

## SYLLABUS

### **1404 - InnoLab: Solving Innovation Challenges through Collective Intelligence**

#### **Background and Content**

In today's business world, organizational success is highly dependent on innovation. In addition to the fact that innovation allows organizations to stay relevant in the competitive market, it also plays an important role in economic growth and society. The ability to resolve critical problems depends on new innovations.

Whether a company is looking for fresh ideas for its business, or wants to explore a problem it is facing, an Innovation Challenge is a chance to leverage dozens of new perspectives to enhance their business. Innovation Challenges - as part of the concept of Open Innovation - usually build on the insights that knowledge is broadly distributed in society and hence capitalizing on the "wisdom of crowds" can be effective and efficient.

The purpose of this course is to introduce students to two major approaches on how organizations can proactively pursue innovation activities: creative problem solving and collective intelligence.

By following the hands-on approach of creative problem solving in a structured way, students will learn and live the principles of solving innovation-related challenges – spanning from defining the problem and generating possible responses to evaluating and selecting a final solution for implementation. In addition to being able to execute innovation challenges internally in an organization, students will acquire timely skills on how to tap into external knowledge by means of distributed innovation systems. Distributed innovation systems are an approach to organizing for innovation that seems to meet the challenge of accessing knowledge that resides outside the boundaries of any one organization.

The phenomenon-based approach of collective intelligence emerges through many different applications in innovation management and technology plays an increasingly important part in this. Technology facilitates the development and maintenance of crowdsourcing platforms where people can collaborate to exchange knowledge. Unlike simple problems which have obvious fixes, making progress on complex problems requires dealing with uncertainty and multiple unknowns. Collective Intelligence draws on a combination of data, technology and diverse human skills to address different aspects of uncertainty. In addition, AI is already being used by many businesses and is a great opportunity to augment collective intelligence in real ways.

During this course, students will resolve real-world challenges relating to the working world or the broader society and develop new creative solutions in multidisciplinary teams. The course aims to provide theoretically based understandings of complex real-world innovation challenges, allowing the student to conceptualize innovation related issues and to reflect on these in a practically informed manner. In addition, students will leave the course with enhanced skills in the areas of team building, leadership and project management.

The course uses a hackathon format, including a variety of teaching methodologies such as theory sessions with class discussions, input sessions provided by guest speakers, teamwork-based co-working, coaching sessions based on external expert and peer feedback as well as student presentations. Besides, it deliberately leverages the exceptional entrepreneurship and innovation ecosystem provided by SSE and Stockholm by integrating different player like the SSE Business Lab, companies such as Scania, Telia, Voi, Klarna or Spotify and international field experts sharing their insights and experiences.

## ILOs

The overall intended learning outcome (ILO) for the course is that upon completion, course participants should be able to understand and apply approaches such as structured creative problem solving and collective intelligence as tools to address innovation challenges. Successful participants will also enhance their soft skills regarding teamwork, leadership, communication and project management.

More specifically, after completing the course students should be able to:

1. Execute and reflect on a structured use of internal and external innovation approaches to gain deeper understanding of organizational challenges that restrict or promote the way on how to pursue innovation activities and organizational transformation.

2. Leverage the conceptual and theoretical knowledge skills set of two concrete innovation approaches in order to increase their individual and team-based innovation activity:

- Structured understanding of how to manage and solve organizational challenges by exploring creativity in innovation management (turning idea generation and opportunity recognition into actions)
- Theoretical understanding and strategic use of collective intelligence (and distributed innovation systems) and how it relates to timely phenomena such as crowds, contests, communities and platforms as well as their underlying mechanisms such as collaborative learning, collective decision making and co-creation.

## Teaching Approach

The course follows a hackathon format, built around a series of workshop sessions, and combines diverse learning approaches to engage students with the topics. These approaches encompass readings, lectures, interactive class discussions, student presentations, collaborative teamwork, and real-world case studies.

## Attendance

The course will be held fully **ONLINE via Zoom. Attendance is mandatory for all sessions.** Please note that **Day 1 (Kick-off on Jan 21, 2026)** and **Day 8 (Final presentations on Jan 30, 2026)** are compulsory and cannot be missed. Attendance at the kick-off is required to keep your place in the course; unclaimed spots will be offered to students on the waiting list.

You may miss one session during the course. Please inform the lecturer in advance if you cannot attend. Missing more than one session without a valid excuse will result in a grade penalty.

Your active participation and contribution, both in class and within your team, form part of the final course assessment.

Apart from the in-class contact hours, you are expected to work independently on your project and team deliverables between lectures and coaching sessions. The course is built on teamwork, and project teams will be pre-assigned to maximize collective intelligence and diversity. This means you will have the opportunity to collaborate with an international and globally distributed group of peers. Please approach this as a valuable learning experience and make the most of it.

## **Date & Time**

The course is scheduled from Jan. 21 to Jan. 30, 2026 between 9:15 – 12:00 CET:

- Day 1 – Wed, Jan 21 (kick-off)
- Day 2 – Thu, Jan 22
- Day 3 – Fri, Jan 23
- Day 4 – Mon, Jan 26
- Day 5 – Tue, Jan 27
- Day 6 – Wed, Jan 28
- Day 7 – Thu, Jan 29
- Day 8 – Fri, Jan 30 (final presentation)

## **Assessment**

The overall grade is based on 60% individual assessment and 40% team assessment.

The individual assessment consists of:

- 20% Participation (in-class and teamwork) and
- 40% Reflection paper

The team assessment is based on

- 10% Problem framing (HMW) and
- 30% Project deliverables (pitch presentation and pitch deck).

## **Literature**

The lectures follow four books (optional), several articles and two cases on the major topics of creative problem solving and collective intelligence, as listed below.

Most of the information (e.g. books) in this course is explicated in lectures. Mandatory readings will be made available via Moodle.

*Mandatory:*

- Binder, J., & Watkins, M. D. (2024). To solve a tough problem, reframe it. *Harvard Business Review*, 102(1), 80-89.
- Brabham, D. C. (2008). Crowdsourcing as a model for problem solving: An introduction and cases. *Convergence*, 14(1), 75–90.
- Edmondson, A. (2016). Wicked Problem Solvers. *Harvard Business Review*, 94(6), 52-9.
- Gupta, P., Nguyen, T. N., Gonzalez, C., & Woolley, A. W. (2023). Fostering collective intelligence in human–AI collaboration: laying the groundwork for COHUMAIN. *Topics in Cognitive Science*.
- Gupta, P., Kim, Y. J., Glikson, E., & Williams Woolley, A. (2024). Using Digital Nudges to enhance collective intelligence in online collaboration: Insights from unexpected outcomes. *MIS Quarterly*, 48(1).
- Lakhani K. (2013). Using the crowd as an innovation partner. *Harvard Business Review* 91(4): 60-69.

- Leimeister, J. M. (2010). Collective intelligence. *Business & Information Systems Engineering*, 2(4), 245-248.
- Malone, T. W., Laubacher, R., & Dellarocas, C. (2010). The collective intelligence genome. *MIT Sloan Management Review*.
- Riedl, C., Kim, Y. J., Gupta, P., Malone, T. W., & Woolley, A. W. (2021). Quantifying collective intelligence in human groups. *Proceedings of the National Academy of Sciences of the United States of America*, 118(21).
- Wedell-Wedellsborg, T. (2017). *Are you solving the right problems? Reframing them can reveal unexpected solutions*. *Harvard Business Review*, 95(1), 76-83.

#### Cases:

- Israeli & Avery (2017). Predicting Consumer Tastes with Big Data at Gap
- Tushman M. L., Lisfshitz-Assaf H., & Herman K. (2014). Houston, We Have a Solution: NASA and Open Innovation (B), A+B.

#### Optional:

- Surowiecki, J. (2005). *The wisdom of crowds*. New York: Anchor Books.
- Treffinger, D. J., Isaksen, S. G., & Stead-Dorval, K. B. (2006). *Creative problem solving: An introduction*. Prufrock Press Inc.
- Malone, T. W. (2018). *Superminds: The surprising power of people and computers thinking together*. New York: Little Brown.
- Mulgan, G. (2018). *Big mind: How collective intelligence can change our world*. Princeton University Press.

#### Prerequisites

No previous knowledge required.

#### Faculty

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