

# BSc. of Physical Engineering

## Year One

### Fall Semester

#### Basic Mathematics 1

ECTS 6

Basic Maths 1

Working Methodology - Basic Maths 1

#### Basic Physics 1

ECTS 6

Basic Physics 1

Working methodology - Basic Physics 1

#### Basic Chemistry 1

ECTS 6

Basic Chemistry 1

Working methodology - Basic Chemistry 1

#### Introduction to Computer Science 1

ECTS 6

System, Algorithms and Programming 1

Working methodology - Intro to Computer Sciences 1

#### Languages 01

ECTS 6

English or French

## Year One

### Spring Semester

#### Basic Mathematics 2

ECTS 7

Algebra, Probability, Statistics

Analysis

#### Basic Physics 2

ECTS 6

Basic Physics 2

## BSc. of Physical Engineering

**Basic Chemistry 2** **ECTS 6**

Basic Chemistry 2

**Introduction to Computer Sciences 2** **ECTS 6**

Systems, algorithms, programming 2

**Basic Geosciences** **ECTS 2**

Introduction to Geosciences

Working methodology

**Languages 02** **ECTS 3**

English or French

### Year Two

Fall Semester

**Mathematics 1** **ECTS 6**

**Physics 1** **ECTS 8**

Point mechanics

Fluid mechanics

Thermodynamics 1

Electrostatics

**Physical Engineering 1** **ECTS 6**

Electricity (with L2S3 CS and CE)

Mechanical engineering

Phys. Eng. Lab 1. (Chem. Eng)

## BSc. of Physical Engineering

### Year Two

#### Fall Semester

**Chemistry 1** **ECTS 4**

Architecture of matter 1

**Computer sciences 1** **ECTS 3**

Computer Science for Physics and Chemistry

**Languages 1** **ECTS 3**

English or French

### Year Two

#### Spring Semester

**Mathematics 2** **ECTS 6**

**Physics 2** **ECTS 6**

Oscillators / waves / optics

Physics Lab 1

**Physical Engineering 2** **ECTS 6**

Study of an amplification chain

Electronics (with L2S4 CS and G3)

Electrotechnical engineering

**Chemistry 2** **ECTS 6**

Architecture of matter 2

Transformation of matter 2

## BSc. of Physical Engineering

Computer sciences 2

ECTS 3

Object oriented programming 1

Languages 2

ECTS 3

English or French

### Year Three

Fall Semester

Mathematics 3

ECTS 5

Physics 3

ECTS 8

Electromagnetism

Thermodynamics 2

Electricity for CS and CE and LISIEE

Solid mechanics GGG

Physical Engineering 3

ECTS 14

Heat transfer and renewable energy

Material design

Electrical Energy

Electro-mechanical converters

Analog Electronics

Languages 3

ECTS 14

English or French

# BSc. of Physical Engineering

Year Three

Spring Semester

Mathematics 4

ECTS 5

Physics 4

ECTS 6

Fluid mechanics 2

Electronics

Physics Lab 2

Physical Engineering 4

ECTS 7

Materials resistance

Constitutive laws for rheological fluids

Signal processing and systems

Artificial intelligence

ECTS 3

Languages 4

ECTS 3

English or French

Professional preparation 1

ECTS 3

Soft skills

Student-led project

ECTS 3

Student-led project

## BSc. of Physical Engineering

### Year Four

#### Fall Semester

Mathematics 5

ECTS 3

Physics 5

ECTS 3

Fluid mechanics in soil

Physical Engineering 5

ECTS 15

Introduction to material rheology

Digital electronics

Electric motorisation

Automatic

Computer sciences 5a

ECTS 3

Parallel programming

Languages 5

ECTS 3

English or French

Professional preparation 2

ECTS 3

Scientific writing

### Year Four

#### Spring Semester

Physical Engineering 6

ECTS 12

PW Renewable Energy

## BSc. of Physical Engineering

Power transmission

Industry 4.0

Multiphase flows

Mechatronics

Professional preparation 3

ECTS 3

Management and entrepreneurship

Internship

ECTS 15

Internship (8 weeks)