strategic analysis followed by strategy formulation and strategy implementation.

Course structure

1. Fundamentals
   - What is Strategy: Definition of Strategy; Competitive Advantage; Industry vs. Firm Effects; Stakeholder Impact; Stakeholder Strategy
   - Strategic Management: Vision, Mission, and Values; Strategic Management Process; Leadership vs. Management
2. Strategic Analysis
   - External Analysis: PESTEL; the Five Forces Model; Industry Dynamics; Strategic Groups
   - Internal Analysis: Core Competencies; The Resource-Based View; Dynamic Capabilities; Value Chain Analysis
   - Joint analysis: Competitive Advantage; Firm Performance; Business Models
3. Strategy Formulation
   - Business Strategy: Differentiation; Cost Leadership; Blue Ocean Strategy; Innovation; Entrepreneurship
   - Corporate Strategy: Vertical Integration; Diversification; Strategic Alliances; Mergers and Acquisitions; Global Strategy
4. Strategy Implementation
   - Organizational Design: Structure; Culture; Control; Balanced Scorecard
   - Corporate Governance: Values; Governance; Ethics

Hours per week / Credits
4 SWS / 5 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Technical Writing for Scientists and Engineers (Niveau B1)

Mike Schwer
Technische Hochschule Nürnberg Georg Simon Ohm

Abstract
This course is for students who plan to study or work in an English-speaking country, want to publish internationally (i.e., journal articles, patents, product descriptions) or frequently come into contact with English due to their chosen field of study. Students learn how to organize and express facts and ideas through written text in order to create documents for the workplace.

Course structure
Topic 1:The Writing Process (Organising Ideas and Creating Outlines, from the Outline to the First Draft, Scrutinising your Text, Module Revision Test)
Topic 2: Letters, Emails, and Beyond (Correspondence, Netiquette, Negation, Did You Know?, Module Revision Test)
Topic 3: Describing Your Data (SI Units and Technical Writing, Tables, Graphs and Charts, Did You Know?, Module Revision Test)
Topic 4: Writing Instructions (Instructions, Expressing Mood, Capitalization, Did You Know?, Module Revision Test)
Topic 5:Intellectual Property (Trade Secrets, Passive Voice, Did You Know?, Module Revision Test)

Hours per week / Credits
2 SWS / 2 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Tech Writing B2: Engineering

Mike Schwer/Prof. Dr. Eric Koenig
Technische Hochschule Nürnberg Georg Simon Ohm

Abstract
According to the social media network LinkedIn, there are four reasons why you should improve your writing and publish a paper.

1. Writing an article helps improve your own research and writing process.
2. If you know you want to work or do research in a certain sector, publishing can be one of the most powerful ways to increase your visibility with relevant influencers.
3. It looks good on your resume.
4. You leave a mark on this planet.

While you may or may not have published an article, you have definitely written academic text. This course will help you get there. Welcome to Technical Writing B2: Engineering.
In this course, students learn effective research methods, how to organize their ideas and facts, and create original text. We have worked hard to bring you videos and exercises to make learning how to write a bit easier. By actively applying new concepts as you learn, you will master the course content more efficiently.
Students are also required to complete a review portfolio in order to complete this course. The required elements will be shared once you have registered for this course. Upon successful completion of this course, students should be able to write at the CEFR B2 level.
So get a head start on using and improving the skills you need to make positive changes in your life and career.

Course structure
Module 1 – Engineering Research: This module focuses on online research sources and bias.
Module 2 – Drafting, Revising and Editing: This module focuses on writing elements and signposting.
Module 3 – Depicting Data: This module takes a look at the steps performed on the data of a study between the end of the data collection and the start of the statistical analyse.
Module 4 – Ethics in Science and Engineering: This module discusses ethics, paraphrasing, and summarising as well as diversifying sentence structure.

Hours per week / Credits
2 SWS / 2 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Tech Writing B2: Computer Science/IT

Dr. Gunter Lorenz/Prof. Dr. Michael Kohlhase
Friedrich-Alexander-Universität Erlangen-Nürnberg

Abstract
Tech Writing B2: Computer Science/IT is a course developed specifically for students from computer science and IT backgrounds who wish to hone their technical English writing skills.

Course structure
Skills to learn were derived from real-world applications specific to computer scientists for the purpose of improving explanations, sentence and written structure, logic in writing, maintaining objectivity and precision, using online tools for the writing process and data analysis. Further, a brief review of hypotheticals and the appropriateness of active versus passive voice in technical writing is covered.
These topics are covered over the course of four separate modules. The first addresses deepfake technology, which exemplified legitimate versus illegitimate sources. Here, students are introduced to hypotheticals as a review. Next, particularly problematic punctuation in English – commas, semicolons and hyphens – are reviewed. Finally, the module concludes with a guided tour of online writing resources to ease the writing process.
In module 2, students will learn how to write software documentation as well as the appropriate phraseology for this text type. This is accompanied by how students can best draft and revise their written work. Identifying and extracting collocations for students personal expansion of their vocabulary is another core skill of module 2. Finally, typical pitfalls in academic and technical writing are introduced so that students can more closely adhere to conventions of computer science texts.
The third module covers data mediation, which involves describing, analyzing and interpreting data in line graphs, bar charts and pie charts. Relevant vocabulary and phraseology are presented and practiced at length there. Further, describing how code works by using pseudocode is a core skill this module covers. Typical structures students can employ and relevant vocabulary for these structures are taught. Finally, sign-posting devices are introduced as a way to ensure structural and logical development in students‘ writing.
The fourth and final module primarily covers paraphrasing, summarizing and sentence reformulation. Being able to rewrite what others have written but in your own words is a skill required both in research and in professional contexts. It is additionally important for ensuring that others‘ work is not plagiarized. This skill is complemented by learning how to diversify sentence structure through sign-posting devices and advanced language expressions.

Hours per week / Credits
2 SWS / 2,5 ECTS

Exam Exercises

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

IEM - Introduction to Engineering Mathematics

Basics Mathematics, Calculus and Differential Equations

Prof. Dr. Hans-Stefan Siller
Julius-Maximilians-Universität Würzburg

Abstract

Mathematics is a challenge for first-year students in physics, chemistry, biology, computer science and all engineering sciences. On the one hand, they are not as familiar (as they should be) with school mathematics, on the other hand, they are confronted with a kind of "new" mathematics, university mathematics, which has its own way of thinking. New concepts emerge, a new (symbolic) language needs to be learned, and there are new problems and situations that go beyond the content covered in school. Many students are therefore overwhelmed and may even abandon their studies for this reason. This course repeats important mathematical concepts of school mathematics and introduces the basic concepts of university initial mathematics. The aim is to enable students to solve typical scientific and engineering problems with mathematics. This course is not just a "calculus or formula course", but aims to develop a basic understanding of the most important concepts of analysis – numbers, sequences, functions, equations, derivative, integral, differential equation – in simple application situations. For this purpose, the understanding of the mathematical concepts is developed on an intuitive and often visual level, also with the help of dynamic and interactive computer presentations.

Course structure

1. Functions (from linear to trigonometric and exponential functions, insight into functions of several variables)
2. Sequences and Limits (properties of sequences, limits of sequences and functions, continuity)
3. Equations (linear, quadratic, polynomial, trigonometric, exponential equations)
4. Derivation (derivations of basic functions, extreme value problems)
5. Integral (main theorem of differential and integral calculus, integrals of elementary functions, integration techniques)
6. Differential Equations (ordinary differential equations of first and second order)

Hours per week / Credits

4 SWS / 5 ECTS

Exam

Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Design Thinking

Customer-centered Approach to Solving Complex Problems

Prof. Dr. Thomas Groll
Ostbayerische Technische Hochschule Regensburg

Abstract

In this course, you will learn basic theories, concepts, and methods of design thinking. With practical case studies and exercises, you will gain insights into various approaches and applications of design thinking in different industries and functional areas. The course is interdisciplinary and therefore suitable for students of many disciplines. Previous knowledge is not assumed.

You will learn central terms, the historical development, and the necessity based on changing frameworks. Based on the basics, in the second chapter you will get an insight into the theory of Design Thinking, which includes concepts, rules, and principles as well as performance areas. We will then introduce you to the Design Thinking process, which consists of five steps: Emphasize, Define, Ideate, Prototype, and Test. These five steps will be deepened and practiced in chapters three through eight. In addition to the most common methods and tools, you will also gain insights into practical applications for each chapter. At the end of the course, in chapter nine, you will reflect on what you have learned and connect it to related approaches.

Course structure

1. Introduction
2. Theoretical foundations
3. The Design Thinking Process
4. Empathize
5. Define
6. Ideate
7. Prototype
8. Test
9. Reflection and Outlook

Hours per week / Credits

2 SWS / 3 ECTS

Exam

Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Basics Sustainability

Prof. Dr. Robert Feicht
Technische Hochschule Deggendorf

Abstract
The consistent overstepping of planetary boundaries by humans is the cause of many environmental problems and social tensions regionally, globally and between generations. For sustainable development in the sense of a fair distribution of resources, an interdisciplinary approach to solutions and the consideration of the interrelationships of social, ecological and economic factors and actors are indispensable. The course "Basics Sustainability" teaches the most important sustainability models and analysis methods for sustainable development. From environmental and resource economics, basic methods for a fair distribution of environmental goods as well as environmental policy instruments and tools for sustainable spatial design are presented. With regard to materiality, the goal is the use of renewable raw materials for the production of materials and products, the recycling or pollutant-free landfilling of existing products and materials, and the optimisation of natural processes from a material and energy point of view. Against the background of climate change, students learn about current technologies and developments and assess measures in the field of renewable energy systems in the context of grid expansion, energy distribution and storage technologies.

Course structure
1. General principles of sustainability
2. Economic framework for sustainability
3. Materiality and sustainability
4. Energy and sustainability

Hours per week / Credits
4 SWS / 5 ECTS

Exam
Written examination

WEIHENSTEPHAN · TRIESDORF
University of Applied Sciences

Global Education

Focus on languages

Prof. Dr. Heiner Böttger
Katholische Universität Eichstätt-Ingolstadt

Abstract

GE as a holistic concept provides pedagogic as well as didactical answers to questions on globalization, cultural diversity and the development of the world's society. The roles languages and language acquisition play in this context will be the main focus of the online seminar, which will be held in English only.

Course structure

Unit 1: Global (Language) Skills Unit 2: Media Education
Unit 3: Conflict Resolution
Unit 4: Sustainability Education Unit 5: Workshop I
Unit 6: Workshop I
Unit 7: Global Citizenship
Unit 8: Human Rights & Responsibilities Unit 9: Transcultural Education
Unit 10: Workshop II Unit 11: Workshop II

Hours per week / Credits
2 SWS / 4 ECTS

Exam Portfolio