Incoming Mobility Data Sheet

June 2025

Information and Contacts

TELECOM PHYSIQUE STRASBOURG
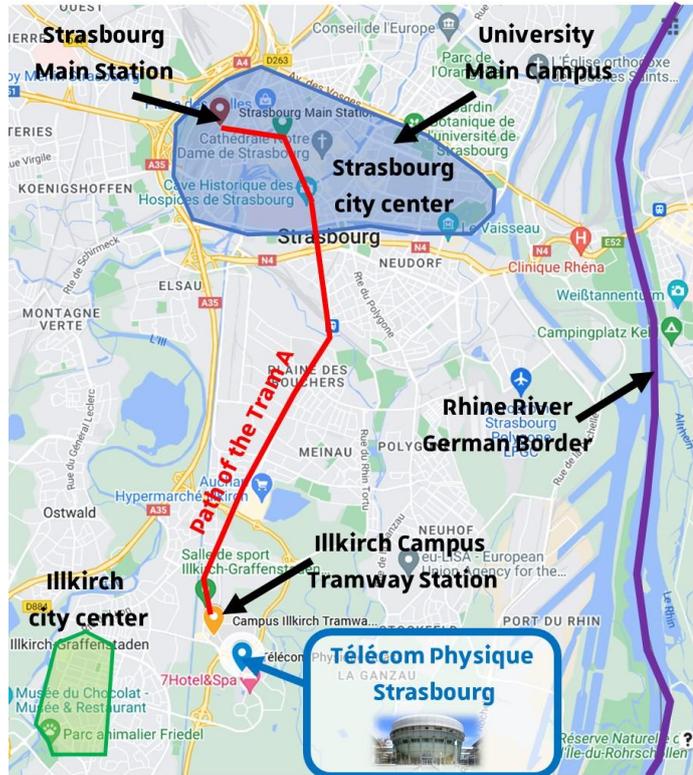
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ACCES BY PUBLIC TRANSPORT

Tramway: A or E
Station: *Campus Illkirch*
Campus at 10 minutes by foot from the station - 20 minutes away from the city center

WEBSITE

https://www.telecom-physique.fr/en/

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International exchange opportunities

Télécom Physique Strasbourg (TPS) is a graduate school of engineering (French "Grande École") which is also internal institution of the University of Strasbourg. TPS has been pursuing for several years a policy aiming at attracting motivated students to both acquire new skills on one of the specialties taught at TPS (biomedical engineering, data sciences, physics and photonics) and discover French culture and language. Exchange students coming from partner universities can be admitted at TPS in four different ways:

- A one-semester academic mobility in one of our curriculums open for student exchange;
- A mobility for research project in one of the laboratories on which the school leans back
- A full master program: HealthTech
- One of the double-degree or specific programs

ONE-SEMESTER ACADEMIC MOBILITY

The following curriculum are accessible for English-speaking students (B2-level required)

- Dept. of Biomedical Engineering - Engineering with Life and Physical Sciences (*Spring Semester)*
- Dept. of Biomedical Engineering - Diagnosis and Innovative Medical Treatment (*Spring Semester)*
- Dept. of Biomedical Engineering - Diagnosis and Innovative Medical Treatment (*Fall Semester)*
- Dept. of Biomedical Engineering - Innovative Therapies (*Spring Semester)*
- Dept. of Biomedical Engineering - Innovative Therapies (*Fall Semester)*
- Dept. of Physics – Photonics (*Fall semester)*
- Dept. of Electrical and Computer Engineering – Data Science and Artificial Intelligence (Fall Semester)

Fall semester courses are planned between September and January and corresponds to M2-level courses. Spring semester courses are planned between January and May and corresponds to M1-level courses.

These are the curriculums offered to English-speaking students. French-speaking students (B2-level required) have access to all the school's curriculums described here.

MOBILITY FOR A RESEARCH PROJECT

Télécom Physique Strasbourg and the laboratories on which the school leans back offer the opportunity to join us for a mobility semester based on a research project. For such mobility, student have first to get in touch one of the research teams that can accommodate them (see table below) and to identify a research topic that suits her background and professional project. The duration of the research project can be up to

300 hours and can be credited with up to 20 ECTS. Beside the research project, students have to join the French culture and language course unit (40 h, 3 ECTS) as well as elective courses. Due to timetable constraints, all elective courses have to be chosen within the same department and, if specified, within the same track inside the department.

Availability of this mobility and course list associated with each department depends on the semester:

- Department of Biomedical Engineering (BME)
  - Spring semester
  - Fall semester
- Department of Physics (PHY)
  - Fall semester
- Department of Electrical and Computer Engineering (ECE)
  - Fall Semester
- Department of Computer Sciences and Networks (CSN)
  - Fall semester

Example of topics for the research project can be found directly of the website of the research teams associated with each department

	BME	PHY	ECE	CSN
ICube – Control, Vision and Robotics	X		X	X
ICube – Data Science and Knowledge			X	X
ICube – Electronics, microelectronics and modeling for multidomain systems	X	X		
ICube – IMages, leArning, Geometry and Statistics	X		X	X
ICube – Integrative Multimodal Imaging in Healthcare	X		X	
ICube – Machine Learning, Modeling and Simulation	X			X
ICube – Materials for information technology, sensing and energy conversion		X		
ICube – Multiscale Materials and Biomechanics	X			
ICube – Networks				X
ICube – Photonics Instrumentation and Processes	X	X		
ICube – Remote Sensing, Radiometry and Optical Imaging	X	X	X	
IPCMS – Ultrafast Optics and Nanophotonics		X		
Centre for Studies and Expertise on Risks, the Environment, Mobility and Urban Planning			X	
IHU Strasbourg	X		X	

Research project can also be carried out in the InnovLab of Telecom Physique Strasbourg

HEALTHTECH MASTER PROGRAM

HealthTech offers a highly competitive interdisciplinary graduate program, fully taught in English, dedicated to information science and technology for healthcare. Curriculum topics range from medical imaging, robotics and artificial intelligence to economics, data science and medicine. Curriculums and admission procedures are described directly on the HealthTech website.

DOUBLE DEGREES AND SPECIFIC PROGRAMS

Télécom Physique Strasbourg has some specific programs with partners universities:

- **Hochschule Karlsruhe and Offenburg (Germany)**: students from these two universities can join the DaSAI (Data Sciences and Artificial Intelligence) double Master's degree program. In this case, they join Télécom Physique Strasbourg for the fall semester of their Master 2. The courses taken as part of this double degree are described here.
- **Universidade de Brasilia (Brazil)**: At the end of the first year of a Master's degree at UnB, students can enroll in a double degree program to receive the degree in Engineering of Télécom Physique Strasbourg on the top of the Master's degree from their home university. For that purpose, students have to spend 3 full semesters at Télécom Physique Strasbourg. During these semesters, they will follow lectures (most of them being held in French) of one of the tracks of the Degree in engineering of TPS. List of possible tracks is given here.
- **Huazhong University of Science and Technology (China)**: Students from this university can join Télécom Physique Strasbourg as part of a 3+3 program. Selected students enroll for the first year at the Institut International d'Études Françaises of the University of Strasbourg to take intensive French courses (200h/semester). In addition, they follow sone French-taught technical courses and work on a research project to validate the HUST Bachelor's degree (BENKE). Students with level B2 in French and the BENKE can then enroll in the Robotics, Imaging and Biomedical Engineering master degree.

FRENCH LANGUAGE AND INTERCULTURALITY

All incoming students will attend the French Language and Interculturality course unit consists of about 40 hours and grants 3 ECTS. The course unit is composed of:

- 25 hours of French as a foreign language teaching
- 15 hours of discovering French culture through trips in Strasbourg organized by a tour guide.

Incoming mobility students visiting the headquarter if the European Parliament (march 2024 – photo: C. Franc)

Programs and Curriculums

Dept. of Biomedical Engineering - Engineering with Life and Physical Sciences (Spring Semester)

Department of Biomedical Engineering

Engineering with Life and Physical Sciences
Spring Semester

COURSE	HOURS	ECTS
COURSE UNIT 1: MEDICAL APPLICATIONS		
Clinical Translation	10	1
Medical and surgical procedures	18	2
COURSE UNIT 2: BIOMECHANICS		
Biomechanics and Health	60	6
Project	50	5
COURSE UNIT 3: IMAGE PROCESSING AND VISION		
Image Processing	26	3
Medical Imaging and Processing	12	1
Computer Vision	16	2
COURSE UNIT 4: R&D PROJECT		
Research and Development Project	50	5
COURSE UNIT 5: FRENCH LANGUAGE AND INTERCULTURALITY		
French Language	25	2
Interculturality	15	1
TOTAL	**282**	**30**

Department of Biomedical Engineering

Diagnosis and Innovative Medical Treatment
Spring Semester

COURSE	HOURS	ECTS
COURSE UNIT 1: MEDICAL APPLICATIONS		
Clinical Translation	10	1
Medical and surgical procedures	18	2
COURSE UNIT 2: IMAGE PROCESSING AND VISION		
Image Processing	28	3
Analysis of biological images	20	2
Machine Learning	21	2
Medical Imaging and Processing	12	1
Computer Vision	16	2
COURSE UNIT 3: SYSTEM CONTROL AND ROBOTICS		
Software tools for robotics	16	2
Mechatronics and haptics	41	5
Optimization	24	2
COURSE UNIT 4: R&D PROJECT		
Research and Development Project	50	5
COURSE UNIT 6: FRENCH LANGUAGE AND INTERCULTURALITY		
French Language	25	2
Interculturality	15	1
TOTAL	**296**	**30**

Department of Biomedical Engineering

Diagnosis and Innovative Medical Treatment
Fall Semester

COURSE	HOURS	ECTS
COURSE UNIT 1 : IMAGING AND MEDICAL IMAGE PROCESSING		
Advanced Medical Image Processing	21	2
Technology of Imaging Systems	27	3
Biomedical Acoustics	19	2
COURSE UNIT 2: MODELING OF LIVING SYSTEMS AND SIMULATION		
Modeling of Living Systems	20	2
Biomechanics and Numerical Simulation	16	1
Real-time Simulation	33	3
COURSE UNIT 3 : MEDICAL ROBOTICS		
Robotics	26	3
Pose Estimation	14	1
3D Medical Registration	23	2
Computer-Assisted Medical Interventions	28	3
COURSE UNIT 4: R&D PROJECT		
Research and Development Project	50	5
COURSE UNIT 6: FRENCH LANGUAGE AND INTERCULTURALITY		
French Language	25	2
Interculturality	15	1
TOTAL	**317**	**30**

Department of Biomedical Engineering

Innovative Therapies
Spring Semester

COURSE	HOURS	ECTS
COURSE UNIT 1: MEDICAL APPLICATIONS		
Clinical Translation	10	1
Medical and surgical procedures	18	2
COURSE UNIT 2: IMAGE PROCESSING AND DATA SCIENCES		
Image Processing	28	3
Analysis of biological images	20	2
Intro. to Computational Biology	12	1
Project	50	5
COURSE UNIT 3: ELECTRONICS		
Communication protocols	12	1
Circuits and systems	18	2
Project of design of an embedded system	20	2
COURSE UNIT 4: PHYSICS		
Physics of lasers and optical fibers	13	1
Nanosciences	7	1
Physics of sensors	13	1
COURSE UNIT 5: R&D PROJECT		
Research and Development Project	50	5
COURSE UNIT 6: FRENCH LANGUAGE AND INTERCULTURALITY		
French Language	25	2
Interculturality	15	1
TOTAL	**311**	**30**

Department of Biomedical Engineering

Innovative Therapies

Fall Semester

COURSE	HOURS	ECTS
COURSE UNIT 1: BIOLOGICAL INSTRUMENTATION		
Optical Biosensor (Plasmonics)	30	3
Impedance Spectroscopy	11	1
Optical Instrumentation for Biomedical	11	1
Cell Culture and Instrumentation	22	2
COURSE UNIT 2: NANOSCIENCES AND LAB-ON-CHIPS		
Nanosciences	23	2
Biochip Practical Works	20	2
Lab-on-chips	20	2
COURSE UNIT 3: INNOVATION IN VECTORIZATION		
PHARMATECH Project	120	8
Seminars and Bibliographic Studies	15	1
COURSE UNIT 4: R&D PROJECT		
Research and Development Project	50	5
COURSE UNIT 5: FRENCH LANGUAGE AND INTERCULTURALITY		
French Language	25	2
Interculturality	15	1
TOTAL	**322**	**30**

Department of Physics

Photonics

Fall Semester

COURSE	HOURS	ECTS
COURSE UNIT 1: LASERS AND NON-LINEAR OPTICS		
Lasers and Femtosecond Techniques	19	2
Non-linear Optics	20	2
High-Power Lasers and Applications	21	2
COURSE UNIT 2: MICRO AND NANOPHOTONICS		
Metamaterials and Photonic Cristals	16	2
Micro- and Nano-manufacturing	13	1
Advances Microscopy	13	1
Plasmonic and Bio-applications	16	2
COURSE UNIT 3: METROLOGY		
Optical Metrology	28	3
Interferometric Systems and Imaging	21	2
Photonic Signal Processing	13	1
COURSE UNIT 4: DEVICES AND SYSTEMS		
Diffractive Optical Devices and CAD Tools	24	2
Biomedical Optics	20	2
COURSE UNIT 5: R&D PROJECT		
Research and Development Project	50	5
COURSE UNIT 6: FRENCH LANGUAGE AND INTERCULTURALITY		
French Language	25	2
Interculturality	15	1
TOTAL	**322**	**30**

Department of Electrical and Computer Engineering
Department of Electrical and Computer Engineering
Data Science and Artificial Intelligence
Fall Semester

COURSE	HOURS	ECTS
COURSE UNIT 1: ARTIFICIAL INTELLIGENCE		
Machine Learning	20	2,5
Deep Learning	20	2,5
Selected Topics in IA	16	1,5
Machine Learning Workshops	20	2
COURSE UNIT 2: IMAGE PROCESSING AND VISION		
Basics of Image Processing	25	3
Artificial Vision	30	3
COURSE UNIT 3: APPLIED IMAGE PROCESSING		
Medical Image Processing	11	1
Advanced Medical Image Processing Methods	32	3
Biological Image Processing and Bioinformatics	21	2
Earth Observation	11	1
COURSE UNIT 4: R&D PROJECT		
Research and Development Project	50	5
COURSE UNIT 5: FRENCH LANGUAGE AND INTERCULTURALITY		
French Language	25	2
Interculturality	15	1
TOTAL	**322**	**30**

Department of Biomedical Engineering

List of elective courses
Spring Semester

Due to timetable constraints, students can only choose courses within the same track

COURSE	HOURS	ECTS
TRACK 1: ENGINEERING WITH LIFE AND PHYSICAL SCIENCES		
Clinical Translation	10	1
Medical and surgical procedures	18	2
Biomechanics and Health	60	6
Image Processing	26	3
Medical Imaging and Processing	12	1
Computer Vision	16	2
TRACK 2: DIAGNOSIS AND INNOVATIVE MEDICAL TREATMENT		
Clinical Translation	10	1
Medical and surgical procedures	18	2
Image Processing	28	3
Analysis of biological images	20	2
Machine Learning	21	2
Medical Imaging and Processing	12	1
Computer Vision	16	2
Software tools for robotics	16	2
Mechatronics and haptics	41	5
TRACK 3: INNOVATIVE THERAPIES		
Clinical Translation	10	1
Medical and surgical procedures	18	2
Image Processing	28	3
Analysis of biological images	20	2
Intro. to Computational Biology	12	1
Communication protocols	12	1
Circuits and systems	18	2
Project of design of an embedded system	20	2
Physics of lasers and optical fibers	13	1
Nanosciences	7	1
Physics of sensors	13	1

Department of Biomedical Engineering

List of elective courses
Fall Semester

Due to timetable constraints, students can only choose courses within the same track

COURSE	HOURS	ECTS
TRACK 1: ENGINEERING WITH LIFE AND PHYSICAL SCIENCES		
Biomechanics and numerical modeling	56	5
Biomechanics and materials	25	2
Biomechanics and rheology	25	2
3D Modeling and Surgical Simulation	43	4
Biomechanics of shocks and vibrations	14	1
TRACK 2: DIAGNOSIS AND INNOVATIVE MEDICAL TREATMENT		
Advanced Medical Image Processing	21	2
Technology of Imaging Systems	27	3
Biomedical Acoustics	19	2
Robotics	26	3
Pose Estimation	14	1
3D Medical Registration	23	2
Computer-Assisted Medical Interventions	28	3
Modeling of Living Systems	20	2
Biomechanics and Numerical Simulation	16	1
Real-time Simulation	33	3
TRACK 3: INNOVATIVE THERAPIES		
Optical Biosensor (Plasmonics)	30	3
Impedance Spectroscopy	11	1
Optical Instrumentation for Biomedical	11	1
Cell Culture and Instrumentation	22	2
Nanosciences	23	2
Biochip Practical Works	20	2
Lab-on-chips	20	2

Department of Physics

List of elective courses
Fall Semester

COURSE	HOURS	ECTS
Lasers and Femtosecond Techniques	19	2
Non-linear Optics	20	2
High-Power Lasers and Applications	21	2
Metamaterials and Photonic Cristals	16	2
Micro- and Nano-manufacturing	13	1
Advances Microscopy	13	1
Plasmonic and Bio-applications	16	2
Optical Metrology	28	3
Interferometric Systems and Imaging	21	2
Photonic Signal Processing	13	1
Diffractive Optical Devices and CAD Tools	24	2
Biomedical Optics	20	2

**Department of Electrical
and Computer Engineering**

List of elective courses

Fall Semester

COURSE	HOURS	ECTS
Machine Learning	20	2,5
Deep Learning	20	2,5
Selected Topics in IA	16	1,5
Machine Learning Workshops	20	2
Basics of Image Processing	25	3
Artificial Vision	30	3
Medical Image Processing	11	1
Advanced Medical Image Processing Methods	32	3
Biological Image Processing and Bioinformatics	21	2
Earth Observation	11	1

Department of Computer Sciences and Networks

List of elective courses
Fall Semester

COURSE	HOURS	ECTS
Machine Learning	20	2,5
Deep Learning	20	2,5
Selected Topics in IA	16	1,5
Machine Learning Workshops	20	2
Basics of Image Processing	25	3
Artificial Vision	30	3
Medical Image Processing	11	1
Advanced Medical Image Processing Methods	32	3
Biological Image Processing and Bioinformatics	21	2
Earth Observation	11	1

Department of Electrical and Computer Engineering

DaSAI Double Degree

Fall Semester

COURSE	HOURS	ECTS
COURSE UNIT 1: DATA SCIENCES: METHODS AND APPLICATIONS **ELECTIVE COURSES (12 ECTS MIN.)**		
Machine Learning	20	2,5
Deep Learning	20	2,5
Selected Topics in IA	16	1,5
Artificial Vision	30	3
Advanced Medical Image Processing Methods	32	3
Biological Image Processing and Bioinformatics	21	2
Medical Image Processing	11	1
Earth Observation	11	1
Basics of Image Processing	25	3
Apprentissage et reconnaissance des formes (***held in French***)	32	3
Estimation robuste (***held in French***)	11	1
Apprentissage profond – deep learning (***held in French***)	21	2
COURSE UNIT 2: PROJECTS		
Machine Learning Workshops	20	2
Tutored Projects in the InnovLab	50	4
Research Project	120	9
COURSE UNIT 3: FRENCH LANGUAGE AND INTERCULTURALITY		
French Language	25	2
Interculturality	15	1

TOTAL	**about 350**	**30**