

Key points

Autonomy of the Universities ⇒ HEIs define their own program

Process of accreditation ~2 years

1st year: Univ. sends to the HCERES* a full review (self-assessment) of its training offer over the past 5 years, i.e. for each course:

- number of graduates and post-graduates
- success rate
- employment rate

The HCERES evaluates the relevance and efficiency of this previous accreditation and sends a report to the University

* **HCERES**=Haut Conseil de l'évaluation de la recherche et de l'enseignement supérieur « High council for the assessment of research and higher education » **independent agency**

Process of accreditation ~2 years

2nd year: Univ. elaborates its new training offer and sends it to the HCERES

- Training offer is designed by pedagogical teams ->depts -> faculties -> university. It is approved within the university by the Council for education and student life
- Each diploma course has a **pedagogical manager**, a **pedagogical team**, and a **council of improvement**. This latter is made of *students, teachers, researchers and representatives of the labor market*
- Each diploma is referenced with respect to a national system of certifications: the National Directory of Professional Certification

(RNCP: <http://www.rncp.cncp.gouv.fr/grand-public/qualificationsFramework>)

Process of accreditation ~2 years

- **various support services**

- ✓ Institutional level

- support for guidance
- internal audit
- Surveys
- network of alumni

- ✓ **Faculty/dept level**

- tracking the current location and responsibilities of former students
- traineeship office: stimulates the offer by companies, collects the offers
- Designation of the internship advisors

University of Strasbourg

- ♦ **48 011** students and **2 778** teaching/research staff
- ♦ **37** teaching & research units, faculties, graduate schools, institutes
- ♦ **72** research laboratories
 - ♦ **32** Bachelor degrees
 - ♦ **63** Masters degrees (graduate)
 - ♦ **12** Technology degrees (Diplômes Universitaires de Technologie)
 - ♦ **8** Engineering degrees
- ♦ **10 PhD Schools / 2432 PhD students**

Training offer of the faculty of Physics & Engin., Univ. Strasbourg

5 bachelor degrees

- Physics
- Engineering sciences
- Double diploma physics&geosciences
- Physics&chemistry (managed by the faculty of chemistry)
- In depth maths & physics (managed by the faculty of maths)

5 professional bachelor degrees

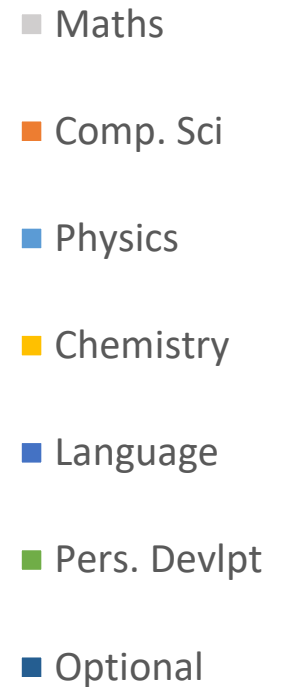
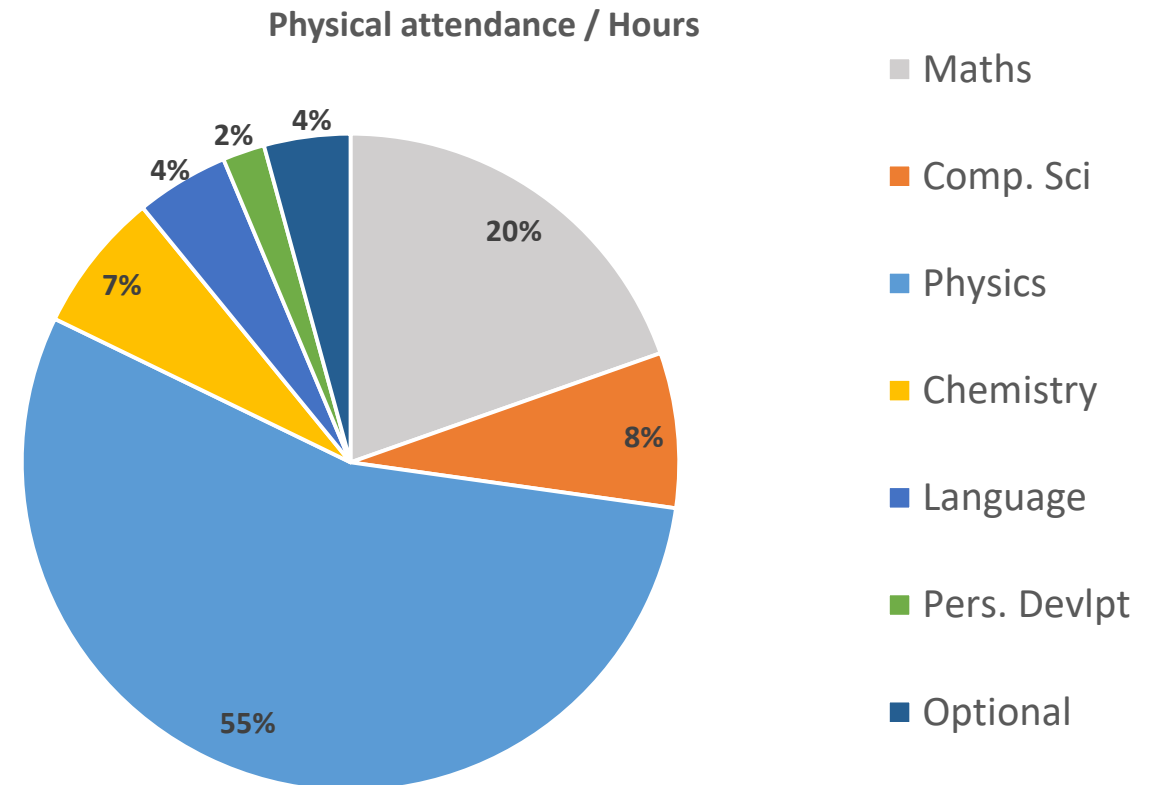
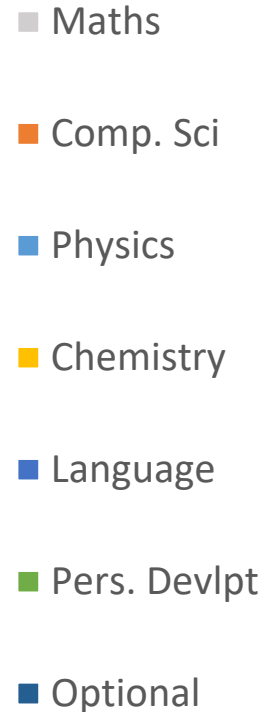
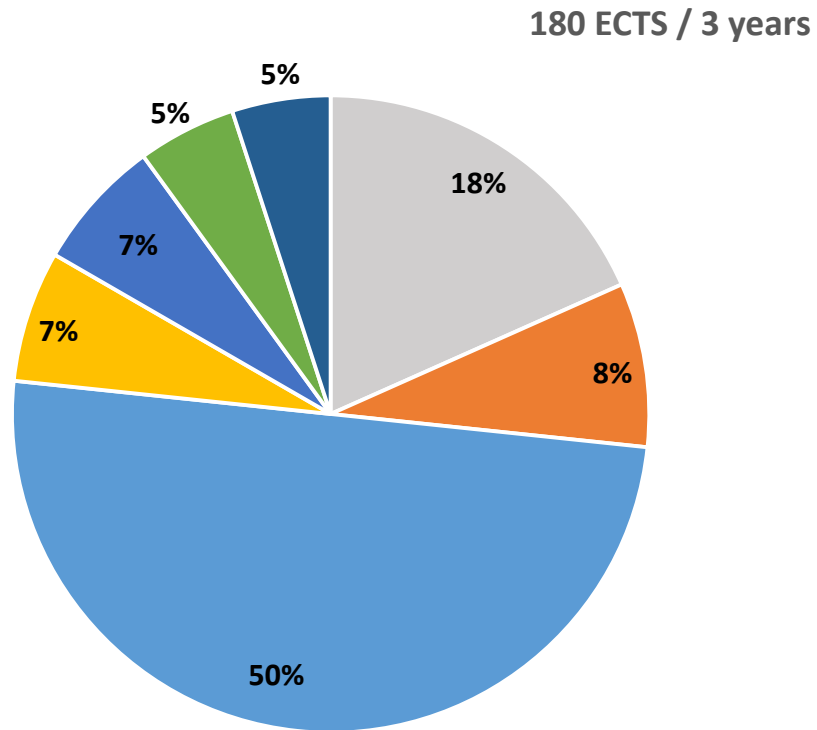
- Optics and eyesight professions
- Installation of industrial appliances abroad
- Products and tools prototyping
- Energy efficiency
- Nuclear sciences technology and radiation protection

5 master degrees

- Applied physics & physical engineering
- Physics
- Industrial engineering
- Teaching, education, & secondary school professions
- Materials sciences & engineering

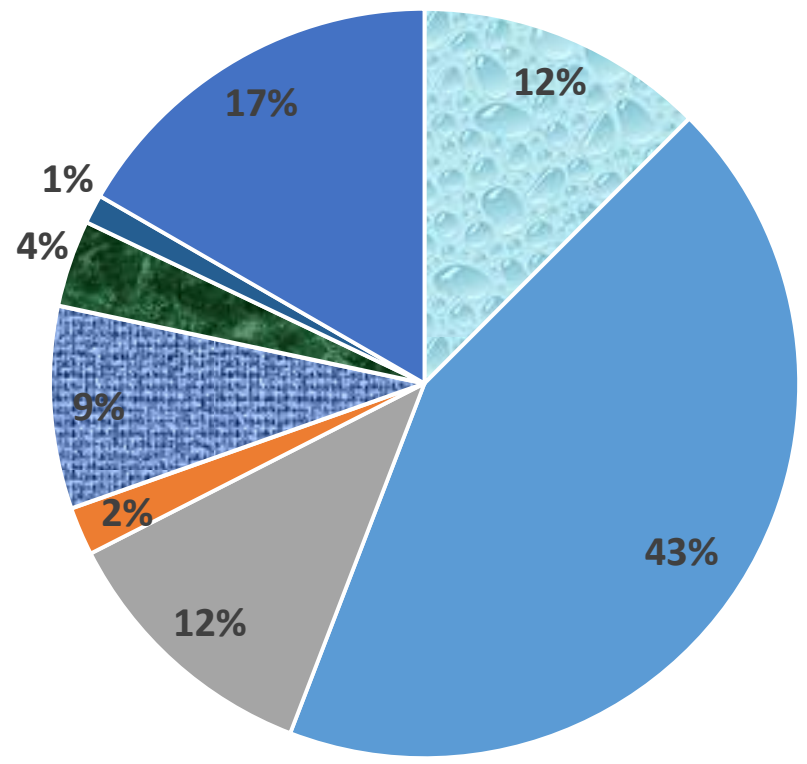
B. Sc. Physics

Univ. Strasbourg / Fac. Physics & Engineering



Note: ca. 27% time experimental practice in physics

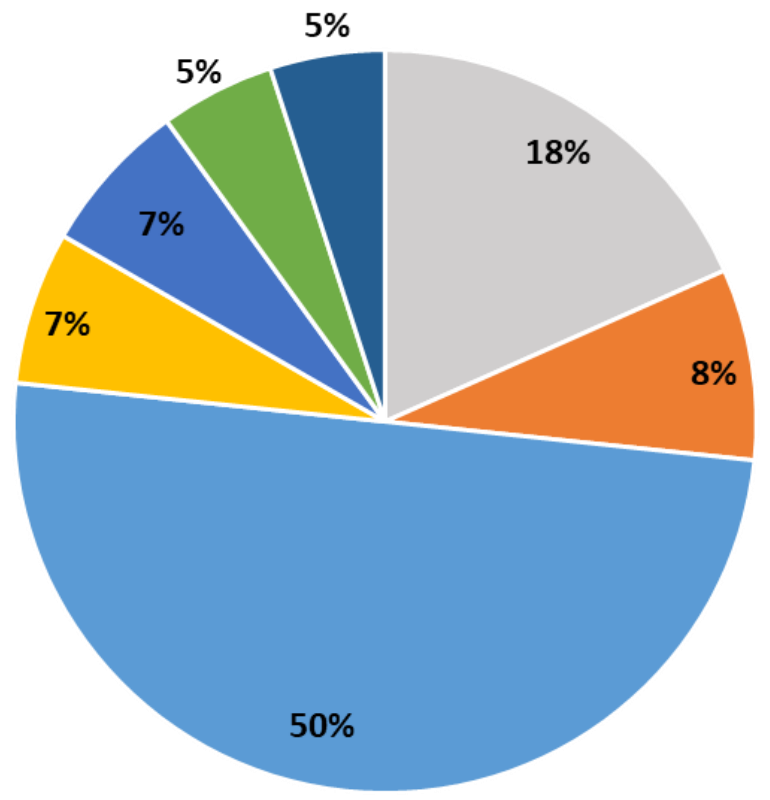
B. Sc. Physics NSHE Azerbaijan
240 ECTS / 4 Years



- Humanities
- Physics
- Maths
- Computer sciences
- Internship
- Defense
- Safety rules
- Electives
- Prof. Train.

B. Sc. Physics Fac. Phys.&Ing. Univ. Strasbourg, France

180 ECTS / 3 years



- Maths
- Comp. Sci
- Physics
- Chemistry
- Language
- Pers. Devlpt
- Optional

EU TUNING programme, 2007

Any physics graduate should then achieve great ability in both **mathematical** and **experimental skills** which are really cornerstones at the heart of any physics learning path. Such competencies entail the development of several other both generic and subject specific competencies, which endow the graduate with a flexible mind, able to approach and model increasingly complex systems, even outside the realm of physical world. Indeed «physics provides an extraordinarily rich package of transferable skills, probably more than any other subject»³.

<http://www.unideusto.org/tuningeu/publications/273-reference-points-for-the-design-and-delivery-of-degree-programmes-in-physics.html>

B. Sc. Physics – main competences (EU TUNING programme, 2010)

- **Generic competences**

- Analysis and synthesis
- Flexible mind
- Team work
- Communication skills
- Popularization skills
- Ethical commitment

- **Subject/specific competences**

- Deep knowledge and understanding
- Estimation skills
- Mathematical skills
- Experimental skills
- Problem solving
- Computational skills
- Physics culture
- Learning ability

B. Sc. Physics – main competences (European Physical Society, 2009)

- **Generic competences**

- Problem Solving
- Analytical
- Investigative
- Communication
- Information Technology
- Personal
- Language
- Ethical behaviour

- **Subject/specific competences**

- Deep knowledge and understanding
- Estimation skills
- Mathematical skills
- Experimental skills
- Problem solving
- Computational skills
- Physics culture
- Learning ability

B. Sc. Physics – Pre-professional competences

Establish his role and mission within an organization to adapt and take initiatives.

Identify the process of production, dissemination and enhancement of knowledge.

Respect the principles of ethics, ethical and environmental responsibility.

Working as part of a team while being independent and responsible with respect to a project.

Identify the professional fields potentially in relation to the achievements of the bachelor curriculum.

Characterize and enhance his identity, his skills and his professional project according to a context.

Able to step back from a situation, self-evaluate and questioning himself in order to improve knowledge

B. Sc. Physics – Transverse and language competences

Use digital tools of reference and the rules of computer security to acquire, process, produce and disseminate information as well as to collaborate internally and externally.

Identify and select various specialized resources to document a subject.

Analyse and summarize data for their treatment.

Develop an argument with critical mind.

Use easily the different registers of written and oral Azerbaijani expression.

Understand, speak and write currently in at least one foreign language.

B. Sc. Physics – Specialized competences

Mobilize the basic concepts in order to: simulate, analyse and solve simple problems

Address a complex problem and solve it step by step

Identify the different steps of an experimental approach and perform it.

Use the measurement devices and measurement techniques commonly used in the lab and in different areas of physics.

Interpret the experimental data in order to be able to simulate them.

Probe a model upon comparing its predictions to experimental results and assess its validity range.

Identify the sources of errors for an experimental result in order to assess its uncertainty range.

Suggest analogies, estimate orders of magnitude, and be able to understand their meaning.

Use the main mathematical tools relevant for physics.

Handle the basic mechanisms at the microscopic scale, simulate the macroscopic phenomena, and make the bridge between macro and micro.

Make a sound use of some data acquisition and analysis software

Use an up-to-date programming language

Identify the currently used techniques in the areas of: fluid mechanics and solid state mechanics, materials science, chemistry, geosciences, thermodynamics and thermal engineering, computer sciences, astronomy

Identify the peculiar regulations and implement the main preventive measures regarding health and safety system.

Examples of syllabus (in French) are available from
Lisa Bydanova, permanent project advisor

B. Sc. Physics / Univ. Strasbourg / Fac. Physics & Engineering

L=Lecture

T=Tutorial

LT= Lecture & Tutorial mixed

P=Practical Work

Lab=research lab

H=Home work

Mandatory

Compulsory

Maths

	L	T	LT	Project/H	P	Lab	ECTS	TOTAL HRS
S1				64	12		9	76
S2				64			6	64
S3			2	80			6	82
S4			2	72			6	74
S5	30	34					6	64
S6								0
TOTAL	30	38	280	12	0	0	33	360

Computer Science

	L	T	LT	Project/H	P	Lab	ECTS	TOTAL HRS
S1								0
S2				12		20	3	32
S3				4		20	3	24
S4		20	8				3	28
S5								0
S6				56			6	56
TOTAL		20	8	72	0	40	0	15

Physics

	L	T	LT	Project/H	P	Lab	ECTS	TOTAL HRS
S1				74	12	12	9	98
S2				86		25	9	111
S3	46	46	22		50		15	164
S4	44	46	42		28		15	160
S5	56	56	48		56		21	216
S6	84	78			28	70	21	260
TOTAL	230	226	272	12	199	70	90	1009

Chemistry

	L	T	LT	Project/H	P	Lab	ECTS	TOTAL HRS
S1		48			30		6	78
S2		24					3	24
S3	25						3	25
S4								0
S5								0
S6								0
TOTAL	25	72	0	0	30	0	12	127

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Options

	L	T	LT	Project/H P	Lab	ECTS
S1						
S2						3 30
S3						0
S4						3 24
S5						0
S6						3 24
TOTAL	0	0	0	0	0	9 78

Foreign language

	L	T	LT	Project/H	P	Lab	ECTS
S1			20				3 20
S2				24			3 24
S3							0
S4			24				3 24
S5			16				3 16
S6							0
TOTAL		0	60	24	0	0	0 12 84

University working methodology / professional project

	L	T	LT	Project/H	P	Lab	ECTS
S1							
/UWM		2	8				3 10
S2 /PP		2	12				3 14
S3 /PP		2	12				3 14
S4							0
S5							0
S6							0
TOTAL		6	32	0	0	0	0 9 38