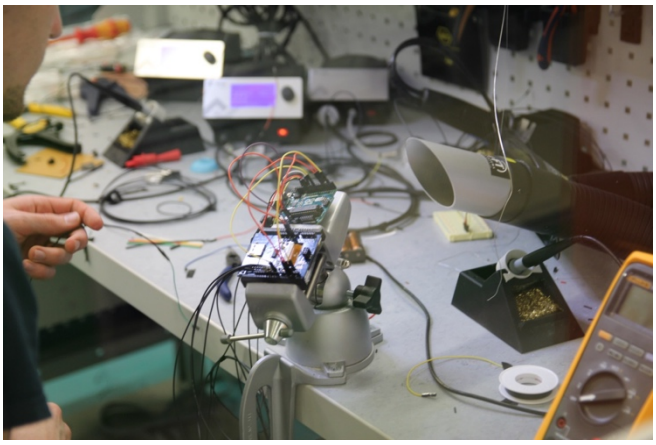
Challenge Based Innovation at CERN IdeaSquare

What is CBI?

Challenge Based Innovation (CBI) is a 3-6-month product and service development project course, where multidisciplinary student teams and their instructors collaborate with researchers at CERN to discover novel solutions for the future of humankind.

The course is run by participating universities from countries around the world. We welcome students from all backgrounds: so far, we've worked with students from e.g. industrial design, electrical and mechanical engineering, business and economics, arts, design, computer science, architecture and robotics.

The projects are an elaborate mixture, where the technologies derived from research at CERN meet societal, human-driven needs. During the course, the students will visit CERN's open innovation lab, IdeaSquare, for design sprints usually ranging from 2 days to 2 weeks. During the design sprints, the students have access to IdeaSquare's prototyping and 3D printing facilities, CERN scientists' expertise, as well as CERN technologies.



Our mission

"Bring together university students to address societal challenges in the spirit of open science and open innovation, inspired by CERN and its experts, to create solutions that contribute to the United Nations Sustainable Development Goals."

Learning objectives

- Develop a mindset that generates highly futuristic ideas that have the potential to challenge the status quo in socially and globally relevant human challenges
- Learn skills applying design thinking and rapid prototyping methods in a practical, real-world project, moving ideas into testable, tangible prototypes quickly
- Develop skills in interdisciplinary teamwork and communication

More information & contact:

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https://www.cbi-course.com/
https://ideasquare.cern

Frequently asked questions:

Who will bring what to the table?

The problem owner (e.g. NGO, company, international organization):

- A challenge briefing (can be e.g. 1-pager) explaining the problem that needs solving
- Potential resources, if needed (can be e.g. access to data or end-users, previous studies)
- Support for the students (this can vary case-by-case depending on how much the problem owner can, and wants, to contribute. In the minimum, an email or a Skype call every 2-3 weeks and answering on the student's questions. The more active the problem owner, the better the solution fit is likely to be

The university:

- A team of 3-5 top-class students, working on the challenge for 3-6 months, normally approximately 20 hours a week on average. In other words, around 1000+ work-hours
- Tasks include: research, interviewing end-users, building prototypes, pitching and gathering feedback from relevant stakeholders
- Theoretical framework and all practical matters related to course organization

CERN IdeaSquare:

- Access to CERN technologies and knowledge
- Education on innovation, disruptive thinking
- Coaching
- Innovative workspace, prototyping equipment and resources

What will each party get out of this agreement?

The problem owner:

A working prototype ("MVP") OR a conceptual model (depending on course goals and scope) of a product or service corresponding to the presented challenge. Presentation of research results in the form of a pitch, white paper, or a publication (TBD case-by-case); accompanied by research data.

The university:

The best course experience of their academic career for the students, inspiring and rewarding problems, exposure to CERN expertise, teaching support during the visits to CERN

CERN IdeaSquare:

Fulfillment of CERN's mission: *unite people from all over the world to push the frontiers of science and technology, for the benefit of all.*

Support our research on innovation processes (published in CERN Journal of Experimental Innovation) and how fundamental research can contribute to society.

What about intellectual property?

IP matters should always be agreed case-by-case: in general, everything developed at CERN is open science and open innovation (see e.g. https://ohwr.org/). The final presentation and thus the results of the project are open for everyone to follow, and the results will be published on the CBI course website (on some cases, e.g. if a student team wishes to take their project to a business incubator, a 6-month postponement can be agreed on the publication.

If either the Problem Owner or a Student Team wants to seek IP of the solution, they are free to agree so bi-laterally without CERN's involvement. In general, if CERN technology is involved, in that case licensing fees might need to be discussed (but not necessarily). See example of CERN policies: https://kt.cern/ip/overview