

## INNMAIN - HVAC – Refrigeration and Renewable Energies

Paris, France, March 16-18 / 2016

### FINAL CONCLUSIONS

#### Participant institutions:

1. CFI – Centre des Formations Industrielles Paris. France
2. Xabec. Valencia. Spain

#### ABOUT HVAC AND REFRIGERATION DEPARTMENT

*“InnMain Association would like to develop an European standard for Maintenance Technician and Maintenance Supervisor, that permit:*

- a) Student and teachers exchanges from different countries.*
- b) To work on the accreditation of professional qualifications of formal or informal knowledge at European level, at levels of knowledge, skills and competencies. »*

To be able to respond to the main InnMain aim, a part of the partners decided to create a specific department for the HVAC and refrigeration.

The HVAC and Refrigeration department will develop:

- The exchanges between students and partners by different contacts, projects, study cases, links, conference calls.
- The mobility of the students and teachers by future projects.
- Learning agreement to guarantee the result of the mobility.
- A community of knowledge, expertise, experiences and training materials.

#### AIMS OF THIS DEPARTMENT:

- To create a Network
- To promote:
  - Mobility between students and teachers
  - Communication abilities amongst students and teachers
- To share knowledge involving work, technologies and pedagogical practices and training materials and to create a community practices over HVAC
- To be aware of companies needs.
- To communicate between students and teachers from different countries.
- To facility the integration of the students in European companies (Erasmus +)

#### GENERAL OBJECTIVES

##### AIM N° 1

1. Create HVAC department
2. Frequency meeting (each 2 months through Skype)
3. General meeting every year
4. Create a “Cloud drive”
5. Complete a technical board. Create a form

#### AIM N° 2 (STUDENTS)

6. To create an HVAC mobility handbook
7. To offer learning activities, ProjectX, projects, etc...
8. To create study projects projects between student from different countries
9. To create a “European Class” of HVCA
10. To develop Erasmus +

#### AIM N° 2 (TEACHERS)

0. To create an HVAC mobility handbook
1. To identify training needs
2. To offer technical training in the schools.
3. General meeting of the department.
4. To help teachers to start to create something new.
5. To create together something new.

#### AIM N° 3

1. Training materials in English:
  - a. Tutorials
  - b. Movies
  - c. Technical panels
  - d. Study case
  - e. Practices
  - f. Web links
  - g. New technical improvements.
2. Technical equipment’s
  - a. Technical panels

#### AIM N° 4

1. Report needs expressed by companies.
2. Analyze the profile of the profile required by the companies.
3. Report the Company demand for specific.

#### AIM N° 5

1. 1 Study case perform by student in different schools
2. “Skype calls” between students
3. Students make presentations of a HVAC Systems to other schools.

#### AIM N° 6

1. Each school makes a proposal of some jobs in HVAC companies for students.

## STRUCTURE OF THE DEPARTMENT

### PARTNERS

#### *Partner 1*

School name: CFI

Manager: Jean-Luc RIGAUD

Teachers: François CAUGAN mail ...  
Thierry LANGEVIN mail ...

#### **Partner 2**

School name: XABEC  
Manager: Antonio MIR mail...  
Teachers: Victor SOPENA mail ...  
JOAQUIN CAVESTANY mail ...  
Guillermo FERRANDO mail...

#### **Partner 3**

School name: TEC  
Manager:  
Teachers:

#### **Partner 4**

School name: DUDDLEY College  
Manager:  
Teachers:

#### **Partner 5**

School name: Savon Koulutuskuntayhtymä  
Manager:  
Teachers:

### **INTERNAL FUNCTION**

#### **LEADERSHIP**

- Write the bi-monthly report
- Write Annual report
- Fix the meetings
- Organize and dispatch the different tasks
- Analyze the different request of the partners

#### **PARTNERS**

- Help the leader
- Be present at the meetings
- Give feed back
- Feed the "Cloud"
- Propose ideas, projects to the department
- Collaborate with the general objectives of the department
- Communicate with the others partners
- Communicate any needs, issues

### **INTERNAL COMMUNICATION**

- Mailinglist
- Bi-Monthly report
- Annual report
- « Skype community », Google Talk Community, ...



A « Cloud »  
LOGO

## AREAS OF DEVELOPEMENT

Field	OBJECTIVES	Title	Description	Teachers
Pedagogy	3.2.a	<b>Instructional design model</b>	Designing multi-partner educational models Create dynamic and international models in HVAC and refrigeration	S.BEN YOUSSEFF F.CAUGAN
	2.6 2.7 2.8 2.9	<b>Teachers training</b>	Exchanges of “best practices”, share training materials (theoretical and practical) Training of trainers	S.BEN YOUSSEFF F.CAUGAN
	3.1.e 3.1.f	<b>Technical regulatory monitoring</b>	Ensure and implement a document or a technological and regulatory intelligence support in the field of refrigeration. Create and update the document.	S.BEN YOUSSEFF
	5.2 5.3	<b>Conferences call</b>	Offer technical courses in French and others in video conferences for young Europeans who are planning to work in France or wherever	A.LAKAT
	3.1.a 3.1.d	<b>Numeric</b>	Using digital tools in European schools: "Learning a trade using digital educational materials: test classes with European Energy"	T. LANGEVIN F.CAUGAN
	3.1.a 3.1.b 5.3	<b>Video creations</b>	exchange of technical practices in different facilities as video and create a database (HVAC, Refrigeration) to explain theoretical physics.	A.LAKAT

Field	OBJECTIVES	Title	Description	Teachers
Electricity	2.10 3.2.a	<b>Aérovoltaïc</b>	Relevance of this new technology using solar modules "bi-face": photovoltaic electricity generation on one side and hot air on the other "Educational visits on site aérovoltaïc installation"	T. LANGEVIN
	2.10 3.2.a	<b>Internal consumption</b>	Discussion on self-consumption solutions for producers of green electricity used in Europe "Realization of a central teaching in ENR consumption"	T. LANGEVIN
	2.2 2.7 2.10 3.2.a	<b>Automation</b>	European exchange between a section (BTS FEE for example) and / school (s) partner (s) on a common automation project: "Realization of a KNX installation of low energy lighting and communicating" and "Realization of a communicating system (KNX and BacNet) installation of a HVAC (heating, cooling, refrigeration)"	T. LANGEVIN F.CAUGAN
	2.2 2.7 2.10 3.2.a	<b>Power Electronics</b>	Correlation between the power variation of a device and the gain in electric energy consumed "Encryption on an electronic drive used in HVAC"	T. LANGEVIN
	2.10 3.2.a	<b>Aérovoltaïc</b>	Relevance of this new technology using solar modules "bi-face": photovoltaic electricity generation on one side and hot air on the other "Educational visits on site aérovoltaïc installation"	T. LANGEVIN
	3.1.a 3.1.b 5.3	<b>Video creations</b>	exchange of technical practices in different facilities as video and create a database (HVAC, Refrigeration) to explain theoretical physics.	A.LAKAT

Field	OBJECTIVES	Title	Description	Teachers
HVAC	2.5 2.6 2.7 2.8 2.9 2.10	Teachers internship	Ability to develop training agreements between schools for sharing and animating training abroad for trainers. create an agreement allowing teachers to be able to go over to another school to share his knowledge and "being" form back.	F.CAUGAN
	2.0 2.1 2.2 2.3 2.4	Student internship	Ability to develop training agreements between schools for the practice of a foreign language for our students Allowing our students to be able to perfect a second language and develop their mobility abroad through an exchange between schools.	F.CAUGAN
	2.2 2.7 2.10 3.2.a	Free / Water Cooling	Feasibility study and reflection on the gains of energy in Europe for applying tertiary and Datacenter.	L.LEROY
	TOI	JUBILEE	Following JUBILEE, to validate its curriculum, the skills and knowledge to the EU. Continue the development of training materials.	“Jubilee Team”
	2.2 2.7 2.10 3.2.a	CO <sub>2</sub> Training materials development	Developments and improvements in the performance of refrigeration plants and heat pumps Transcritical	P.CARDON
	5.1 5.2 5.3	Study Projets	Development of study between students from different schools on different themes or projects case studies, and have an conference call between each school to present the results.	F.CAUGAN

## ACTIONS

### *Deadlines*

1<sup>st</sup> May:

Create the cloud

1<sup>st</sup> June 2016: HVAC department meeting

Feed back of the general InnMain meeting

Next action plan

1<sup>st</sup> October 2016: HVAC department meeting

Mobility handbook HVAC (teachers and students)

Study case for student

Possible project

1<sup>st</sup> April 2017:

Presentation of the study case

### *General actions*

Skype call every 2 months

Update the "Cloud"

Meeting every year

- ProjectX

Complete every September the technical board

Study case for student decide on October

Final result and presentation of the study case for April

### *Short term actions (15th of April)*

Create the "Cloud"

Complete the technical board

Make proposal of the department to executive board

Make proposal ideas (actions, activities, projects, ...) for the learning agreement in the future

### *Short term actions (22th April)*

First Skype conference call

### *Short term actions (1st May)*

HVACprogramreviewed and validated by the department.



Transfer the HVAC program to InnMain to be approved.

***Medium term actions (October 2016)***

Department meetings

Mobility handbook HVAC (teachers and students)

Study case for student

Possible project

Start reflexion about “Europe Class” in September 2016

***Long term actions (1 year or more)***

Presentation of the study case

Identify HVAC projects, TOI, ...

HVAC annual department meetin