Vice Presidency for Academic Affairs
Registrar's Office

Bühler Baptiste

Federal number: **20-813-200**

Diploma supplement

Bachelor of Science BSc in Mechanical Engineering

Section:

Mechanical Engineering

This Diploma Supplement model was developed by the European Commission, Council of Europe and UNESCO/CEPES. The purpose of the supplement is to provide sufficient independent data to improve the international «transparency» and fair academic and professional recognition of qualifications (diplomas, degrees, certificates etc.). It is designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. It should be free from any value judgements, equivalence statements or suggestions about recognition. Information in all eight sections should be provided. Where information is not provided, an explanation should give the reason why.

1. Information concerning the holder of the diploma

1.1	Family name(s)	**Bühler**
1.2	First name	**Baptiste**
1.3	Date of birth	**December 17th, 2000**
1.4	Federal registration number	**20813200**

2. Information concerning the diploma

2.1 Type of qualification and title conferred with official abbreviation (in original language)

Qualification	**Bachelor of Science BSc**
BSc Title	**Bachelor of Science BSc in Mechanical Engineering**

2.2 Main fields of study covered by the qualification

Basic Sciences, Basic knowledge of Mechanical Engineering.

2.3 Name and status of the awarding institution (in original language)

École polytechnique fédérale de Lausanne, Suisse (EPFL)

EPFL - Foundation and Development

Created in 1853 as the École Spéciale de Lausanne, the institution became the Swiss Federal Institute of Technology Lausanne in 1969. EPFL has kept evolving, restructuring its programs and creating new curricula, thus anticipating the scientific and technological developments. Today, EPFL is among the world's top technological universities and a strategic center of innovation in Switzerland.

At a national level, EPFL is expanding by establishing specialized research centers, including outposts in Neuchatel (Microcity), Sion (Energypolis), Geneva (Campus Biotech), and Fribourg (Smart Living Lab). Each of these research centers is active in a field

that is of particular importance to the region where it is located.

EPFL has positioned itself as a research-intensive university of technology, where science and engineering come together to benefit education as well as fundamental and applied research.

EPFL Facts - 2022

- 12'576 students, including 2'284 doctoral students, representing over 120 nationalities
- 6'468 employees, including 366 faculty members and 3'942 scientific collaborators
- 1'248 Master and 453 Doctorate degrees were delivered in 2022
- 444 laboratories, 80 research groups
- 113 Start-ups, 27 Corporate companies, 6 SME and 18 Service providers representing a total of 2'837 employees at EPFL Innovation Park
- 1'200'000 visitors to the Library, collections with 243'000 volumes; campus-wide online access to 31 databases, over 24'000 scientific journals and over 160'000 ebooks
- a total budget in excess of CHF 1 billion

Study Programs

- School of Architecture, Civil and Environmental Engineering (ENAC): Architecture; Civil Engineering; Environmental Sciences and Engineering
- School of Engineering (STI): Electrical and Electronic Engineering; Mechanical Engineering; Materials Science and Engineering; Microengineering; Robotics; Energy Science and Technology
- School of Computer and Communication Sciences (IC): Computer Science; Communication Systems; Data Science; Cyber Security
- School of Basic Sciences (SB): Physics; Applied Physics; Mathematics; Applied Mathematics; Molecular and Biological Chemistry; Chemical Engineering and Biotechnology, Computational Science andEngineering; Nuclear Engineering; Statistics; Chemistry and Chemical Engineering
- School of Life Sciences (SV): Life Sciences Engineering
- College of Management of Technology (CDM): Management, Technology and Entrepreneurship; Financial Engineering, Sustainable Management and Technology
- College of Humanities (CDH): Digital Humanities

The EPFL programs are certified by the Swiss agency for accreditation and quality assurance (AAQ), and those in engineering have also been certified by the French Commission des Titres d'Ingénieur (CTI). Thanks to this double certification, EPFL degrees receive the label EUR-ACE and are recognized throughout Europe.

Technology transfer

EPFL acts as a start-up incubator to assure the technology transfer from academic results into industrial development. During the last decade, EPFL scientists have created an average of one new business every month. The EPFL Innovation Park hosts about 160 companies including more than 25 large international groups and over 130 start-ups, SME and service companies.

International Relations

While preserving the coherence of rigorous scientific training, EPFL offers its students exchange possibilities thanks to agreements with more than 200 carefully selected partner universities worldwide. EPFL is also a member of several academic networks, such as EuroTech, RESCIF and CESAER, which promote scientific collaborations as well as student and faculty mobility.

2.4 Name and status of institution (if different from 2.3) administering studies

Courses in management, marketing or economics can be chosen at the Ecole des HEC (University of Lausanne).

2.5 Languages of instruction/examination

In the grade sheet, the subject titles are referred to in the language of instruction and examination, followed by the English version if necessary.

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3. Information concerning the level of qualification

3.1 Level of qualification

Bachelor: First academic degree

3.2 Official duration of studies

The Bachelor comprises two stages:
a. Foundation programme of 2 semesters = 60 ECTS credits
b. Bachelor programme of 4 semesters = 120 ECTS credits

1 credit = 25-30 hours of workload

3.3 Admission requirements

Federally recognised, federal or cantonal "Maturité" or foreign upper secondary school leaving certificate recognised as equivalent.

4. Information concerning programme content and results gained

4.1 Mode of study

Full-time

4.2 Programme requirements

180 credits obtained (see grade sheet)

4.3 Programme details and individual grades/marks/credits obtained

See grade sheet

4.4 Grading system and if available information concerning allocation of grades

Marking system EPFL

Excellent	6.0
Very good	5.5
Good	5.0
Satisfactory	4.5
Pass	4.0
Fail	3.5
Poor	3.0
Poor to very poor	2.5
Very poor	2.0
Not measurable	1.0

4.5 Overall classification of the qualification

No final classification attributed
Final Bachelor grade: 5.16 / 6

5. Information concerning the function of the qualification

5.1 Access to further studies

Offers access to the corresponding field of study at Master level.

5.2 Professional status

No professional status awarded.

6. Additional information

6.1 Additional details on the individual course of the studies:

Number of semesters abroad:	**2**
School abroad:	**Korea Advanced Institute of Science and Technology KAIST, Daejon**

6.2 Others sources of information

Mechanical Engineering Section
EPFL Faculté STI
Bâtiment ME
Station 9
CH-1015 Lausanne
Tel: + 41 (0)21 6932947
Web: http://sgm.epfl.ch/
E-mail: sgm@epfl.ch

Registrar's office
EPFL AVP-E SAC
BP - Ecublens
Station 16
CH-1015 Lausanne
Tel: + 41 (0)21 693 43 45
Web: https://www.epfl.ch/education/studies/
E-mail: student.services@epfl.ch

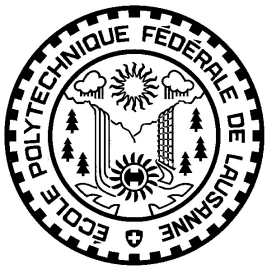
ENIC network: http://www.enic.ch
swissuniversities: http://www.swissuniversities.ch

7. Endorsement of the Diploma Supplement

August 16th, 2023

Associate Vice President for Education

Professor Pierre Dillenbourg



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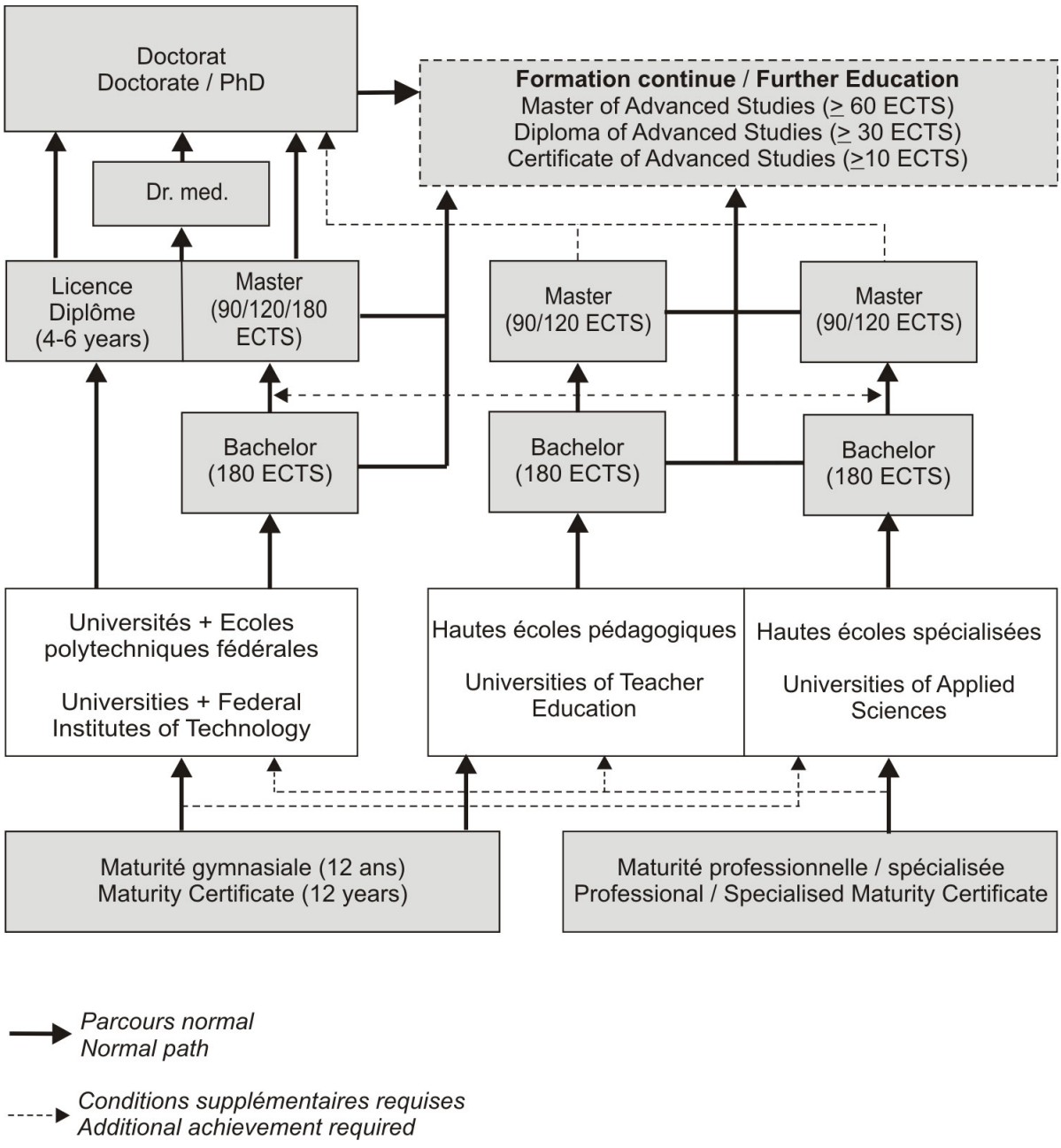
8. Information on the Swiss education system



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9.Description of courses attended

CS-119(a) Information, Computation, Communication
Coefficient : 6.
Lecturers : Lévêque Olivier, Stojilovic Mirjana. Semester : 2020-2021 Bachelor semester 2
On one side, this course covers the concepts of algorithms, the representation of information, signal sampling and compression, and an overview of systems (CPU, memory, etc.). On the other side, an introduction to programming is given.
D'une part, le cours aborde: (1) la notion d'algorithme et de représentation de l'information, (2) l'échantillonnage d'un signal et la compression de données et (3) des aspects liés aux systèmes: ordinateur, mémoire, etc. D'autre part, le cours donne une introduction à la programmation.

EE-106 Electrical engineering science & technology
Coefficient : 5.
Lecturers : Zoia Roberto. Semester : 2020-2021 Bachelor semester 1
This course introduces the fundamental laws of electricity and the methods for analyzing linear electrical circuits, consisting of resistors, capacitors and inductors. We will start with the Direct Current circuits and then switch to single-phase and three-phase Alternating Current circuits.
Ce cours introduit les lois fondamentales de l'électricité et les méthodes permettant d'analyser des circuits électriques linéaires, composés de résistances, condensateurs et inductances. On commencera par le régime continu pour passer ensuite au régime alternatif sinusoïdal monophasé et triphasé.

HUM-125(b) Global issues: health B
Coefficient : 2.
Lecturers : David Thomas, Dhar Neeraj. Semester : 2020-2021 Bachelor semester 2
The course covers global health issues. It discusses the challenge of infectious and neurodegenerative disease. The interdisciplinary approach integrates SHS with engineering sciences and introduces students to working in teams and to scientific methodologies.
Le cours présente l'enjeu mondial de la santé. Il aborde les défis posés par les maladies infectieuses et les maladies neurodégénératives. L'approche interdisciplinaire intègre les SHS et les sciences de l'ingénieur et initie au travail de groupe et à la méthodologie scientifique.

HUM-256 Brain, mind and society
ECTS Credits : 2.
Lecturers : Preissmann Delphine. Semester : 2021-2022 Bachelor semester 3
This course aims to address topics related to research on brain causes of human actions. The course will introduce to fundamental concepts in psychology, cognitive and social neurosciences and the links between brain and mental illness.
Ce cours aborde les sujets relatifs aux recherches sur les bases cérébrales des actions humaines, en revenant notamment sur l'histoire du cerveau, les changements actuels liés au développement des neurosciences, ainsi que les liens entre cerveau et maladie mentale.

HUM-257 Health, populations and society
ECTS Credits : 2.
Lecturers : Bochud Murielle. Semester : 2021-2022 Bachelor semester 4
This course uses the topic of tobacco as a guideline for exploring the various dimensions of a major public health problem & its multiple implications. The teacher will extend the discussion of tobacco products to other similar issues. Global health issues will be addressed.
Ce cours prend le tabac comme fil conducteur pour explorer les diverses dimensions d'un problème de santé publique majeur & ses implications multiples. L'enseignant étendra la discussion liée aux produits du tabac à d'autres problématiques semblables. Des questions de santé globale seront abordées.

MATH-101(c) Analysis I
Coefficient : 6.
Lecturers : Friedli Sacha. Semester : 2020-2021 Bachelor semester 1
We study the fundamental concepts of analysis, calculus and the integral of real-valued functions of a real variable.
Étudier les concepts fondamentaux d'analyse et le calcul différentiel et intégral des fonctions réelles d'une variable.

MATH-106(b) Analysis II
Coefficient : 6.
Lecturers : Buffoni Boris. Semester : 2020-2021 Bachelor semester 2
The course studies fundamental concepts of analysis and the calculus of functions of several variables.
Étudier les concepts fondamentaux d'analyse et le calcul différentiel et intégral des fonctions réelles de plusieurs variables.

MATH-111(c) Linear Algebra
Coefficient : 6.
Lecturers : Pouchon Orane. Semester : 2020-2021 Bachelor semester 1
The purpose of the course is to introduce the basic notions of linear algebra and its applications.
L'objectif du cours est d'introduire les notions de base de l'algèbre linéaire et ses applications.

MATH-202(c) Analysis III
ECTS Credits : 5.
Lecturers : Cibils Michel Bernard. Semester : 2021-2022 Bachelor semester 3
The course studies the fundamental concepts of vector analysis and Fourier-Laplace analysis with a view to their use in solving multidisciplinary problems of scientific engineering.
Le cours étudie les concepts fondamentaux de l'analyse vectorielle et de l'analyse de Fourier-Laplace en vue de leur utilisation pour résoudre des problèmes pluridisciplinaires d'ingénierie scientifique.

MATH-207(c) Analysis IV
ECTS Credits : 4.
Lecturers : Cibils Michel Bernard. Semester : 2021-2022 Bachelor semester 4
The course studies the fundamental concepts of complex analysis with a view to their use in solving multidisciplinary problems of scientific engineering.
Le cours étudie les concepts fondamentaux de l'analyse complexe en vue de leur utilisation pour résoudre des problèmes pluridisciplinaires d'ingénierie scientifique.

MATH-234(d) Probability and statistics
ECTS Credits : 4.
Lecturers : Wilhelm Matthieu. Semester : 2021-2022 Bachelor semester 3
This course teaches the basic concepts of probability theory and statistics, such as inference, testing and regression.
Ce cours enseigne les notions élémentaires de la théorie de probabilité et de la statistique, tels que l'inférence, les tests et la régression.

MATH-251(b) Numerical analysis
ECTS Credits : 4.
Lecturers : Picasso Marco. Semester : 2021-2022 Bachelor semester 4
To learn how to solve numerically various mathematical problems. The theoretical properties of these methods will be investigated.
L'étudiant apprendra à résoudre numériquement divers problèmes mathématiques. Les propriétés théoriques de ces méthodes seront discutées.

ME-101 Mechanical construction I (for ME)
Coefficient : 3.
Lecturers : Lacour Bertrand Hervé Laurent, Soubielle Sébastien Philippe. Semester : 2020-2021 Bachelor semester 1
This course aims to acquire the basic concepts allowing the creation of documents relating to mechanical engineering by classical pathway (drawing on paper) and electronically (using DAO software). Acquired concepts will enable to implement plans, within the standards
Ce cours vise l'acquisition des notions de base permettant la réalisation de documents relatifs à la construction mécanique, par voie classique (dessin sur papier) et informatique (utilisation d'un logiciel DAO). Les notions acquises permettront d'effectuer une mise en plans en respectant les normes

ME-102 Mechanical construction II (for ME)
Coefficient : 3.
Lecturers : Lacour Bertrand Hervé Laurent, Soubielle Sébastien Philippe. Semester : 2020-2021 Bachelor semester 2
This course aims to acquire the basic concepts allowing the creation of documents relating to mechanical engineering by classical pathway (drawing on paper) and electronically (using DAO software). Acquired concepts will enable to implement plans, within the standards
Ce cours vise l'acquisition des notions de base permettant la réalisation de documents relatifs à la construction mécanique, par voie classique (dessin sur papier) et informatique (logiciel DAO). Les notions acquises permettront d'effectuer une mise en plans en respectant les normes

ME-104 Introduction to structural mechanics
Coefficient : 6.
Lecturers : Nunes Pereira de Almeida Reis Pedro Miguel. Semester : 2020-2021 Bachelor semester 2
The student will acquire the basis for the analysis of static structures and deformation of simple structural elements. The focus is given

to problem-solving skills in the context of engineering design.
Introduction à l'analyse des structures statiques et à la déformation d'éléments structurels simples.

ME-201 Continuum mechanics
ECTS Credits : 4.
Lecturers : Kolinski John Martin. Semester : 2021-2022 Bachelor semester 4
The student acquires the basic operations of indicial notation, orthogonal transformation, Cartesian tensors; various deformation and stress tensors; conservation laws; constitutive equations for simple fluids and solids with examples on Newtonian fluids and linear elastic solids.
L'étudiant acquiert la base de la notation indicielle, transformation orthogonale, tenseurs cartésiens ; les tenseurs de déformation et des contraintes ; les lois de conservation; des équations constitutives des fluides et solides en soulignant des fluides newtoniens et solides élastiques linéaires.

ME-202 Mechanical systems
ECTS Credits : 4.
Lecturers : Soubielle Sébastien Philippe. Semester : 2021-2022 Bachelor semester 4
This course teaches the understanding of complex mechanical systems and introduces the basics for understanding and designing. The student will be able to explain the operation of complex systems, model their kinematics and choose solutions for designing a function out of a set of specifications.
Ce cours poursuit la compréhension de systèmes mécaniques complexes et introduit les bases pour comprendre et concevoir. L'étudiant saura expliquer le fonctionnement de systèmes complexes, en modéliser la cinématique et choisir des solutions pour réaliser une fonction d'un cahier des charges

ME-212 Industrial production processes
ECTS Credits : 4.
Lecturers : Boillat Eric. Semester : 2021-2022 Bachelor semester 4
Application windows of the main manufacturing process categories. Implementation of simple models describing the behavior of the main manufacturing processes. Basic understanding of the economic aspects of production processes. Manufacturing process selection methodology at an aggregated level.
Application des principales catégories de procédés de production. Modèles physiques élémentaires décrivant le comportement des principaux procédés de production. Compréhension de base des aspects économiques des procédés de production. Méthodologie de sélection des procédés à un niveau agrégé.

ME-213 Programmation pour ingénieur
ECTS Credits : 3.
Lecturers : Salzmann Christophe. Semester : 2021-2022 Bachelor semester 4
Build on the basic programming concepts learn last semester. Develop a simple program. Debug methods and good practice. Introduction to scientific programming. Introduction to data flow programming.
Mettre en pratique les bases de la programmation vues au semestre précédent. Développer un logiciel structuré. Méthode de debug d'un logiciel. Introduction à la programmation scientifique. Introduction à l'instrumentation virtuelle.

ME-221 Dynamical systems
ECTS Credits : 3.
Lecturers : Sakar Mahmut Selman. Semester : 2021-2022 Bachelor semester 4
Provides the students with basic notions and tools for the analysis of dynamic systems. Shows them how to develop mathematical models of dynamic systems and perform analysis in time and frequency domains.
Introduction à la modélisation physique de processus dynamiques. L'étudiant apprend à élaborer le modèle mathématique d'un système dynamique et connaît ses propriétés. Il est familiarisé avec la transformation de Laplace et l'analyse temporelle et fréquentielle des systèmes dynamiques linéaires.

ME-232 Mechanics of structures (For GM)
ECTS Credits : 4.
Lecturers : Prenleloup Alain Michel. Semester : 2021-2022 Bachelor semester 3
The student acquires the basics of stress analysis and deformation of linear elastic beams subjected to traction, shear, torsion, flexure; the influence coefficients an energy method to analyze statically determined and indetermined structures; rupture criteria.
L'étudiant acquiert les bases de l'analyse des contraintes et déformation des poutres élastiques linéaires soumises à la traction, cisaillement, torsion, flexion; les coefficients d'influence et la méthode de l'énergie pour analyser des systèmes isostatiques et hyperstatiques; critères de rupture.

ME-251 Thermodynamics and energetics I
ECTS Credits : 4.

Lecturers : Haussener Sophia. Semester : 2021-2022 Bachelor semester 3
The course introduces the basic concepts of thermodynamics and heat transfer, and thermodynamic properties of matter and their calculation. The students will master the concepts of heat, mass, and momentum conservation, and apply these concepts to thermodynamic cylces and energy conversion systems.
Introduction aux principes de la thermodynamique, propriétés thermodynamiques de la matière et à leur calcul. Les étudiants maîtriseront les concepts de conservation (chaleur, masse, quantité de mouvement) et appliqueront ces concepts au cycles thermodynamiques et systèmes de conversion d'énergie.

ME-271 Fluid flow
ECTS Credits : 3.
Lecturers : Mulleners Karen Ann J. Semester : 2021-2022 Bachelor semester 4
In this introductory course to the physics of fluids the student first learns to describe prototype flows and predict their behaviour, by means of mass and momentum balances. These methods are then generalised to more complex flows such as atmospheric and vortex flows.
Dans ce cours introductif à la physique des fluides, l'étudiant commence par apprendre, au moyen de bilans de masse et de contraintes, à décrire et à prédire les écoulements types. Ces méthodes sont appliquées à des écoulements complexes, tels que les écoulements atmosphériques et tourbillonnaires.

MSE-101(a) Materials:from chemistry to properties
Coefficient : 5.
Lecturers : Klok-Lermann Eva, Michaud Véronique. Semester : 2020-2021 Bachelor semester 1
This course enables to acquire the essential notions relative to the structure of matter, equilibrium and chemical reactions in relation to mechanical, thermal, electric, magnetic and optical properties of materials.
Ce cours permet l'acquisition des notions essentielles relatives à la structure de la matière, aux équilibres et à la réactivité chimique en liaison avec les propriétés mécaniques, thermiques, électriques, magnétiques et optiques des matériaux.

MSE-234 Mechanical behaviour of materials
ECTS Credits : 4.
Lecturers : Durand Adeline Mélanie Agnès, Mortensen Andreas. Semester : 2021-2022 Bachelor semester 3
This course provides an introduction to the mechanical behaviour, the processing, the structure and life-cycle of major classes of structural materials (metals, polymers, ceramics and composites).
Ce cours est une introduction au comportement mécanique, à l'élaboration, à la structure et au cycle de vie des grandes classes de matériaux de structure (métaux, polymères, céramiques et composites)

PHYS-101(d) General physics : mechanics
Coefficient : 6.
Lecturers : Müllhaupt Philippe. Semester : 2020-2021 Bachelor semester 1
Give the student the basic notions that will allow him or her to have a better understanding of physical phenomena, such as the mechanic of point masses. Acquire the capacity to analyse quantitatively the consequences of these effects with appropriate theoretical tools.
Le but du cours de physique générale est de donner à l'étudiant les notions de base nécessaires à la compréhension des phénomènes physiques. L'objectif est atteint lorsque l'étudiant est capable de prévoir quantitativement les conséquences de ces phénomènes avec des outils théoriques appropriés.

PHYS-106(d) General physics : thermodynamics
Coefficient : 6.
Lecturers : Bréchet Sylvain. Semester : 2020-2021 Bachelor semester 2
The goal of General Physics is to give the student the basic notions to have a better understanding of physical phenomena. This objective is attained when the student can quantitatively analyse the consequences of these effects with the appropriate theoretical tools.
Le but du cours de Physique générale est de donner à l'étudiant les notions de base nécessaires à la compréhension des phénomènes physiques. L'objectif est atteint lorsque l'étudiant est capable de prévoir quantitativement les conséquences de ces phénomènes avec des outils théoriques appropriés.

PHYS-201(b) General physics : electromagnetism
ECTS Credits : 6.
Lecturers : Gruetter Rolf. Semester : 2021-2022 Bachelor semester 3
An introduction to fluids mechanics, to electromagnetism, and to wave phenomena
Introduction à la mécanique des fluides, à l'électromagnétisme et aux phénomènes ondulatoires