

MPh

MESURES PHYSIQUES

University Bachelor of Technology (B.U.T.) Applied Physics.

The objective of the Applied Physics B.U.T. (MP) is to train multi-task qualified technicians who will carry out and process measurements after a three-year course: they will rely on a wide range of knowledge in fields such as physics, chemistry, materials science, electronics and computer science, as well as skills centred on industrial monitoring, metrology, instrumentation (laboratory tests, assays, research and development...), characterization of physical and physico-chemical quantities and environmental measures.

With 26 weeks of internship over two years, opportunities for work-based training, over 800h of practical work and 600h dedicated to projects, this training course offers a direct connection with the industry, research and expertise fields.

Applied Physics B.U.T. graduates are therefore able to practise their professional activity in any secondary sector companies as well as in some tertiary sector (in fields such as energy, motor and space industries, aeronautics, chemistry, pharmaceutical industry, food, processing, biomedical industry...). They are equipped to consider various further studies options, notably within engineering schools.

Competence-based learning.

- **Instrumentation techniques study track (TI):** Graduates have expertise in designing and implementing a measurement and instrumentation chain. Their study track equips students to adapt to test laboratories and industrial monitoring in any company of the instrumentation sector.

- **Materials and physico-chemical monitoring study track (MCPC):** Graduates have expertise in material characterisation and physico-chemical control. Their study track equips students to adapt to companies and organizations with test and control laboratories focused on materials or physico-chemical analysis departments.

Skills / learning units:

The purpose of this training course is to equip Applied Physics B.U.T. students with five core skills :

- Conducting a measurement campaign
- Applying metrology and quality processing
- Implementing a measurement and instrumentation chain
- Characterising physical and chemical quantities as well as the properties of a material
- Defining measurement specifications within an environmental approach

Every class of a semester is **mandatory**.

Validating all the semester units (UE) is required to validate a full semester.

**French-taught programmes.
Attending all classes is mandatory.**

Semesters open to international students.

- **Programmes of studies:**
 - Instrumentation techniques (TI):
 - Materials and physico-chemical monitoring (MCPC)
- **Semester 5 (Autumn)**
 - Requirements : 120 ECTS in Physics - chemistry and materials - sensors - mathematics
- **Semesters 5+6 (Autumn+ Spring)**
 - Requirements : 120 ECTS in Physics - chemistry and materials - sensors - mathematics
- **French: B2/C1**

F CHAMBER 01
Annecy-le-Vieux
campus



071 -053
Practical
teaching & learning



30-35 hrs a week
of study & projects



TI - Semester 5 - Courses, Skills (UE) & ECTS.

Course List	UE1	UE2	UE3	Weight
English	•	•	•	1,5
Culture and communication	•	•	•	1,5
Guidance	•	•	•	0,6
Advanced mathematical tools	•	•	•	1,2
Building acoustics			•	1,8
Metrology and quality	•	•	•	3,6
Advanced instrumentation	•		•	3
Vacuum techniques	•	•	•	3,6
Acoustic measurement	•	•	•	10
Technical projects	•	•	•	3,2
ECTS				30

TI - Semester 6 - Courses, Skills (UE) & ECTS.

Course List	UE1	UE2	UE3	Weight
English	•	•	•	1,5
Culture and communication	•	•	•	1,5
Organisation and team management	•	•	•	1,5
Metrology and quality	•	•	•	3,2
Industrial control	•		•	2
Photonics	•	•	•	3,4
Modelling and digital methods	•	•		1
Industrial control (Practical)	•	•	•	2,5
Technical project	•	•	•	1,5
Internship	•	•	•	11
Portfolio	•	•	•	0,9
ECTS				30

MCPC - Semester 5 - Courses, Skills (UE) & ECTS.

Course List	UE1	UE2	UE3	Weight
English	•	•	•	1,5
Culture and communication	•	•	•	1,5
Guidance	•	•	•	0,6
Advanced mathematical tools	•	•	•	1,2
Chemistry and polymers	•		•	1,8
Metrology and quality	•	•	•	3,6
Study of advanced materials	•		•	3
Thermal analysis and diagrams /				
Industrial electrochemistry	•	•	•	3,6
Heat treatment	•	•	•	10
Technical projects	•	•	•	3,2
ECTS				30

MCPC - Semester 6 - Courses, Skills (UE) & ECTS.

Course List	UE1	UE2	UE3	Weight
English	•	•	•	1,5
Culture and communication	•	•	•	1,5
Organisation and team management	•	•	•	1,5
Metrology and quality	•	•	•	3,3
Expertise/control of industrial products	•		•	1,9
Thermal analysis 2 / Radioactivity	•	•	•	3,4
Modelling and numerical methods	•			1
Sports textiles	•	•	•	2,5
Technical project	•	•	•	1,5
Internship	•	•	•	11
Portfolio	•	•	•	0,9
ECTS				30