Challenge Based Innovation (CBI)
A project based course where multidisciplinary teams tackle challenges facing the society and search for novel applications for technologies developed at CERN.
Challenge based innovation @ CERN
CERN spin-offs: www, medical imaging, high efficiency solar panels
Challenge based innovation @ CERN IdeaSquare
Methodology: Design Thinking approach

1. Needfinding (discover)
2. Ideation (Solution design)
3. Implementation, proof of concept (deliver)
Aided movement A skirt with a system that helps women with osteoporosis to reduce the hip’s bones break in case of falling.
See:  http://www.cbi-course.com/

Challenges / CBI 15-16

• Creating a literate world: How might we significantly reduce child and youth illiteracy at scale in developing countries with the use of technology?

• Water safety: How might we improve public health by providing safe access to water?

• European labour mobility: How might we increase labour mobility within EU by supporting the workers with useful and actionable information, drawn from big data?

• Food safety in home delivery: How might we home deliver food in a new way that maintains the food at a selected temperature, ensuring its safety?
• Water safety: Well2Go. 78% of wells not fully working
  - sensor + sms-based network to identify failing wells
  - platform to manage and finance wells repairing
Challenge examples / CBI 16-17 / CBI 17-18

- Integration of People with Intellectual and Developmental Disabilities into Society
- Better Shelter 2.0. Improvement of quality of life of people at refugee camps
- Smart Maintenance for Industry 4.0
- Immersive Technologies for Training Activities on Emergency Sanitary Missions
- Operational Methods for Radiation inspection

- Disruptive solutions
- Solutions biased towards ICT
PROPOSALS FOR CBI since 2018

Challenge Based Innovation for the UN Sustainable Development Goals (SDGs)
Multidisciplinary teams, students from ESADE, UPC, IED.
Understand ends in insights
Create ends in ideas
Delivery ends in reality

Intensive kick-off week in BCN 4-9/9
CERN intensive week 10-12/9
CERN intensive week (3 days) 23/10-25/10
CERN intensive weeks 04-13/12

Weekly teamwork & CBI-day (Thursday)
Weekly CBI day (Thursday)

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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<tbody>
<tr>
<td>09:30</td>
<td>LGM</td>
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<tr>
<td>10:00</td>
<td>Knowledge Pill</td>
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<tr>
<td>11:30</td>
<td>Coffee Break</td>
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<tr>
<td>11:45</td>
<td>Coaching sessions 1-2</td>
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<tr>
<td>12:30</td>
<td>Coaching sessions 3-4</td>
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<tr>
<td>13:15</td>
<td>Lunch Break</td>
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<tr>
<td>14:30</td>
<td>Coaching sessions 5-6</td>
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<td>15:15</td>
<td>Coaching sessions 7-8</td>
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<tr>
<td>16:00</td>
<td>Teamwork</td>
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“Knowledge Pills”

- Coaching sessions
  - 1 mentor per team
  - feedback from 3 coaches/fields

Teamwork

- 8 projects
- 5-6 members/p
- 3 schools
KEY DETAILS

**Capacity** 15 participants from UPC (ETSETB (Degree + Master ) + FIB)

**Credits**
12 ECTS Credits in the Degrees. Alternate of PAE
10 ECTS Credits in the Masters. Alternate of MTP + 1 elective

**Costs covered by UPC**
- accommodation, academic materials, prototyping

**Costs covered by students**
- Travel costs, meals

Image: Team Penrose, 2015
The home universities provide local teaching and weekly coaching sessions. During the periods developed at CERN, IdeaSquare will support the teaching team.

Local teaching & coaching includes sessions from three disciplines:

**Business:** ESADE  
**Design:** IED  
**Engineering:** UPC
Students’ profile

Distributed teams with students from

BARCELONA (~45 students)
  . ESADE Business School (15 students)
  . Istituto Europeo di Design (IED) (15 students)
  . Universitat Politècnica de Catalunya (UPC) (15 students)

Thank you for your interest! We will be waiting for your applications!

E-mail to ramon.bragos@upc.edu before May 25, 2019
CHALLENGE BASED INNOVATION

ESADE - UPC - IED - BARCELONA - CERN - GENÈVE