IT Health Engineering Degree

1st Year

11% Engineering mathematics
Numerical analysis (Python)
Probabilities and stochastic processes
Signal processing
Digital tools (Matlab)

18% Computer science
Computer systems
C programming language
Introduction to algorithms
Object-oriented programming (C++)

11% Physics
Electromagnetic waves physics
Semiconductor physics
Experimental physics

12% Health sciences
Biophysics
Biology et biochemistry
Anatomy et physiology
Biomechanics

10% Engineering project
Team of 4-5 students

24% Engineering sciences
Analog and digital electronics
Labview
Microcontroller
Control theory

12% Humanities and social sciences
Communication
Professional project (project management, writing resumes and cover letters)
Foreign language 1 : English
Foreign language 2 : German, Spanish, Japanese, Chinese

2% Internship (4 weeks)

2nd Year

19% Mathematics, signal and images
Statistics
Signal processing
Image processing
Finite elements method

11% Computer science
Images and computer vision
Databases
Human-machine interface (IHM)
Optimization

5% Engineering project
Team of 4-5 students

23% Biomedical engineering
Soft tissues rheology
Biology / Numerical biomechanics
Medical imaging physics
Microfluidics and cleanroom
Microsystems and biosystems
Medical and surgical procedures
Clinical translation

10% Electronics and embedded systems
Microprocessors and communication
Embedded systems design

16% Humanities and social sciences
Financial management
Team management, professional project
Foreign languages 1 and 2

13% Optional course (1 choice)

Innovative Medical Diagnoses and Treatments
Control theory, Advanced algorithms
Information technology for healthcare
Medical images processing, Computer vision

Innovative Therapeutics
Introduction to nanoscience, Omics
Integrated circuits, CAD and sensors
Laser physics and optical fibers

3% Internship (12 weeks)

3rd Year

30% Humanities and social sciences
Bioethics
Entrepreneurship
Economic intelligence
Quality insurance
Intellectual property and patents
Foreign language 1 : English
Foreign language 2 : German, Spanish, Japanese, Chinese

70% Optional course (1 choice)

Innovative Medical Diagnoses and Treatments
Medical imaging physics and medical images processing
Medical and surgical robotics
Living systems modeling
Real-time simulation
Haptics

Innovative Therapeutics
Biological instrumentation
Plasmonics
Nanoscience and biosystems
Biological engineering or Business creation
Heterogeneous integrated health systems design
Bibliography studies and conferences

3rd Year

Graduation project

Industry or research internship (5-6 months)