

3RD INNOCHEM TRAINING ACTIVITIES 2017:

INNOVATIVE TEACHING BY RESEARCH AND LABORATORY CLASSES

TRAINING NOTES

Training Dates: April 2017

Training Location: Lille

ATTENDANCE

Name	Organization
Dariusz Bogdal	Cracow University of Technology
Jérémie Bouquerel	Ecole Nationale Supérieure de Chimie de Lille
Michael Bredol	Münster University of Applied Sciences
Paulo Brito	Instituto Politécnico de Bragança
Marcio Caroch	Instituto Politécnico de Bragança
Marek Czernicki	Ecole Nationale Supérieure de Chimie de Lille
Sylwia Dworakowska	Cracow University of Technology
Olga Ferreira	Instituto Politécnico de Bragança
Helder Gomes	Instituto Politécnico de Bragança
Jan-David Goossen	Münster University of Applied Sciences
Andrei Khodakov	Ecole Nationale Supérieure de Chimie de Lille
Ulrich Kynast	Münster University of Applied Sciences
Katarzyna Matras-Postolek	Cracow University of Technology
Vitaly Ordonsky	Ecole Nationale Supérieure de Chimie de Lille
Marek Piatkowski	Cracow University of Technology
Roman Popielarz	Cracow University of Technology
Ana Queiroz	Instituto Politécnico de Bragança
Elzbieta Skrzynska	Cracow University of Technology
Mark Staniford	Münster University of Applied Sciences
Zahia Turpin	Ecole Nationale Supérieure de Chimie de Lille
Otmar Vogt	Cracow University of Technology
Jean-Bernard Vogt	Ecole Nationale Supérieure de Chimie de Lille

SESSION 1: 3.04.2017**PLACE: ENSCL, C3, C6**

Time	Program	Presenter	Content	Discussion
10:30-11:00	Registration			
11:00-11:30	Welcoming	R-N. Vannier Z. Turpin	Presentation of the ENSCL	
11:30-13:00	Lunch			
13:30-14:00	Presentation of XPS platform	A-S. Mamede	An overview of the analysis techniques (XPS, LEIS, TOF-SIMS) as well as some examples of catalytic applications has been presented.	✓ How to teach students to use high technology equipment?
14:00-14:30	Presentation of Microscopy Platform	D. Jacob	The presentation highlighted the various facilities owned by the center and their applications.	
14:30	Coffee break			
15:00-7:00	Visit of platforms: building C6:CCM, building C3: XPS, LEIST, TOF-SIMS		Presentation of advanced equipment by research engineer and technicians	of the high technical level of such equipment within the engineer curriculum at ENSCL

SESSION 2: 4.04.2017**PLACE: ECOLE CENTRALE DE LILLE, C3, HALL PILOT**

Time	Program	Presenter	Content	Discussion
9:00-9:30	Presentation of Realcat Platform	S. Paul	The RealCat platform has been presented as a versatile tool for homogeneous, heterogeneous and biotechnological catalytic applications in the gas-liquid and gaseous, liquid.	<ul style="list-style-type: none"> ✓ What kind of biomass sources is used for the processes in RealCat platform? ✓ How it is possible to use platform for academic and industrial partners?
9:30-11:15	Visit of RealCat Platform and Titan microscope		Presentation of RealCat high throughput equipment and FEI (advanced TEMe microscope)	Use of RealCat high throughput platform and Titan microscope for teaching and research
11:30-13:00	Lunch			
13:00-4:30	Presentation of Hall Pilot activity	A. Khodakov, V. Ordonsky	The research carried out in this Pilot Hall has been presented. The activity is particularly focused on two themes: -production of clean new fuels from renewable and fossil resources -synthesis of platform molecules from renewable and fossil resources.	<ul style="list-style-type: none"> ✓ How to teach students to use high pressure catalytic processes? ✓ What is the mechanism of the Fischer-Tropsch synthesis? ✓ What is the role of bimetallic catalysts in the reaction?
14:30-6:00	Visit of Hall Pilot		Presentation of the infrastructure of the Hall Pilote, high pressure catalytic reactors and analytic systems	Combining teaching at master and PhD levels with advanced research
17:00-9:00	Visit of the old town			

SESSION 3: 5.04.2017**PLACE: ENSCL**

Time	Program	Presenter	Content	Discussion
9:00-12:30	Serious games	M. Vermeulen, G. Guigon	Two aspects through two tools have been presented: one at the design stage, with a model (named DISC) meant to design serious games by teachers of higher education and one at the use stage, with a tool to visualize the learners' traces of serious game use. A practical application has been demonstrated with a serious game designed with DISC as an activity of a fluid mechanic course.	<ul style="list-style-type: none"> ✓ Discussion about organization of the game. Is it necessary to define factual knowledge before the game or learn it during the game? ✓ Is it possible to perform evaluation in serious games? ✓ What should be experience of the teacher to design the game?
10:30	Coffee break			
12:30-3:30	Lunch			
14:00-19:15	Visit of Cristallerie d'Arques		Presentation of chemical technologies for manufacturing of high quality glass ware	
19:30-22:00	Dinner			

SESSION 5: 6.04.2017**PLACE: ENSCL**

Time	Program	Presenter	Content	Discussion
9:00-9:30	Teaching by "Cross-disciplinary project"	J.B Vogt, J.Bouquerel, Students of ENSCL	The program of practical projects for students in ENSCL reflects a specific application field (surface treatment, metallurgy, cristallochemistry, catalysis materials...) has been presented. The particular approach used hereby is to put them with problematics they do not have seen within their lectures. A group a students has presented the approach they have followed as well as their results.	<ul style="list-style-type: none"> ✓ What kind of tools students can use for case studies? ✓ How work is distributed between students? ✓ How do you find problems to solve? ✓ What is the duration of the project?
10:15	Coffee break			
10:45-11:15	Simulation of distillation column using Aspen	Jon Martin Bidaburu, Erasmus Student	Aspen Plus is ASPEN is a process simulation software widely used in industry today. Students use this software to analyze results from pilot plants. An example of chemical engineering laboratory classes has been presented by Erasmus student.	<ul style="list-style-type: none"> ✓ What kind of knowledge is necessary to have before starting project? ✓ Is it possible to perform experiments by students themselves to verify the ideas?
11:30-13:00	Lunch			
13:30-16:30	Coordination meeting	D. Bogdal	The progress of the project and future plans have been discussed. The INNOCHEM conference in Cracow has been planned for July.	<ul style="list-style-type: none"> ✓ Is it possible for non-partners participate in the conference? ✓ Is it possible for students from different Universities use platform courses?

SESSION 6: 7.04.2017**PLACE: ENSCL**

Time	Program	Presenter	Content	Discussion
9:00-1:30	Final remarks	D. Bogdal	The post-meeting actions have been defined.	

POST MEETING ACTION ITEMS

Point	Assigned To	Action	Dead line
Prepare for the conference in Poland analysis of the progress of all the participants (3-4.07.2017). The report has to be prepared for all the participants.	All participants	Prepare	3.07.2017
Materials have to be deposited on the platform.	All participants	Deposit materials	3.07.2017
The courses have to be tested by group of students (about 10 people).	All participants	Test courses	3.07.2017
Questionnaire evaluating the course has to be prepared and distributed.	Cracow University of Technology	Distribute	3.07.2017

FINAL REMARKS

This INNOCHEM training activities has demonstrated the application of scientific research and laboratory classes for teaching students in Ecole Nationale Supérieure de Chimie de Lille. The interest of students to the real-life experiences makes this scientific approach highly efficient for teaching. During this meeting the research laboratories and equipment have been shown to the participants. Besides it, the examples of the research in the fields of biomass valorization for energy and chemicals, new materials and engineering tools used for student teaching have been demonstrated.

The courses preparations are coming to the final stage. The participants have to provide reports about performed activities. The courses have to be implemented by testing in the groups of 10 students from every partner university. The questionnaire evaluations provided by coordinator have to be filled on the basis of these tests.

The end-meeting of the project has been scheduled for 5.07.2017 in Cracow. The achievements of the project will be presented by each partner. The new perspectives of the development of e-learning courses for students teaching will be discussed.