HSLU Lucerne University of Applied Sciences and Arts

School of Engineering and Architecture

Undergraduate modules in English for Engineering Students

Timetables Autumn Semester 2024/25

Status on 22 July subject to change

FH Zentralschweiz

Introduction

University
Lucerne University of Applied Sciences and Arts, with its Schools of Engineering and Architecture, Business, Computer Science, Social Work, Art and Design, and Music, offers an excellent academic and practice-based learning program to help students achieve their career goals. All of this is provided in state-of-the-art facilities in a stunning city, which is a hub of European innovation and achievement.

Campus
The Lucerne School of Engineering and Architecture in Horw serves as the central hub for specializations in Construction and Engineering. The collaboration among the nine institutes provides ideal conditions for interdisciplinary learning, research, and development, paving the way for solution-centered progress into the future.

Bachelor's degree programmes
Our campus hosts eleven applied degree programs in the fields of Engineering and Information Technology, as well as Architecture and Construction. This environment fosters all forms of interdisciplinary collaboration.

COIL
COIL stands for ‚Collaborative Online International Learning.' In this program, students and lecturers from two international institutions collaborate virtually over a period of 6-10 weeks. They gain insights into different professional and cultural perspectives while simultaneously enhancing their virtual teamwork skills. COILs may be integrated into some of our modules.

Undergraduate modules in English for Engineering Students
International exchange students can choose from a variety of modules to create a timetable that meets their individual needs and the requirements of their home university. Modules can be taken from our Bachelor's degree programs in:

- Building Technology | Energy,
- Electrial Engineering and Information Technology,
- Mechanical Engineering,
- Digital Engineering,
- Medical Engineering,
- Busines Engineering | Innovation,
- Energy and Envionmental Systems Engineering,

and complementary from:

- the Institute for Natural Sciences and Humanities,
- the Language Center, and
- the School of Computer Science.

Presentation as timetables
All modules are listed in timetables specifying days and times. For each module, the corresponding Bachelor's program, an internal code, the type, the level, the number of credits, and a short description are also provided.

Minimum credits
From this selection, individual timetables with up to 30 credits (ECTS) can be compiled for each semester. The final module selection is subject to the learning agreement approved by the head of the study program and facilitated by the exchange coordinators. International exchange students must complete a minimum of 15 credits per semester

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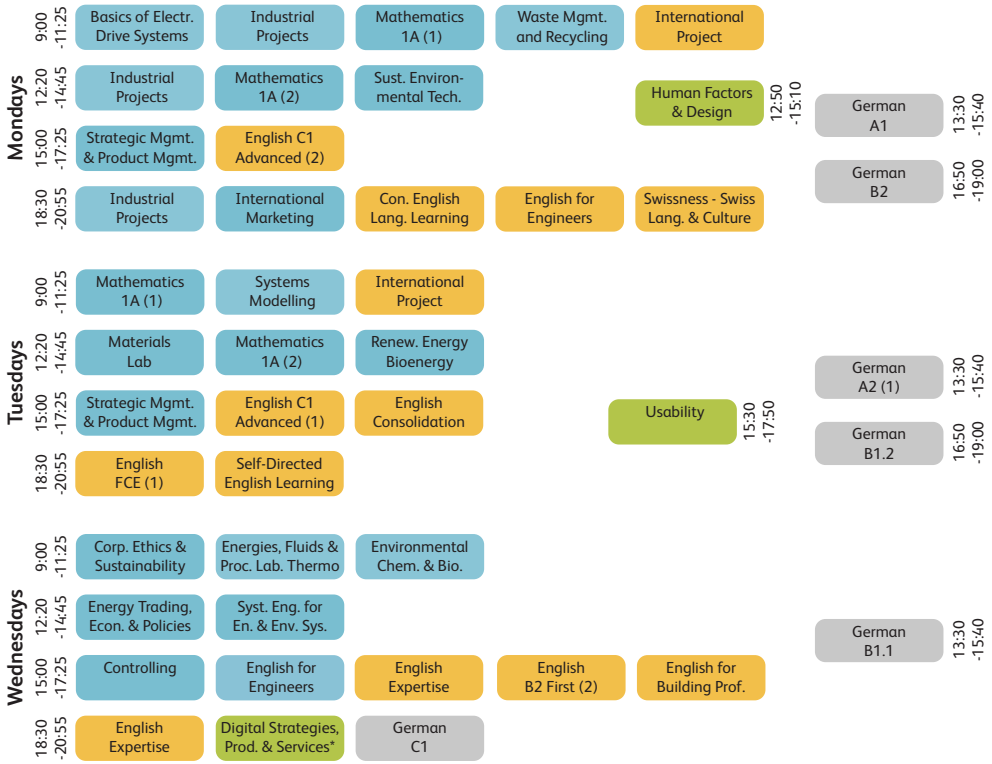
Vibrant campus of the
School of Engineering and Architecture

Autumn semester 2024/25
Overview

Start of contact studies:	Monday 16 September 2024
End of contact studies:	Friday 20 December 2024
Christmas break:	Saturday 21 December 2024 -- Friday 3 January 2025
Exams:	Monday 13 January - Saturday 1 February 2025
Intensive weeks:	Monday 2 - Friday 13 September 2024
	Monday 3 - Friday 14 February 2025



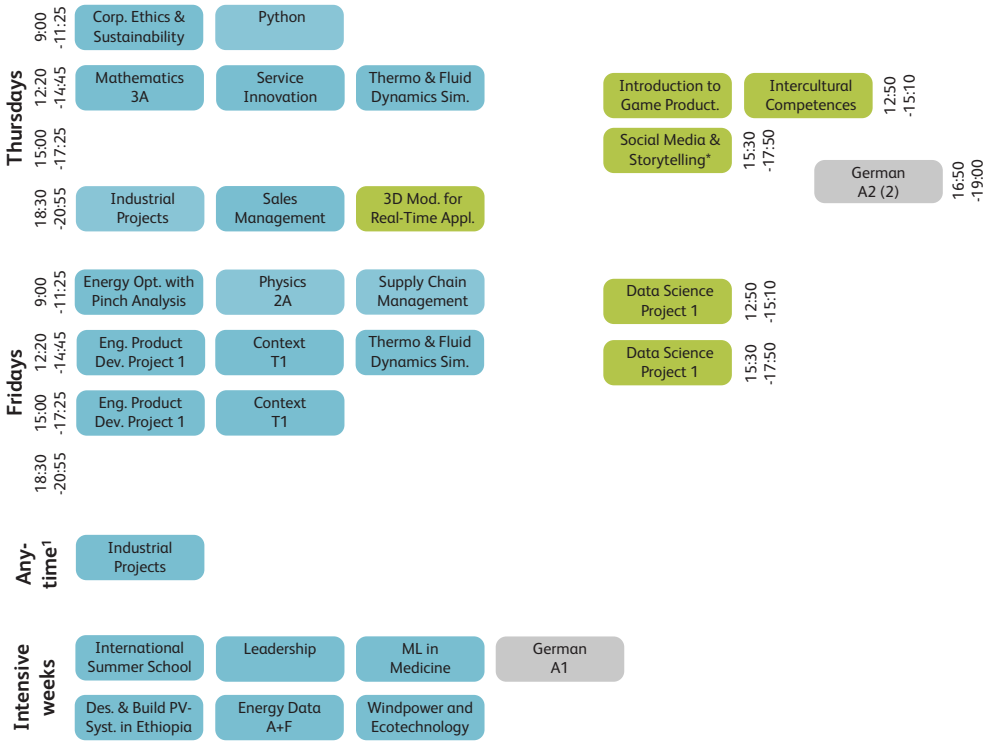
Color Code
- Disciplinary module for all Engineering students
- Mixed or Language module for all students
- Module from School of Computer Science (Campus Rotkreuz), *to be confirmed by mid-August
- Language Module from Language Center for all students (Lucerne)

Bachelor programme / Host
- BE Business Engineering I Innovation
- BT Building Technology I Energy
- EE Energy and Environmental Systems Engineering
- DE Digital Engineering
- ET Electrical Engineering and Information Technology
- ME Mechanical Engineering
- MT Medical Engineering
- NS Natural Sciences and Humanities
- CS School of Computer Science
- LC Language Center

Module type
- B Block (Intensive weeks)
- C Core (Mandatory in host study programme)
- P Project
- R Related (Elective in host study programme)

Module level
- b basic (First year)
- i intermediate (Second year, some prerequisites)
- a advanced (Final year, prerequisites)

Module credits (One semester = 30 ECTS)
- 3 Lessons once a week or one intensive week
- 6 Lessons twice a week



Autumn semester 2024/25
Mondays

Disciplinary modules:

Module Name	Start	End	Module Code	Host	Type	Level	ECTS
Basics of Electrical Drive Systems	09.00 h	11.25 h	TA.BA_ET+A_E	ET	C	i	3
Electrical Engineering Industrial Project 1	09.00 h	11.25 h	TA.BA_PAIND+E1	ET	P	a	6
Electrical Engineering Industrial Project 1 (continued)	12.20 h	14.45 h	TA.BA_PAIND+E1				
Englisch for Engineers (1)	18.30 h	20.55 h	TA.BA_EENG.01	NS	R	b	3
Human Factors & Design*	12.50 h	15.10 h	I.BA_HFD	CS	R	a	3
Industrial Project Energy & Env. Systems Eng.	18.30 h	20.55 h	TA.BA_PAIND_EESE	EE	P	a	6
Industrial Project Energy Systems Engineering	18.30 h	20.55 h	TA.BA_PAIND_ESE	EE	P	a	6
Industrial Project Medical Engineering	09.00 h	11.25 h	TA.BA_PAIND_MT	MT	P	a	6
Industrial Project Medical Engineering (continued)	12.20 h	14.45 h	TA.BA_PAIND_MT				
International Marketing	18.30 h	20.55 h	TA.BA_INTMA_E	BE	C	i	3
Mathematics 1A (1)	09.00 h	11.25 h	TA.BA_MATH1A.01	NS	C	b	6
Mathematics 1A (2)	12.20 h	14.45 h	TA.BA_MATH1A.02	NS	C	b	6
Mechanical Engineering Industrial Project 1	09.00 h	11.25 h	TA.BA_PAIND+M1	ME	P	a	6
Mechanical Engineering Industrial Project 1 (continued)	12.20 h	14.45 h	TA.BA_PAIND+M1				
Strategic Mgmt. and Product Mgmt.	15.00 h	17.25 h	TA.BA_SM+PM	BE	C	i	6
Sustainable Environmental Technology	12.20 h	14.45 h	TA.BA_UT	EE	C	i	3
Waste Management and Recycling	09.00 h	11.25 h	TA.BA_WASTE_E	EE	C	a	3

Basics of Electrical Drive Systems

Prof. Dr. Jonas MÜHLETHALER

Covering the functional principal, the equivalent circuit and the design fundamentals of the most common electrical machines and power electronic circuits like dc-converters, rectifiers, inverters, and converters. Merging the components to efficient drive systems. Discussion of the advantage and disadvantages of the different systems.

Electrical Eng. Industrial Project 1

Prof. Dr. Urs RÖTLISBERGER

The student will gain engineering experience by solving a real-world R&D problem commissioned by an industry partner or an applied research unit. Coaching will be provided by experienced lecturers

English for Engineers

Petruschka MEYER

Expanding specialised English vocabulary and linguistic tools for interdisciplinary communication in English. Analysing graphics and texts from the field of technology. Professional presentation of processes and current technical topics.

Module descriptions and persons in charge:

Human Factors & Design

Prof. Dr. Marcel UHR

The module's goal is to attain greater familiarity with the human "system" to allow for a deeper understanding of why users of interactive systems behave in a certain way. Gestalt laws of grouping are taught and discussed, as are the key human anatomical and physiological aspects, up to and including psychological areas such as motivation, emotions and stress.

Industrial Project EESE/ESE

Dr. Martin STREICHER-PORTE

Independent execution of an individual project within a company. Application and deepening of problem solving, project management and professional competencies under consideration of the systemic context. Creation of convincing scientific documentation and a presentation of the results.

Industrial Project Medical Eng.

Dr. Angelo MARANGI

Independent execution of individual project work in a company or institution. Application and development of the problem-solving skills, project management skills and subject-specific skills and knowledge acquired during the degree program taking systemic relationships into account. Creation of a convincing scientific text and presentation of the results.

International Marketing

Prof. Dr. Sascha GÖTTE

The importance of international marketing for companies being active in today's business environment, assessment of the international environment, the importance of cultural diversity, development of international marketing strategies and marketing instruments, management and organization of international marketing activities, application in case studies, and in a cloud-based business simulation in teams.

Mathematics 1A

Prof. Dr. JUNG Kyu Canci

Elementary functions, Differential and Integral calculus of functions in one variable with applications. Modelling. Applications with Python.

Mechanical Eng. Industrial Project

Prof. Joshua LANTER

The entire process of product development and/or product or process optimization is undertaken within a specific project case. This typically involves collaboration with an industrial partner and is conducted within the context of the specialized area.

Strategic Mgmnt. & Product Mgmnt.

Prof. Dr. Patrick LINK

Fundamentals of strategic management, significance of corporate objectives, performance of strategic analysis, approach to strategy selection and implementation as well as strategic control, application of methods and tools within the framework of a cloud-based business plan game; fundamentals of product and innovation management, performance of product lifecycle and portfolio analysis, creation of a business model canvas, understanding of...

Sustainable Environm. Technology

Dr. Martin STREICHER-PORTE

The Sustainable Environmental Systems module describes the specialisation „Environment" and lays the foundations for three subsequent environmental modules. Students are introduced to soil, water, and air compartments analogous to the technologies for waste treatment, wastewater purification and air pollution control. Students gain in-depth insights into selected environmental chemical and biological processes as well as the applicable regulatory ...

Waste Management and Recycling

Dr. Martin STREICHER-PORTE

The Waste management and recycling course will give insight to the generation, collection, treatment, deposition and recycling of main waste categories. The existing management systems and applied technologies are analysed and evaluated. Crucial processes such as anaerobe digestion & composting, final disposal, thermal treatment, sorting & separation techniques, material recycling and energy recovery are covered. Waste categories which are not yet explicitly ...

Autumn semester 2024/25
Mondays (continued)

Mixed modules:

Module Name	Start	End	Module Code	Host	Type	Level	ECTS
Connected English Language Learning	18.30 h	20.55 h	TA.BA_PEAK	NS	R	i	3
Englisch C1 Advanced (2)	15.00 h	17.25 h	TA.BA_CAE_SZ.02	NS	R	i	3
German A1	13.30 h	15.40 h	W.SZ.DEUFF_A1	LC	R	b	3
German B2	16.50 h	19.00 h	W.SZ.DEUFF_B2	LC	R	b	3
International Project	09.00 h	11.25 h	TA.BA_INTPRO	BE	P	a	6
Swissness - Swiss Language and Culture	18.30 h	20.55 h	TA.BA_SWISS_ISA	NS	R	b	3

Connected English Lang. Learning

Franz HAGMANN

Focus on fostering English skills (from level B2/FCE onwards); distinction of English pronunciation and development of communication skills while taking into account intercultural issues and a specific target area.

English C1 Advanced

Tina BRØDSGAARD

Expanding vocabulary and grammar skills and improving listening and reading comprehension to English C1 Advanced level. In addition, oral and written expression is refined. In addition, strategies for mastering the standardized English C1 Advanced task types are acquired.

German A1

Dr. Isanna MENDE

The offer is aimed at non-German speaking students - beginners. The learning progress in this module is considerable. The offer is therefore tailored to motivated students.

German B2

Dr. Isanna MENDE

The module is aimed at non-German-speaking students with German language skills of at least level A1. Students who successfully complete the module understand and use sentences and frequently used expressions. Students can communicate in simple situations involving a direct exchange of information. One can describe one's own origin, education and immediate surroundings in context.

International Project

Prof. Dr. Christine GRIMM

Hands-on introduction to the Design Thinking method. Execution of a design project within a team, solving a real life challenge provided by an industry partner. Application and deepening of problem solving, project management and professional competencies. Creation of convincing scientific documentation and presentation of the results.

Swissness -Swiss Langaue & Culture

Dr. Nina ZIMNIK

Communication of skills for understanding Swiss politics, economy, society, language and culture; support of integration and student abilities; development of intercultural tolerance; application and further development of oral communication methods.

Autumn semester 2024/25
Tuesdays

Disciplinary modules:

Module Name	Start	End	Module Code	Host	Type	Level	ECTS
Materials Lab	12.20 h	14.45 h	TA.BA_M_LAB	ME	C	i	3
Mathematics 1A (1 continued)	09.00 h	11.25 h	TA.BA_MATH1A.01				
Mathematics 1A (2 continued))	12.20 h	14.45 h	TA.BA_MATH1A.02	NS			
Renewable Energy - Bioenergy	12.20 h	14.45 h	TA.BA_EE+BIO	ME	C	a	3
Strategic Mgmt. and Product Mgmt. (continued)	15.00 h	17.25 h	TA.BA_SM+PM	BE			
Systems Modelling	09.00 h	11.25 h	TA.BA_SYSM	EE	C	i	3
Usability	15.30 h	17.50 h	I.BA_USAB	CS	R	b	3

Mixed modules:

Module Name	Start	End	Module Code	Host	Type	Level	ECTS
English B1/B2 Consolidation	15.00 h	17.25 h	TA.BA_ECONS	NS	R	b	3
English B2 First (1)	18.30 h	20.55 h	TA.BA_FCE_SZ.01	NS	R	i	3
English C1 Advanced (1)	15.00 h	17.25 h	TA.BA_CAE.SZ.01	NS	R	i	3
German A2 (1)	13.30 h	15.40 h	W.SZ_DEUFF_A2	LC	R	b	3
German B1.2	16.50 h	19.00 h	W.SZ_DEUFF_B1_2	LC	R	i	3
International Project (continued)	09.00 h	11.25 h	TA.BA_INTPRO	BE	P	a	6
Self-Directed English Language Learning	18.30 h	20.55 h	TA.BA_SELL	NS	R	i	3

Materials Lab

Priska HERZOG

Introduction to Material Science and Engineering: Understand the structure and basic properties of materials, know how to derive properties by testing, understand test procedures and evaluations, able to assess aspects of material selection. Overview of the lifecycle of all relevant materials in Energy System engineering and their ecological footprint in production, use and end of life.

Renewable Energies - Bioenergy

Prof. Dr. Thomas NUSSBAUMER

Technologies for energy from biomass with focus on combustion in residential and industrial applications for heat, combined heat and power (CHP), and dedicated power. Biofuels production by anaerobic digestion (biogas), fermentation (bioethanol) and synthesis are discussed. Investment costs and economic assessments of bioenergy production for relevant applications.

Systems Modelling

Matthias UNTERBURGER

Fundamentals of mathematical description of systems and introduction of modelling tools. Students learn how to describe mathematically a system (linear models), as well as how to implement and solve the system in e.g. MATLAB and Python. The basics from system thinking and engineering will be applied in practical examples.

Usability

Armin EGLI

The human being in direct interaction with systems, definitions of usability and user experience, Human Centered Design - process and its integration into a general project approach, GUI design, different interaction elements, usability and quality, usability and accessibility, usability and special technologies (e.g. AR/VR, hardware ...).

English B1/B2 Consolidation

Yaël BORNSTEIN

Gaining more confidence and enjoyment in the English language by deepening grammar and expanding general vocabulary, in conversations, discussions, reading texts and listening comprehension, but also by writing texts.

English B2 First

Anna Christen LINDEMANN

Expand vocabulary to around 3,000 words in order to formulate thoughts in an understandable and varied way appropriate to the situation; improve listening and reading comprehension; acquire strategies for mastering the standardised FCE task types in preparation for the internationally recognised 'First Certificate in English' exam.

English C1 Advanced

Tina BRØDSGAARD

Expanding vocabulary and grammar skills and improving listening and reading comprehension to English C1 Advanced level. In addition, oral and written expression is refined. In addition, strategies for mastering the standardized English C1 Advanced task types are acquired.

German A2

Dr. Isanna MENDE

The module is aimed at non-German-speaking students with German language skills of at least level A1. Students who successfully complete the module understand and use sentences and frequently used expressions. Students can communicate in simple situations involving a direct exchange of information. One can describe one's own origin, education and immediate surroundings in context.

German B1

Dr. Isanna MENDE

The module is aimed at non-German-speaking students with German language skills of at least level A2. Students who successfully complete the module can understand non-fiction texts on concrete and abstract topics, write coherent texts on topics of general interest and from their own area of interest, hold a conversation on familiar topics relatively fluently and without preparation.

Self-Directed English Learning

Franz HAGMANN

Focus on fostering English language skills from level B2/FCE onwards; communication of language learning techniques based on specialist texts, with the goal of continually and independently improving individual language skills.

Autumn semester 2024/25
Wednesdays

Disciplinary modules:

Module Name	Start	End	Module Code	Host	Type	Level	ECTS
Controlling	15.00 h	17.25 h	TA.BA_CON	BE	C	i	3
Corporate Ethics and Sustainability	09.00 h	11.25 h	TA.BA_CE_SB	EE	C	a	6
Digital Strategies, Products & Services*	18.30 h	20.55 h	I.BA_DSTPS	CS	R	i	3
Energies, Fluids & Processes Lab Thermo	09.00 h	11.25 h	TA.BA_EFPLAB2	ME	C	b	3
Energy Trading, Economics and Policies	12.20 h	14.45 h	TA.BA_ET_EC	EE	C	a	3
English for Engineers (2)	15.00 h	17.25 h	TA.BA_EENG.02	NS	R	b	3
Environmental Chemistry and Biology	09.00 h	11.25 h	TA.BA_ENCHEBIO	EE	C	b	3
Systems Eng. for Energy & Environmental Systems	12.20 h	14.45 h	TA.BA_SE_EES	EE	C	b	3

Controlling

Prof. Dr. Michael BLANKENAGEL

Control and Accounting (from MM+RW) tools. These instruments comprise Management Information Systems, Business Cases, Capital Budgeting as well as tools for Management Control along the whole value chain.

Corporate Ethics and Sustainability

Prof. Dr. Claas WAGNER

Fundamentals of Business Ethics (BE) and Corporate Responsibility (CR) for practical use in different management positions. Based on case studies, students learn how to get in contact with practitioners and exchange experiences. Basic and well-grounded overview about BE / CR and central concepts, the empirical situation, theoretical discussion and the implementation in management practice. Students will apply gained knowledge in an energy-related simulation game ...

Digital Strategies, Products & Services

Fabian NICOLUSSI

The module includes a systematic view of the impact of digitalization on business models and strategies. It will be explained how digitalization affects the whole value chain and internal organizational structures of a company in order of offer innovative customer orientated services and products. Exam will be held by mid December at the latest.

Energies, Fluids & Processes Lab 2

Prof. Dr. Mirko KLEINGRIES

Further development of the basics of energy technology. Handling of more complex energy conversion processes and machines according to laboratory tests (e.g. Pelton turbine, piston compressor, fuel cell). Consolidation of the fundamentals of energy technology. Handling of complex energy conversion processes and machines based on laboratory tests (pelton turbine, heat pump, combustion process).

Energy Trading, Economics & Policies

Arturo EGLI

Examine structures and trends of trading renewable energies as opposed to trading „grey" energies as commodity, trading CO2 certificates and related products, innovations in this area, political guidelines, and their international ramifications.

English for Engineers

Petruschka MEYER

This module is designed for students from the 'Engineering' field. We recommend that students from the field of 'Construction' attend the module 'English for Building Professions' (EBP). Building Electrical Engineering students can choose between EENG and EBP.

Environmental Chemistry & Biology

Samuel TANNER

Introduction into environmental chemistry and biology. Major characteristics of the five spheres of Earth's environment: geo-, hydro-, atmo-, bio- and anthrosphere supplemented by laboratory experiments. Categories of hazardous substances and their interaction with the spheres. Estimation of important aspects of selected pollutants. Inclusion of current environmental issues.

Systems Eng. for Energy & Env. Syst.

Macarena San Marin RUIZ

Introduction to the design and management of complex systems over their life cycles. Appropriate delimitation of systems. Illustration of the complexity of energy and environmental systems. Possibilities to structure systems and to reduce complexity of systems.

Autumn semester 2024/25
Wednesdays (continued)

Mixed modules:

Module Name	Start	End	Module Code	Host	Type	Level	ECTS
English B2 First (2)	15.00 h	17.25 h	TA.BA_FCE_SZ.02	NS	R	i	3
English B2/C1 Expertise (1)	15.00 h	17.25 h	TA.BA_EEXP.01	NS	r	i	3
English B2/C1 Expertise (2)	18.30 h	20.55 h	TA.BA_EEXP.02	NS	r	i	3
German B1.1	13.30 h	15.40 h	W.SZ_DEUFF_B1_1	LC	R	i	3
German C1	18.30 h	20.55 h	W.SZ_DEUFF_C1	LC	R	a	3

English B2 First

Anna Christen Lindemann

Expand vocabulary to around 3,000 words in order to formulate thoughts in an understandable and varied way appropriate to the situation; improve listening and reading comprehension; acquire strategies for mastering the standardised FCE task types in preparation for the internationally recognised 'First Certificate in English' exam.

English B2/C1 Expertise

Prof. Irene DIETRICHS

Current affairs discussions, reading authentic texts and a variety of listening comprehension exercises as well as in-depth vocabulary development, combined with effective learning strategies. Communication at a demanding level, fluent, correct and effective in writing and speaking; preliminary stage to the Cambridge Advanced Certificate.

German B1.1

Dr. Isanna MENDE

Understand factual texts on concrete and abstract topics; write coherent texts on topics of general interest and from their own field of interest; hold a conversation on familiar topics relatively fluently and without preparation. The pronunciation is easy to understand.

German C1

Yaël BORNSTEIN

In addition to refreshing, consolidating and expanding grammar and vocabulary, the module provides ample opportunity for presentation and writing learning as well as for conversation and exchange on social, personal, political, professional, cultural and study-related topics. The teaching varies each semester, according to the current needs of the students.

Autumn semester 2024/25
Thursdays

Disciplinary modules:

Module Name	Start	End	Module Code	Host	Type	Level	ECTS
3D Modelling for Real-Time Applications*	18.30 h	20.55 h	I.BA_3DMOD4RT	CS	R	b	3
Corporate Ethics and Sustainability (continued)	09.00 h	11.25 h	TA.BA_CE_SB				
Industrial Project Energy & Env. Systems Eng. (continued)	18.30 h	20.55 h	TA.BA_PAIND_EESE				
Industrial Project Energy Systems Eng. (continued)	18.30 h	20.55 h	TA.BA_PAIND_ESE				
Introduction to Game Production*	12.50 h	15.10 h	I.BA_GEMAPROD	CS	R	b	3
Mathematics 3A	12.20 h	14.45 h	TA.BA_MATH3A	NS	C	i	3
Python Bascis	09.00 h	11.25 h	TA.BA_PYTHON	NS	C	b	3
Sales Management	18.30 h	20.55 h	TA.BA_SALES	BE	C	a	3
Service Innovation	12.20 h	14.45 h	TA.BA_SI	BE	C	a	3
Thermo and Fluid Dynamics Simulation	12.20 h	14.45 h	TA.BA_THFL+SIM	ME	C	a	6

Mixed modules:

Module Name	Start	End	Module Code	Host	Type	Level	ECTS
German A2 (2)	16.50 h	19.00 h	W.SZ_DEUFF_A2	LC	R	b	3
Intercultural Competences	12.50 h	15.10 h	I.BA_ICCO	CS	R	b	3
Social Media & Storytelling*	15.30 h	17.50 h	I.BA_SOMS	CS	R	b	3

Python Basics

Martin VOGEL

Introduction to Python programming with a focus on variables, operators, branching and loops using Jupyter notebooks. Learning how to use libraries such as numpy, pandas and matplotlib for mathematical calculations and data analysis. Covering data structures such as lists and arrays as well as basic concepts of file processing and error handling. Fundamentals of stochastics, including location and dispersion measures, regression, correlation and probability calculations.

Sales Management

Angelos APOSTOLIDIS

The sales management module covers the understanding of sales organizations and teaches the processes for managing and motivating sales staff, as well as how to measure and optimize their success. You will learn how to set appropriate goals, develop suitable sales strategies, and select effective and efficient instruments. You will learn to understand important features of sales psychology. This includes the coordination of processes as well as the application of essential ...

Service Innovation

Prof. Dr. Shaun WEST

Focus on creating, delivering, and capturing value from service innovation within complex product-service systems. Due to the entrepreneurial nature of the module, lean start-up and other business development approach to innovation will be used. The module is split into four episodes: i. understanding your capabilities; ii. understand your environment; iii. innovate and develop; iv. share and sell.

Thermo & Fluid Dynamics Simulation

Prof. Dr. Luca MANGANI

Numerical modeling and simulation with Python and CFD (Computational Fluid Dynamics). Definition/choice of model and system-boundary, meshing, boundary conditions and solver parameters, post-processing.

3D Modelling for Real-Time Appl.

Dr. Markus ZANK

3D-modeling is ubiquitous in digital media and we often encounter it unconsciously in everyday life. The range of applications is huge: films, games, apps, architecture, design, medicine, advertising, etc. This module provides an overview of available technologies, tools, workflows and teaches the technical foundations for asset creation (models, textures etc.). You will learn basics of lighting and texturing as well as simple rigging and animation workflows...

Introduction to Game Production

André THOMAS

In this module, you will be introduced to foundational concepts and processes that are commonly used in computer game production. You will be introduced to visual tools used in game engines and on the use of them to create interactive experiences. You will get familiar with general elements of a game engine and their visual tools – ranging from UI builder to camera management and animation systems, to simple shaders and VFX with a particular focus on visual scri..

Mathematics 3A

Prof. Dr. JUNG Kyu Canci

Functions of several variables, partial derivatives, total differential, gradient, linear and non-linear optimisation of functions of several variables, double and triple integrals, applications to science, technology and economics, in particular using numerical software such as Python.

German A2

Dr. Isanna MENDE

The module is aimed at non-German-speaking students with German language skills of at least level A1. Students who successfully complete the module understand and use sentences and frequently used expressions. Students can communicate in simple situations involving a direct exchange of information. One can describe one's own origin, education and immediate surroundings in context.

Intercultural Competences

Tamara von ROTZ

This module teaches practical skills for navigating diverse cultural contexts, promotes inclusive communication and conflict management. It emphasises awareness of prejudice and bridging cultural differences and encourages appreciation of diverse viewpoints. Drawing on academic research, theories and practical examples, the module examines intercultural dynamics in professional contexts...

Social Media & Storytelling

Georgiana BIGEA

This is an introductory course into the art and science of social media with customer-centred storytelling techniques. The main objective of the course is to develop the knowledge, skills, and experience required to plan, execute, and critically engage with and analyse a social media & storytelling strategy or campaign. By using case studies (Dropbox, Microsoft, Swiss Air, Humans of New York, etc.), design thinking methods, and online and offline "listening" among ...

Autumn semester 2023/24
Fridays

Disciplinary modules:

Module Name	Start	End	Module Code	Host	Type	Level	ECTS
Context Technology 1	12.20 h	14.45 h	TA.BA_KONTT1	NS	P	b	6
Context Technology 1 (continued)	18.30 h	20.55 h	TA.BA_KONTT1				
Data Science Project 1	12.50 h	15.10 h	I.BA_DSPRO1	CS	R	i	6
Data Science Project 1 (continued)	15.30 h	17.50 h	I.BA_DSPRO1				
Energy Optimisation with Pinch Analysis	09.00 h	11.25 h	TA.BA_PA	ME	C	a	3
Engineering Product Development Project 1	12.20 h	14.45 h	TA.BA_PDP1	BE	P	i	6
Engineering Product Development Project 1 (continued)	18.30 h	20.55 h	TA.BA_PDP1				
Physics 2A	09.00 h	11.25 h	TA.BA_PHYSIK2A	NS	C	i	3
Supply Chain Management	09.00 h	11.25 h	TA.BA_SCM	BE	C	a	3
Thermo and Fluid Dynamics Simulation (continued)	12.20 h	14.45 h	TA.BA_THFL+SIM				

Eng. Product Development Project 1

Prof. Dr. Simon ZÜST

Engineering project: Experiencing the development of a product in an interdisciplinary team. Elaboration of market and product requirements; developing, evaluating and verifying engineering solution concepts while taking into account common methods for finding ideas and solutions. Set-up of suitable basic tests and prototypes for proof of concept.

Physics 2A

Prof. Dr. Philipp SCHÜTZ

The basics of thermodynamics, oscillations and waves are studied. Main topics are the ideal gas, the first and second law of thermodynamics, cyclic processes in the pV diagram, as well as the thermodynamic efficiency. Harmonic, damped and driven oscillations are investigated. The study of harmonic waves, especially sound waves complete the semester.

Supply Chain Management

Julia ROHRER

Introduction to the Supply Chain of industrial companies, through examples from various businesses, analysis and discussion of business cases, including the use of Supply Chain simulations. Starting with a high-level view of the Supply chain across several tiers, then analysing in detail the Logistic activities in a company. Moving to Sourcing strategies and tools for strategic and operational Purchasing, Ending with Production, Costing, Risk management and Sustainability.

Context Technology 1

Dr. Piero Angelo MARANGI

Handling of an interdisciplinary project in a team where various specializations are represented; communication of specialist skills and communication skills for creating scientific work and making a scientific presentation; promotion of project-oriented and systematic thinking, plus interdisciplinary cooperation.

Data Science Project 1

Dr. Umberto MICHELUCCI

This course equips students to build comprehensive data science and machine learning solutions. Initially, students select a project to focus on and then proceed to create an end-to-end solution. The educational approach blends lectures with individual coaching, enabling students to acquire industry-relevant skills. Topics range from data science fundamentals to model validation, managing skewed datasets, crafting scientific presentations, and ...

Energy Opt. with Pinch Analysis

Prof. Dr. Beat WELLIG

Energy Optimization with Pinch Analysis: Refresher energy and process technology, fundamentals of Pinch Analysis and application of the engineering tool PinCH, representation of processes in composite curves, investment and operating costs, energy and cost targets, supertargeting, design of heat exchanger networks, optimization of utility systems, integration of heat pumps, combined heat and power systems, etc., introduction to batch and multiple base case process...

Intensive Weeks

Disciplinary modules:

Module Name	Start	End	Module Code	Host	Type	Level	ECTS
Application of Machine Learning in Medicine	2.09.24	6.09.24	TA.BA_AMLMED	MT	B	i	3
Design, build and commission Photovoltaic in Ethiopia	2.02.25	15.02.25	TA.BA_PV_HELP	BT	B	i	3
Energy Data Analytics & Forecasting	3.02.25	7.02.25	TA.BA_EDAF	ET	B	a	3
International Summer School	9.09.24	13.09.24	TA.BA_SUSCHOOL	BE	B	i	3
Leadership	2.09.24	6.09.24	TA.BA_LEAD	BE	B	i	3
Windpower and Ecotechnology	3.02.25	8.02.25	TA.BA_WIND_ECO	EE	B	b	3

Mixed modules:

Module Name	Start	End	Module Code	Host	Type	Level	ECTS
German A1	2.09.24	13.09.24	W.SZ_DEUFFINT_A1	LC	B	i	3

International Summer School

Günter ZEPF

Students from international partner universities gain insight into various aspects of international management. Experts from international companies as well as lecturers from various universities present cases from practice as a basis for group work. In addition, visits to some international companies based in Switzerland take place.

Leadership

Prof. Dr. Michael KELLERHALS

Students learn leadership as a concept as well as its different aspects and success factors by looking at themselves, their teams and their organisations. The module is based on fundamental theoretical concepts. To facilitate their implementation in practice, it includes as an important element exercises with tools that make leaders successful. One of the aims of this module is to prepare students for their future role as leaders, project managers or product managers.

Windpower and Ecotechnology

Prof. Dr. Class WAGNER

Basics of wind power technology, from determining the potential of wind power to its use with different types of turbines and systems, including the selection of materials and components, to estimating the electrical energy produced. Based on actual installations, a stakeholder analysis and environmental analyses are carried out to estimate the impact of emissions on people and ecosystems.

Machine Learning in Medicine

Simone LIONETTI

The module is divided in three parts associated to different datasets related to medicine. For each dataset, analyses are carried out to generate understanding and machine-learning tasks are formulated to identify technological potential. The focus will be on issues that are typical of medical data such as domain-specific feature engineering, generalization across cohorts, annotation issues, interpretability, privacy, and skewed, biased or imbalanced data.

Design, Build & Com. PV in Ethopia

Roger BUSER

Many Health Centers in Ethiopia are far from grid connections. Childbirth mortality at night and cooling of vaccines is a big challenge. A 5 kW decentral Energy System, consisting of photovoltaic panels, batteries, and controls shall help. Participants team-up with local students from AMU (Arba Minch University) and learn together the sizing of the components at AST (Advanced Solar Training Center, carried out by professionals from Sahay Solar and HSLU)...

Energy Data Analytics & Forecasting

Prof.Dr. Antonious PAPAEMMANOUIL

In this intensive week, we consider how machine learning can be used to help solve the energy forecasting problem. the participants will apply those algorithms to specific use cases regarding photovoltaics, e-mobility, storage or self-consumption optimization in order to predict load and/or production. Real-world data will be used, and practical experience will be provided by the experienced lecturers that facilitate the course. Through your project you will have practical ...

German A1

Dr. Isanna MENDE

The offer is aimed at non-German speaking students - beginners. The learning progress in this module is considerable. The offer is therefore tailored to motivated students.

Status on 22 July 2024 subject to change.

Contact

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Disclaimer
The module selection and timetables may change slightly for organisational reasons. The final version is only known shortly before the start of the semester.