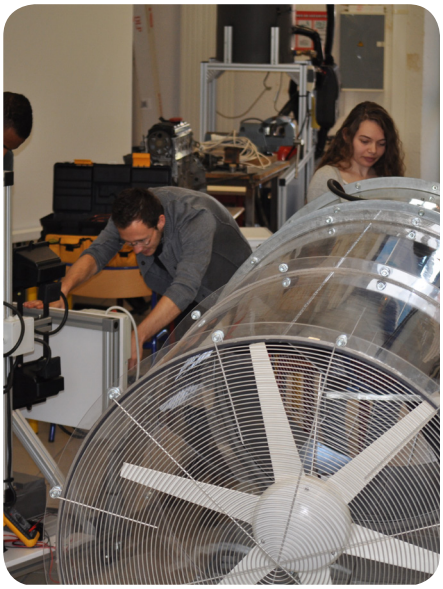
UFR STGI BELFORT-MONTBÉLIARD
UNIVERSITÉ DE FRANCHE-COMTÉ

L'EXCELLENCE PROCHE DE VOUS !

Bachelor's Degree



ENGINEERING SCIENCE

Major in Thermal Science and Energy

> Are you passionate about science and energy ?

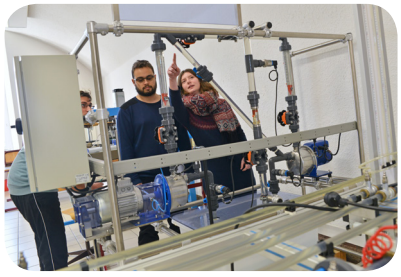
> Do you want to design efficient energy systems ?

This training is for you !

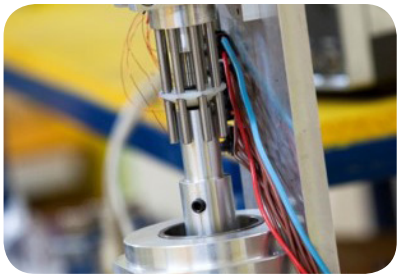
Company visits

Pluri-Energies Day

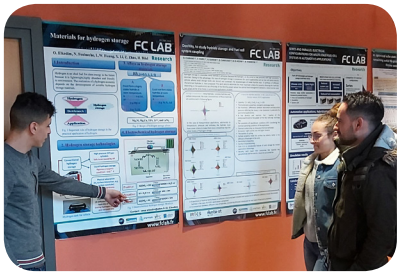
Thermal energy knowledge



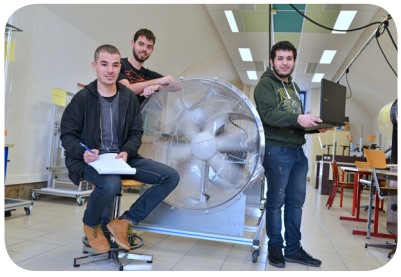
Projects with companies



Poster creation



Teamwork



Projects with laboratories

Research congresses

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Bachelor's Degree

ENGINEERING SCIENCE

Major in Thermal Science and Energy

Level of the validated degree :

Baccalauréat +3
Bachelor's degree

Internship period :

10 weeks
semester 6

Training program location :

Département Sciences et Energies
UFR STGI BELFORT
2 rue Chantereine

Further studies :

Master's degree in Energy and Thermal Engineering

Registration :

http://formation.univ-fcomte.fr/composantes/ufr-stgi

Contact :

Student affairs office
Bachelor's Degree in Engineering Science

03 84 22 27 22
scolaritelicencesciences.stgi@univ-fcomte.fr

• Objectives of the training program :

The major Thermal Science and Energy of the Bachelor of Science for Engineers offers a fundamental education allowing the acquisition and development of scientific skills covering the fields of physics and engineering of energy systems at small and large scales.

• Target audience

- Baccalaurat S recommended,
- DAEU (diploma for access to higher education)
- Bachelor's Degree : 2nd year of the field concerned,
- DUT and BTS according to majors,
- Preparatory classes,
- Continuing training (resumption of studies or VAE- validation of prior experience). Selection on file.

• Job opportunities

- Assistant design and/or Assistant engineer
- Assistant quality engineer
- Assistant technical sales engineer
- Installation and commissioning manager
- Project manager
- Assistant Research and Development engineer
- Head of a test and/or qualification laboratory.

• Master of Engineering H3E Hydrogen Energy & Energy Efficiency

This CMI trains engineers in innovative energy production and management techniques, in particular thermal and electrical, with a focus on an energy vector of the future : hydrogen. Students work in collaboration with FEMTO- ST laboratory. Course on selection.

Bachelor's Degree

ENGINEERING SCIENCE

Major in Thermal Science and Energy

Licence 1st year

	Type	CM	TD	TP	Total
Semester 01	Compul.				
EU 1.1 Mathematics	Oblig.	22	56		78
Algebra	Oblig.	10	26		36
Analysis	Oblig.	12	30		42
EU 1.2 Physics and measurements	Oblig.	16	28	12	56
Electrokinetics	Oblig.	8	14	12	34
Thermodynamics	Oblig.	8	14		22
EU 1.3 Discovery	Oblig.	18	24	30	72
Discovery of EEA (electronics, electrical energy and automation)	Oblig.	6	6	9	21
An approach to Mechanics	Oblig.	6	6	9	21
Programming basics	Oblig.	6	12	12	30
EU 1.4 Chemicals	Oblig.	10	30	15	55
EU 1.5 Transverse 1	Oblig.		6	12	18
English	Oblig.		6		6
Documentation	Oblig.				
C2I S1 (IT and internet Certificate Semester 1)	Oblig.			12	12
Parcours CMI' (Master of Engineering H3E [Hydrogen Energy & Energy Efficiency] curriculum)	Oblig.				
EU CMI - English and personal development	Oblig.		30		30
English	Oblig.		12		12
Personalized Professional Project (PPP)	Oblig.		18		18
Semester 02	Oblig.				
EU 2.1 Mathematical Tools 1	Oblig.	12	42		54
EU 2.2 SPI (Sciences pour l'ingénieur) 1	Oblig.	18	21	21	60
Electrokinetics 1	Oblig.	9	12	9	30
Automation	Oblig.	9	9	12	30
EU 2.3 Newtonian Physics	Oblig.	14	26	18	58
EU 2.4 SPI (Sciences pour l'ingénieur) 2	Oblig.	15	18	27	60
Mechanics and Engineering	Oblig.	6	6	18	30
Electrokinetics 2	Oblig.	9	12	9	30
EU 2.5 Transverse 2	Oblig.		32	18	50
C2I S2 (IT and internet Certificate Semester 2)	Oblig.			12	12
Expression and communication	Oblig.			6	6
English	Oblig.		24		24
Scientific practice	Oblig.		8		8
Parcours CMI' (Master of Engineering H3E [Hydrogen Energy & Energy Efficiency] curriculum)	Oblig.				
EU CMI - Personal Research and Development Internship	Oblig.		18	6	24
Expression	Oblig.		18		18
Portfolio of experiences and skills (PEC)	Oblig.			6	6
Initiation to Research	Oblig.				
Internship	Oblig.		10		10

Bachelor's Degree

ENGINEERING SCIENCE

Major in Thermal Science and Energy

Licence 2nd year

	Type	CM	TD	TP	Total
Semester 03	Compul.				
EU 3.1 Mathematical Tools	Oblig.	12	44		56
EU 3.2 Mechanics and structural design	Oblig.	22	20	24	66
Mechanics	Oblig.	11	10	12	33
Sizing of structures	Oblig.	11	10	12	33
EU 3.3 Thermodynamics and Fluid mechanics	Oblig.	28	23	9	60
Thermodynamics	Oblig.	12	9	9	30
Fluid mechanics	Oblig.	16	14		30
UE 3.4 Electronics and automation	Oblig.	18	18	18	54
Electronics	Oblig.	9	9	9	27
Automation	Oblig.	9	9	9	27
EU 3.5 Transverse S3	Oblig.		16	17	33
English S3 self-study	Oblig.		4		4
Personalized training workshop ('APP')	Oblig.			5	5
Computer tools	Oblig.			12	12
General knowledge	Oblig.		12		12
Parcours CMI' (Master of Engineering H3E [Hydrogen Energy & Energy Efficiency] curriculum)	Compul.				
EU CMI - Chemistry and personal development	Oblig.				
English	Oblig.		12		12
Chemistry	Oblig.	8	10		18
Personalized Professional Project (PPP)	Oblig.		18		18
Semester 04	Compul.				
EU 4.1 IT and Industrial IT	Oblig.	20	23	17	60
Information technology	Oblig.	10	11	9	30
Industrial IT	Oblig.	10	12	8	30
EU 4.2 Industrial Automation and Electrical Engineering	Oblig.	24	20	16	60
Industrial Automation	Oblig.	12	10	8	30
Electrical Engineering	Oblig.	12	10	8	30
EU 4.3 Electromagnetism and Magnetic circuits	Oblig.	24	24	12	60
Electromagnetism	Oblig.	16	16		32
Magnetic circuits	Oblig.	8	8	12	28
EU 4.4 Technical and Thermal Project	Oblig.	9	12	9	30
Thermics	Oblig.	9	12	9	30
Tutored technical project	Oblig.				
EU 4.5 Transverse S4	Oblig.		40	4	44
Corporate culture	Oblig.		10		10
English S4	Oblig.		30		30
Documentary research project	Oblig.			4	4
Parcours CMI' (Master of Engineering H3E [Hydrogen Energy & Energy Efficiency] curriculum)	Compul.				
EU CMI - Initiation to research	Oblig.	8	35		43
Chemistry	Oblig.	8	10		18
Communication	Oblig.		10		10
Documentary and bibliographic research project	Oblig.				
Laboratory research and development	Oblig.		15		15

Bachelor's Degree

ENGINEERING SCIENCE

Major in Thermal Science and Energy

Licence 3rd year – THERMAL SCIENCE AND ENERGY

	Type	CM	TD	TP	Total
Semester 05	Compul.				
UE1 - Applied Mathematics	Oblig.	22	20	12	54
Numerical analysis	Oblig.	9	4	12	25
Mathematics	Oblig.	13	16		29
UE2 - Thermodynamics and energy conversion	Oblig.	37	28	8	73
Thermal and mechanical energy conversion	Oblig.	7	8		15
Thermodynamics, principles	Oblig.	15	10	4	29
Advanced thermodynamics	Oblig.	15	10	4	29
Steady conduction heat transfer	Oblig.	12	16	4	32
Radiation heat transfer, principles	Oblig.	7	8	4	19
Inviscid fluid dynamics	Oblig.	17	10	4	31
EU4 - Instrumentation and Metrology	Oblig.	20	16	16	52
Instrumentation, measurements and sensors	Oblig.	10	8	16	34
Fluid and thermal metrology	Oblig.	10	8		18
EU5 - Knowledge of the professional world	Oblig.		30	9	39
Professional project management	Oblig.			9	9
English	Oblig.		30		30
Parcours CMI' (Master of Engineering H3E [Hydrogen Energy & Energy Efficiency] curriculum)	Compul.				
EU CMI - Cogeneration and project management	Oblig.				
Cogeneration	Oblig.	8	8	4	20
Project management	Oblig.	6	12		18
Similarity and dimensional analysis	Oblig.	6	4		10
Semester 06	Compul.				
EU6 - Information processing	Oblig.	20	18	48	86
Automatics	Oblig.	12	10	8	30
Computer science for engineering	Oblig.			24	24
Signal processing	Oblig.	8	8	12	28
UE7 - Thermal and mechanical systems	Oblig.	24	32	32	88
Electrical energy conversion	Oblig.	8	6	8	22
Thermal habitat	Oblig.	4		12	16
Mechanics of systems	Oblig.	12	12	12	36
Thermal systems	Oblig.		14		14
EU8 - Advanced heat transfer and fluid flow	Oblig.	36	28		64
Unsteady conduction heat transfer	Oblig.	14	8		22
Viscous fluid dynamics	Oblig.	14	14		28
Radiation heat transfer, models	Oblig.	8	6		14
EU9 - Integrator project	Oblig.		24		24
Project	Oblig.		24		24
EU10 - Industrial internship	Oblig.				
Internship	Oblig.				
Parcours CMI' (Master of Engineering H3E [Hydrogen Energy & Energy Efficiency] curriculum)	Compul.				
EU CMI - English and business knowledge	Oblig.				
English	Oblig.		30		30
Corporate culture	Oblig.	9	9		18

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