Technological Innovation in International Context (TIIC)

> COHESION > INNOVATION > INTERNATIONALISATION

FSA 2212- 5 ECTS

2015 PROGRAMME

With the support of the International Lhoist Berghmans Innovation Chair
FACING TOGETHER A CONCRETE INNOVATION CHALLENGE!

There are people with plenty of ideas but they don’t know where to start… Or some with an excellent idea but they are not sure how to develop it… In the innovation classes, a group of approximately 20 students from various backgrounds learn to conduct innovation processes both individually and collectively. Above all, they tackle a concrete challenge: designing a project with added-value in terms of technological and social innovation!

The innovation classes target students who are game changers. It invites them in the exciting world of innovation on an international scale. Click here to watch the introduction video to the 2014 innovation classes (2 minutes).

WHO ? The Innovation classes programme is dedicated to students in the last year of their Master

WHEN ? Official opening session of the programme on 21st of September 2015

HOW ?

1. the 2 KICK-OFF days > COHESION

2 days of workshop on 21 and 22 September to create synergies between students from various backgrounds. They will discover the fundamentals in innovation and will be confronted to their first 24 hour innovation challenge!

2. the Monday night workshops > INNOVATION

About ten sessions each Monday night from 6:00 to 9:00 P.M. from 28 September to 14 December. Multidisciplinary groups work on the acquisition of new skills in order to progress in the design of an innovative solution related to the challenge (see next page).

3. the exploratory journeys > INTERNATIONALISATION

During the second semester, students will apply what they learned during the first semester thanks to 2-4 week journeys abroad! The partner universities are: Aalto University (Finland), Keio University (Japan), Massachusetts Institute of Technology (USA), NARA Institute of Science and Technology (Japan), The Texas A&M University System (USA), Trinity College Dublin (Ireland), Tufts University (USA), Universidade Federal do Rio Grande do Sul (Brasil), Universitat Politècnica de Catalunya (Spain)

WHERE? OPENHUB in the MECATRO lab, Stevin Hall, Place du Levant 2 - 1348 Louvain-La-Neuve (access by car via P14 Parking - Porte Lemaître).
THE 2015 INNOVATION CHALLENGE

Design of a totally independent and autonomous single-family home, i.e. zero waste, zero connexion with its environment, transporable by container and that can be built in 4 days by 4 people

CONTEXT

The rapid increase of the world population generates a disturbing expansion of megalopolises and the progressive colonisation of nature by human activity. This expansion can happen either vertically, i.e. via the construction of multi storey buildings, or horizontally.

The former reduce the urbanisation of unbuilt land but significantly modifies the initial building area with profound foundations and ground sealing, whilst the latter initially requires more territories. This expansion would therefore need to be managed in a way that does not prevent a restitution of land to nature.

This will to minimize housing's carbon footprint in a context of unrelenting urban expansion led to the choice of the 2015 Innovation classes challenge: colonisation of natural space by limited density housing areas composed of passive single-family units with recyclable components and superficial foundations.

THE VARIOUS THEMATICS

The innovation challenge covers a large panel of thematics. Hereunder a non-exhaustive list:

- Urbanism
- Sociology
- Grouped housing
- Agriculture
- Materials, structures and assembly
- Packaging and prefabrication
- Isolation, heating systems, energy in houses and EPB
- Alternative sources of energy, consumption management and power assessment
- Wastewater and waste treatment
- Recyclability of materials
- Modes of transport
- Etc.

Each group will chose one or several thematics in close cooperation with the other groups in order to achieve a final integrated result for the whole group. Models production and prototyping at small and/or real scale (for example by 3D printing) are deeply encouraged all along the programme even though a few sessions are specially dedicated to this (cfr next page).
## PROGRAMME 2015

**2 KICK-OFF days**

<table>
<thead>
<tr>
<th>Date</th>
<th>Session</th>
<th>Description</th>
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<tbody>
<tr>
<td>21 &amp; 22 Sept</td>
<td>Session week 2 “KICK OFF”</td>
<td>Innovation is action! After discovering the basics in innovation management, students have 24 hours to face a major challenge: imagining and prototyping a practical solution which helps a patient to lie still in a scanner and remain calm with a regular breathing. At the end of two days of creative thinking, and innovation workshops, students will discover the real challenge for 2015.</td>
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<td>Monday night workshops</td>
<td>Session at week 3 “Speed Dating Experts!”</td>
<td>Fast and yet productive meetings with experts from various backgrounds. The “Speed Dating Experts” is organised to help the students understand key-aspects of the challenge. In this respect, they have to collect an important amount of data to develop the framework of the 2015 innovation project.</td>
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<td>5 October</td>
<td>Session at week 4 “Zero”</td>
<td>This “set to zero” session intends to leverage the multiplicity of collected data during the “Speed Dating Experts” session, gain understanding of the stakes related to the overall thematic and identify contradictions. This will help students to formulate the real innovation challenge they have to address.</td>
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<td>12 October</td>
<td>Session at week 5 “First and foremost”</td>
<td>Open innovation is first of all facing the challenge of collective intelligence. How can students efficiently mobilise group’s skills as well as its creative talents? This requires 3 essential concepts which are too often eclipsed because we instinctively look for an immediate solution. These concepts are: transdisciplinarity, user-centered design and iterative thinking.</td>
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<td>19 October</td>
<td>Session at week 6 “Users centered approach”</td>
<td>Professor Kevin Kelly from Trinity College (Ireland) will demonstrate how design thinking drives innovation beyond technology, focusing on user/beneficiary needs. He will conduct practical exercises directly linked to the 2015 innovation challenge.</td>
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<td>26 October</td>
<td>Session at week 7 “From design to prototype1”</td>
<td>Using the FAB LAB equipment, students develop their first prototypes, with the aim of presenting them during the next session in front of a panel of experts.</td>
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<td>2 November</td>
<td>Session at week 8 “From prototype1 to reality”</td>
<td>Demonstration of a real-case scenario and re-use of the tools introduced in the “zero” and kick-off sessions in order to demonstrate progress in the innovation process and capture added-value. At this stage, students work with the essential concept of MVP (Minimum Viable Product).</td>
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<td>9 November</td>
<td>Session at week 9 “Build-measure-learn”</td>
<td>Session during which students experience iteration from their MVP and discover the key concepts of the “Lean Startup” methodology. “Lean Startup” is initially dedicated to help startup creators, but it has also been adapted to meet larger companies’ needs.</td>
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<td>16 November</td>
<td>Session at week 10 “Open innovation”</td>
<td>Based on the concept validated in the previous session, decision of the model of organisation and networks to activate with regards to the final value proposition.</td>
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<td>23 November</td>
<td>Session at week 11 “Prototype2”</td>
<td>Production of new prototypes</td>
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<td>30 November</td>
<td>Session at week 12 “Pitch to your peers”</td>
<td>Pitch preparation and first rehearsal between students</td>
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<td>7 December</td>
<td>Session at week 13 “Pitch rehearsal”</td>
<td>Solution development and presentation in front of an in-house jury</td>
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<td>tbd</td>
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<td>Final presentation of the joint result by all groups in front of an enlarged jury</td>
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**the exploratory journeys**

**Second SEMESTER**

- Students will travel to work on their Master Thesis in labs and fablabs of partner universities (matching between students and labs currently under progress).