

Bachelor modules in English

Important Remarks

Based on the experience gained the decision was taken to offer the students “**module packages**” in the order of 30 ECTS (only autumn semester), which is the average expected study load for one semester. For the spring semester we can't, at the moment, provide module packages, but the students certainly will be able to select enough modules / courses to fulfil their credit requirements for a full semester.

Students selecting these module packages will find within the specific study no collision in their study plans.

We thus recommend, when drafting the learning agreement to assign to these module packages first.

The module packages are in the first instance addressing students in the 5th Semester of their study program. The hyperlinks provide module descriptions, including learning objectives and type of assessment.

Of course, students are welcome to select courses out of the module packages, from different programs and semesters within each term (e.g. autumn term: 3rd and 5th semester), but they have to be aware, that this might cause problems with their individual timetable.

The final timetable will be available about two weeks before semester start. For the students course changes will be possible the first two weeks after start of semester.

Courses in English study year 2017/18:

* Module packages 5th semester/autumn: no collision in timetable

Undergraduate Programs	Courses / Modules	Course Code / Course Descripton	ECTS Credits	Semester	Term
AVIATION module packages*	Computational Fluid Dynamics	CFD-EN	4	5th semester	autumn
	Numerical and Experimental Aerodynamics	NEA-EN	4	5th semester	autumn
	Finite Element Method	MFEM-EN	3	5th semester	autumn
	Mechanical Vibrations	MSL-EN	3	5th semester	autumn
	Project- and Quality Management	PQM-EN	4	5th semester	autumn
	Project Work	PAAV-EN	6	5th semester	autumn
	Intercultural Communication and Management	ICMGMT-EN	2	5th semester	autumn
	Introductions to Swiss Society and Politics	ISSP-EN	2		autumn
	German for Beginners - Incoming Students	GFB	2		autumn
			30		
	Aircraft Systems	AC-SYS-EN	4	3rd semester	autumn
	Flight Mechanics and Flight Simulation	FMSI-EN	4	5th semester	autumn
	Maintenance, Repair & Overhaul	MARO-EN	4	5th semester	autumn
	Unmanned Aviation	UA-EN	4	5th semester	autumn
	System Reliability, Availability, Maintainability, Safety	SYS-RAMS-EN	8	4th semester	spring
	Aircraft System-Control Systems	AC-SYS-CS-EN	4	4th semester	spring
	Flight Operations	FL-OPS-EN	4	4th semester	spring
	Mechanical Engineering for Aviation	ME-AV-EN	4	4th semester	spring
	Aircraft Systems - Flight Propulsion	AC-SYS-FP-EN	4	6th semester	spring
	Aviation Management	AV-MGMT-EN	4	6th semester	spring
	Introduction to Rotary Wing Aircraft	HELL-EN	4	6th semester	spring
	Supply Chain Management in Aviation	SCM-AV-EN	4	6th semester	spring
	Project Work	PAAV-EN	6		spring
ELECTRICAL ENGINEERING module packages*	Control Theory 1	RT1-EN	4	5th semester	autumn
	Communication Networks and Services 1	CNS1-EN	4	5th semester	autumn
	Internet of Things 1	IOT1-EN	4	5th semester	autumn
	System on Chip Design	SCD-EN	4	5th semester	autumn
	Project Work	PAET-EN	6	5th semester	autumn
	Intercultural Communication and Management	ICMGMT-EN	2	5th semester	autumn
	Introductions to Swiss Society and Politics	ISSP-EN	2		autumn
	German for Beginners - Incoming Students	GFB	2		autumn
			28		
	Computer Engineering 1	CT1-EN	4	3rd semester	autumn
	Electricity 3	EL3-EN	4	3rd semester	autumn
	Electronics Project 1	ETP1-EN	2	3rd semester	autumn
	Signals and Systems 1	SISY1-EN	4	3rd semester	autumn
	Sensors	SEN-EN	4	5th semester	autumn
	Image Processing	BV-EN	4	5th semester	autumn
	Electronics Project 2	ETP2-EN	4	4th semester	spring
	Communication Networks and Services 2	CNS2-EN	4	6th semester	spring
	Internet of Things 2	IOT2-EN	4	6th semester	spring
	Project Work	PAET-EN	6		spring

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INFORMATION TECHNOLOGY module packages*	Image Processing ¹	BV-EN	4	5th semester	autumn	
	Internet Service Prototyping ¹	ISPROT-EN				
	Software and System Security 1 ¹	SWS1-EN				
	Cloud Computing 1	CCP1-EN	4	5th semester	autumn	
	Communication Networks and Services 1	CNS1-EN	4	5th semester	autumn	
	eHealth Technologies	EHT-EN	4	5th semester	autumn	
	Internet of Things 1	IOT1-EN	4	5th semester	autumn	
	Scientific Computing	SCC-EN	4	5th semester	autumn	
	System on Chip Design	SCD-EN	4	5th semester	autumn	
	Project Work	PAIT-EN	6	5th semester	autumn	
	Intercultural Communication and Management	ICMGMT-EN	2	5th semester	autumn	
	Introductions to Swiss Society and Politics	ISSP-EN	2		autumn	
	German for Beginners - Incoming Students	GFB	2		autumn	
		40				
	Project 3	PSIT3-EN	4	3rd semester	autumn	
	Signals and Systems 1	SISY1-EN	4	5th semester	autumn	
	Project 4	PSIT4-EN	4	4th semester	spring	
	Cloud Computing 2	CCP2-EN	4	6th semester	spring	
	Communication Networks and Services 2	CNS2-EN	4	6th semester	spring	
	Internet of Things 2	IOT2-EN	4	6th semester	spring	
	Software and System Security 2	SWS2-EN	4	6th semester	spring	
	Project Work	PAIT-EN	6		spring	
MECHANICAL ENGINEERING module packages*	Computational Fluid Dynamics	CFD-EN	4	5th semester	autumn	
	Numerical and Experimental Aerodynamics	NEA-EN	4	5th semester	autumn	
	Finite Element Method	MFEM-EN	3	5th semester	autumn	
	Mechanical Vibrations	MSL-EN	3	5th semester	autumn	
	Project- and Quality Management	PQM-EN	4	5th semester	autumn	
	Project Work	PAM1+-EN	6	5th semester	autumn	
	Intercultural Communication and Management	ICMGMT-EN	2	5th semester	autumn	
	Introductions to Swiss Society and Politics	ISSP-EN	2		autumn	
	German for Beginners - Incoming Students	GFB	2		autumn	
		30				
	Fluid- and Thermodynamic 2	FTH2-EN	4	3rd semester	autumn	
	Materials Engineering 1	WT1-EN	2	3rd semester	autumn	
	Measurement and Control Systems 1	MSRT1-EN	4	3rd semester	autumn	
	Numerical and Experimental Aerodynamics	NEA-EN	4	5th semester	autumn	
	Measurement and Control Systems 2	MSRT2-EN	4	4th semester	spring	
	Introduction to Rotary Wing Aircraft	HELI-EN	4	6th semester	spring	
Project Work	PAM1+-EN	6		spring		
SYSTEMS ENGINEERING	Product Development for Systems Engineering	PES3-EN	4	3rd semester	autumn	
	Computer Engineering 1	CT1-EN	4	3rd semester	autumn	
	Electricity 3	EL3-EN	4	3rd semester	autumn	
	Signals and Systems 1	SISY1-EN	4	3rd semester	autumn	
	Control Theory 1	RT1-EN	4	5th semester	autumn	
	Sensors	SEN-EN	4	5th semester	autumn	
	Project Work	PAST-EN	6	5th semester	autumn	
	Image Processing	BV-EN	4	5th semester	autumn	
	Computational Fluid Dynamics	CFD-EN	4	5th semester	autumn	
	Communication Networks and Services 1	CNS1-EN	4	5th semester	autumn	
	System on Chip Design	SCD-EN	4	5th semester	autumn	
	Product Development for Systems Engineering	PES4-EN	4	4th semester	spring	
	Communication Networks and Services 2	CNS2-EN	4	6th semester	spring	
	Introduction to Rotary Wing Aircraft	HELI-EN	4	6th semester	spring	
	Project Work	PAST-EN	6		spring	

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ENGINEERING AND MANAGEMENT	Natural and Technical Systems 1	NTSY1-EN	8	1st semester	autumn
	Economic and Social Systems 1	OESSY1-EN	6	3rd semester	autumn
	Operations Management 1	OMA1-EN	4	3rd semester	autumn
	Database Fundamentals	DBG-EN	4	5th semester	autumn
	Operations Management 3	OMA3-EN	4	5th semester	autumn
	Project- and Quality Management	PQM-EN	4	5th semester	autumn
	Simulation of Business Processes	SIM-EN	4	5th semester	autumn
	Project Work	PAWI-EN	6	5th semester	autumn
	Internet Service Prototyping	ISPROT-EN	4	5th semester	autumn
	Natural and Technical Systems 2	NTSY2-EN	8	2nd semester	spring
Project Work	PAWI-EN	6		spring	
all programmes	Bionics	BION-EN	2	5th semester	autumn
	Intercultural Communication and Management	ICMGMT-EN	2	5th semester	autumn / spring
	Introductions to Swiss Society and Politics	ISSP-EN	2		autumn / spring ²
	German for Beginners - Incoming Students	GFB	2		autumn / spring ²

¹ choose one of these modules

²spring semester:
availability depending on
number of students

Module Descriptions

General

The module descriptions provide, beside the overall background specific information on the module learning objectives, the competence and taxonomy levels. Together with the requirements, the students are enabled to select right courses according to their interests and background.

The module's learning objectives define the direction and intent of the competences the module is designed to impart to students from the teacher's point of view. The learning objectives describe the competences that the students are expected to acquire from the module.

Competences are defined as a person's capacity to act in a given situation. They thus comprise a statement regarding

- what a learner, in a specific context requiring action on his part, should know, understand (the dimension of knowledge in this context being theoretical and conceptual) and
- be able to do (the dimension of ability and skill in this context being that of principles and techniques), provided that
- the requisite attitude (the dimension of volition in this context being that of appreciation/attitude/motivation)

Competence levels

In all cases where this makes sense and the competences being taught are ones which will be put into concrete effect, the module's learning objectives should cover the following four aspects of competence:

1. Discipline-specific competence (D): the acquisition of various types of knowledge and cognitive ability
2. Methodological competence (M): the ability to put discipline-specific knowledge to use in a planned and purposeful manner. The development of methodological competence should take account of the results and courses of action derived from "graduate qualification" project.
3. Social competence (SO): the ability to shape interpersonal processes effectively and in a manner appropriate to the given situation
4. Personal competence (P): the ability to organise own's one learning, to manage oneself and to reflect on one's actions.

Taxonomy levels

Using Bloom's taxonomy, these competences can be classified according to six requirement levels (C1 to C6). Bloom's taxonomy serves to reproduce learning objectives and the competences associated therewith in as standardised a manner as possible. It is a prerequisite for accreditation purposes.

Level	Information	Taxonomy	Process / behaviour
C1	<i>Remembering Information</i>	<i>Knowledge</i>	Recognising, remembering Known information can be remembered.
K2	<i>Processing information</i>	<i>Comprehension</i>	Interpreting, illustrating, classifying, summarising, deducing, comparing, explaining New information can be processed and classified in a broader context.
C3		<i>Application</i>	Executing, implementing Rules and principles can be applied in defined situations.
C4	<i>Generating information</i>	<i>Analysis</i>	Differentiating, organising, assigning A set of facts can be broken down into its component parts.
C5		<i>Synthesis/creation</i>	Generating, planning, developing Parts or elements can be combined to create a (new) whole.
C6		<i>Assessment/evaluation</i>	Checking, evaluating Judgments can be made as to whether specific criteria have been met.

Graded assignments

Grade assignments:	As defined in table or as required in writing by teacher at beginning of semester					
	description	type	form	scope	grade	weighting
	Graded assignments during teaching semester	Field-assignment reports	written	1 reports	graded	20%
	End-of-semester exam	End-of-modul exam	written	90 min.	graded	80%

The graded assignment are related to the learning objectives. This requirement applies both with regard to the competences the student is expected to acquire and the level of difficulty of the assignment

Type of assignment

- End-of-module exam
- Wrap-up tasks, project documentation
- Field-assignment reports, minutes of meetings, contributions to online forums, websites
- Examination-review interviews, interviews to review current state of progress
- Talks, poster presentations
- Work samples, scientific / practical, discipline-specific activities, exercises, field experiments, laboratory tests, series of practical tasks to be completed sequentially
- Log books, study diaries, learning journals, e-portfolios
- Group puzzles, group examinations
- Test-question development assignments

Form of assignment

- written
- oral
- execution-based (e.g. for discipline-specific practical activities), demonstrating solution strategies, demonstrating specific skills