

**Implementation Industry 4.0 Paradigm in Education. Ukrainian Experience**  
*“Boosting the role of HEIs in the industrial transformation towards the Industry 4.0 paradigm  
in Georgia and Ukraine”*

609939-EPP-1-2019-1-BE-EPPKA2-CBHE-JP-HEIn4

# Entrepreneurship

in engineering curriculum

# Aims

- Provide business knowledge
- Create entrepreneurial mindset
- Learn how to elaborate ideas, design thinking

I also asked my colleagues to add a **business reflex** to their course

- What is the market value of a new technology? E.g. AI
- What are new business opportunities? E.g. In car advertising
- How disruptive will a new technology be? E.g. BEV vs ICE
- What will be the impact of a new product/service? E.g. SaaS
- .....

# Overview

- Compulsary business courses
- Electives
- Extra-curricular activities

# Compulsary courses

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# Business management (1,5 + 3 ECTS)

- general accounting,
- analysis of the annual accounts,
- investment analysis,
- cost calculation,
- leadership,
- general business knowledge

# Professional Skills (part of Engineering Experiences 9 ECTS)

- Professional skills: creativity
  - 6 hats
  - TRIZ
- Professional skills: professional communication
  - Business communication
  - Academic writing
- Professional skills: ethics
  - Moral judgment
  - Responsibility
  - Business ethics
- Professional skills: project management
  - Scrum
  - Project Management Body of Knowledge(PMBOK)

# Professional Skills (part of Engineering Experiences 9 ECTS)

- Professional skills: entrepreneurship



Dream	looking at trends, brainstorming, ideation
Think	Business plan
Dare	leaving your comfort zone
Do	overcoming procrastination
Persevere	dealing with setbacks

- Professional skills: team dynamics



5 phases: forming-storming-norming-performing-adjourning  
Team composition: Belbin team roles  
Give and receive feedback  
Conflict handling

# Electives

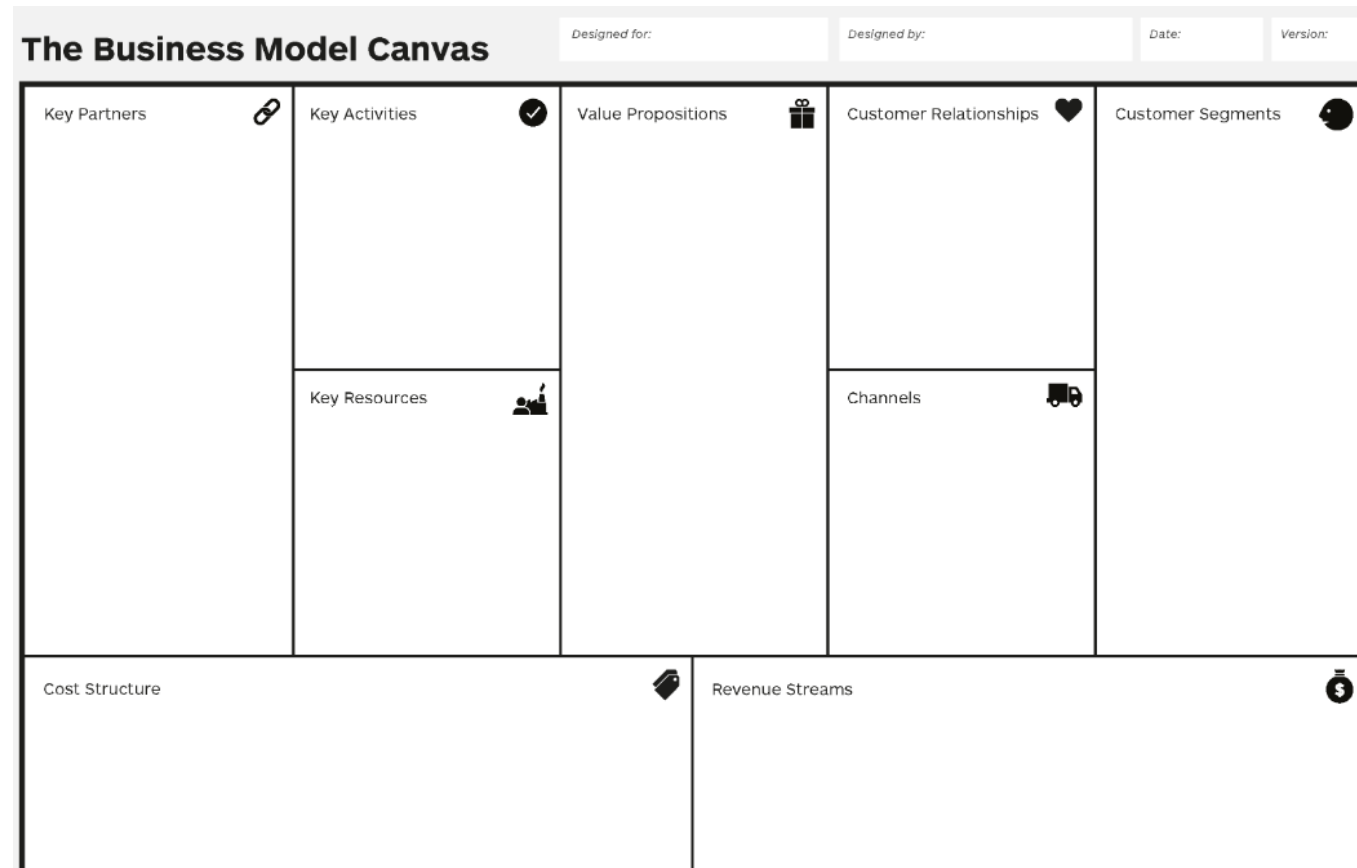
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# Electives

- Management skills (3 ECTS): strategic mgt, marketing mgt, sales mgt, financial mgt
- Interdisciplinary Project (4 ECTS)
- Intrapreneurship (6 ECTS)

# Management Skills (3 ECTS)

- Content
  - Analysis of the annual account
  - Strategic management
  - Financial management
  - Marketing management
  - Sales management



# Management Skills (3 ECTS)

- Guest professors from EHSAL Management school and from KU Leuven FEB
- 9 lessons on Tuesday evening from 18h00 to 21h30 in 2nd semester

# Interdisciplinary project (4 ECTS)

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# Concept

## 2 Faculties

Economic – Engineers

HIR/HW / MBA (Brussels-Leuven)/ MPM / MIBEM (DD-Toulouse) /MiBEB **AND** ING (Ghent)

Interdisciplinary teams  
Interdisciplinary projects  
Technological companies

Students advice companies from 3 perspectives  
**ECONOMY – TECHNOLOGY - SUSTAINABILITY**

# Why?

Two opposing disciplinarians can look at the same thing  
and not see the same thing

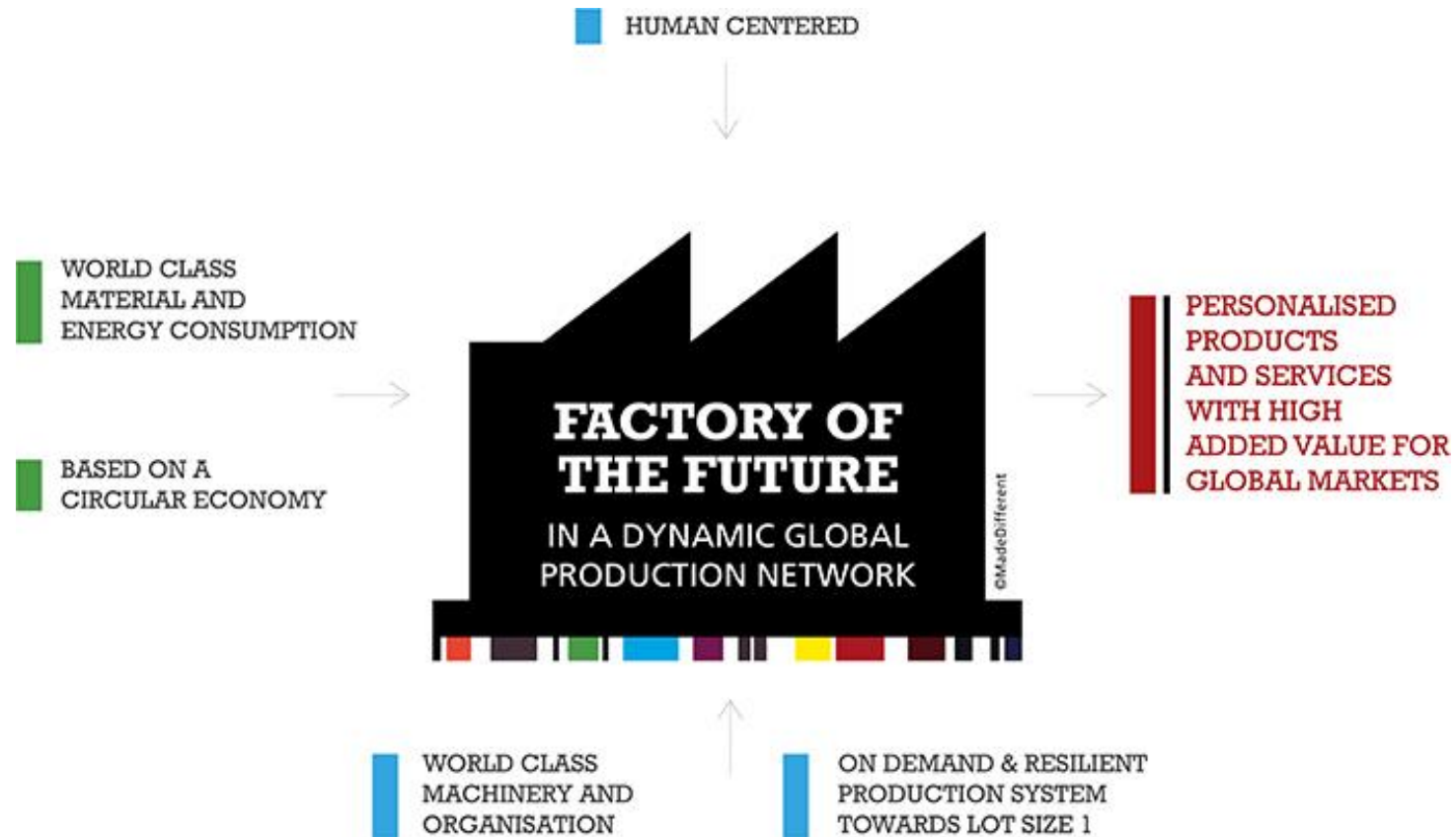
Petrie, H. G. (1976). Do You See What I See? The Epistemology of Interdisciplinary Inquiry. *Journal of Aesthetic Education*, 10(1), 29-43.

Interdisciplinarity generally refers to the appropriate combination of knowledge from many different specialties – especially as a means to shed new light on an actual problem.

In notably effective efforts, the combination of disciplines adds value: the total is more interesting than the sum of the individual contributions or parts.

Brewer, G. D. (1999). The challenges of interdisciplinarity. *Policy Sciences*, 32, 327-337.

# IAP edition 2023



# Factory of the Future: 7 transformations



- **World Class manufacturing technologies**
  - This transformation is based on deploying state-of-the-art production devices.



- **End-to-end engineering**
  - Own products and corresponding services depending on complete value.
  - Sales, production, maintenance, recycling.
  - Virtual models and simulations.



- **Digital factory**
  - Operational processes have been digitized and connected with the internet.
  - A fusion of the real and digital world is on its way.

# Factory of the Future: 7 transformations



- **Human centered production**

- Employees are a significant asset for anchoring production locally.
- Employee involvement in the future development of their company is crucial.



- **Networked factory**

- optimal eco-system of suppliers and partners.
- flexibly in external networks.



- **Eco-production**

- acquiring the materials, production and usage, to disposing of the waste.
- closed materials cycle.
- Energy consumption is drastically reduced.



- **Smart production**

- One-piece-flow as an ultimate approach.

# Selection project company

- Project sheets available on:

<https://blog.associatie.kuleuven.be/krispattyn/iap/>

- Make your choice on this website:

[https://kuleuven.eu.qualtrics.com/jfe/form/SV\\_cu2vSxF67XdOjAx](https://kuleuven.eu.qualtrics.com/jfe/form/SV_cu2vSxF67XdOjAx)

- MBA – MIBEM (DD Toulouse) students have to choose between English Projects only!!
- Open till Sunday **1st of October 2023 at 18h00**
- Top 5

# Company visit

- You will meet your business coach during the kick-off in Ghent
  - Agree how you will communicate!
- Make sure you understand the assignment well!
- Make an appointment right away!
  - In weeks 40, 41 or at the latest 42
  - Prepare your visit!

# Guidance (internal) coaches

- Every team has 2 internal coaches (1 from each campus)
- Three deadlines (DRAFTS):
  - 24/10, 18/11, 05/12
- Students take contact with coaches for feedback meeting
  - Weeks 43 and 49: feedback internal coaches
  - Week 47: feedback company coach
- **Make the appointments as soon as possible!!**

# Three drafts, three steps...

- DRAFT 1: PROJECT DESCRIPTION
  - Research question
- DRAFT 2: ANALYSIS
  - Possible solutions
  - Think out of the box!
- DRAFT 3: (INTERMEDIATE) SOLUTION
  - The chosen solution roughly elaborated

# Coaching by coordinators

- Contact on Wednesdays (25/10 - 29/11)
  - Consult with coordinators
  - We look at the progression
  - Possible obstacles
  - Q&A
- Skype or Teams
  - Link available in Toledo
  - Timetable available in Toledo
- Every team member has to be present at least once!

# Closing Day: 22th of December 2023

- Presentation of the projects in front of a jury
- Plenary session
  - Award ceremony
  - Reception (if covid permits)



Week	Day	Date		Week	Day	Date	
39	Mo	25 September 2023			We	08 November 2023	
	Tu	26 September 2023			Th	09 November 2023	
	We	27 September 2023	INTRODUCTION Ghent		Fr	10 November 2023	
	Th	28 September 2023	INTRODUCTION Brussels		Sa	11 November 2023	
	Fr	29 September 2023			Su	12 November 2023	
	Sa	30 September 2023		46	Mo	13 November 2023	
	Su	01 October 2023	Submit preferred projects <18h00		Tu	14 November 2023	
40	Mo	02 October 2023			We	15 November 2023	
	Tu	03 October 2023	Announcement Teams		Th	16 November 2023	
	We	04 October 2023	Kick-off GENT 10h00-13h00		Fr	17 November 2023	Submit 2nd version
	Th	05 October 2023	Company Visit		Sa	18 November 2023	
	Fr	06 October 2023			Su	19 November 2023	
	Sa	07 October 2023		47	Mo	20 November 2023	Feedback company coach
	Su	08 October 2023			Tu	21 November 2023	
41	Mo	09 October 2023			We	22 November 2023	
	Tu	10 October 2023			Th	23 November 2023	
	We	11 October 2023			Fr	24 November 2023	
	Th	12 October 2023			Sa	25 November 2023	
	Fr	13 October 2023			Su	26 November 2023	
	Sa	14 October 2023		48	Mo	27 November 2023	Submit feedback 2
	Su	15 October 2023			Tu	28 November 2023	
42	Mo	16 October 2023	Group work		We	29 November 2023	Webconference coordinators
	Tu	17 October 2023	Meeting with partner(s)		Th	30 November 2023	
	We	18 October 2023			Fr	01 December 2023	
	Th	19 October 2023			Sa	02 December 2023	
	Fr	20 October 2023			Su	03 December 2023	
	Sa	21 October 2023		49	Mo	04 December 2023	Submit 3th version
	Su	22 October 2023			Tu	05 December 2023	Feedback internal coaches
43	Mo	23 October 2023	Submit 1st version		We	06 December 2023	
	Tu	24 October 2023	Feedback internal coaches		Th	07 December 2023	
	We	25 October 2023	Webconference coordinators		Fr	08 December 2023	
	Th	26 October 2023			Sa	09 December 2023	
	Fr	27 October 2023			Su	10 December 2023	
	Sa	28 October 2023		50	Mo	11 December 2023	Submit feedback 3
	Su	29 October 2023			Tu	12 December 2023	
44	Mo	30 October 2023			We	13 December 2023	
	Tu	31 October 2023	Submit feedback 1		Th	14 December 2023	
	We	01 November 2023			Fr	15 December 2023	Submit Final Report
	Th	02 November 2023			Sa	16 December 2023	
	Fr	03 November 2023			Su	17 December 2023	
	Sa	04 November 2023		51	Mo	18 December 2023	
	Su	05 November 2023			Tu	19 December 2023	Submit PPT
45	Mo	06 November 2023			We	20 December 2023	Presentations - Closing session
	Tu	07 November 2023			Th	21 December 2023	

# Timetable IAP 2023

Company visit

DEADLINE !!!

# Outputs project

- Business advice in a consultancy report
  - **Deadline 15/12/2023**
    - (Digital – upload in Toledo – email to (company) coach(es))
- For regulations and deadlines:
  - Toledo

# Overview outputs

Overview	Document	Deadline
Preparation Feedback 1	Draft consultancy report (1)	23/10/23
Report Feedback 1	Report according template	30/10/23
Preparation Feedback 2	Draft consultancy report (2)	17/11/23
Report Feedback 2	Report according template	27/11/23
Preparation Feedback 3	Draft consultancy report (3)	04/12/23
Report Feedback 3	Report according template	11/12/23
Final version deliverables	Final consultancy report	15/12/23
Presentation	PowerPoint according template	19/12/23

- Submit via “assignments” on Toledo

# Project Agreement

- **The latest 09/10**
  - Send the composition of your team digital to Ms Vivian Boulpaep (vivian.boulpaep@kuleuven.be), Corporate Relations (campus Brussels). See document “composition team” on Toledo.
- **From 13/10**
  - Project agreements will be send by mail to the students. You are responsible for signing the necessary number of copies.
- **The latest 27/10**
  - Email all signed documents to Ms Vivian Boulpaep (vivian.boulpaep@kuleuven.be)

# Evaluation

- Evaluation from different perspectives

- Team / Individual
- Evaluation proces/product
- Evaluation by company coach and internal coach
- Correction based on peer evaluation

	Company	Coaches	
Product	25%	25%	50%
Proces	15%	15%	30%
Presentation	20%		20%
	50%	50%	

Group
Individual

- Evaluation criteria

- Details: see document “IAP Regulations”

Q&A?

Good luck!

Any questions?

Robrecht Janssens (Agoria Vlaanderen)

[Robrecht.janssens@agoria.be](mailto:Robrecht.janssens@agoria.be)

Bart Vandamme (Flanders' Food)

[Bart.Vandamme@flandersfood.com](mailto:Bart.Vandamme@flandersfood.com)

Hilde Wynen (Alimento)

[hilde.wynen@alimento.be](mailto:hilde.wynen@alimento.be)

Ignace Martens (KU Leuven, FIIW, campus Gent)

[ignace.martens@kuleuven.be](mailto:ignace.martens@kuleuven.be)

Kris Pattyn (KU Leuven, FEB, campus Brussel)

[kris.pattyn@kuleuven.be](mailto:kris.pattyn@kuleuven.be)

# Intrapreneurship (3, 5 or 6 ECTS)

(see video)

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# Extra-curricular activities

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# Overview

- business coaching,
- student entrepreneur of the year award,
- Entrepreneurship day,
- activities of our partners (VLAJO, VOKA, Gentrepreneur, The Company,...)

# Business coaching

<https://iiw.kuleuven.be/studeren/haal-meer-uit-je-studie/businesscoach>

The screenshot shows a web browser window displaying the KU Leuven website. The browser's address bar shows the URL <https://iiw.kuleuven.be/studeren/haal-meer-uit-je-studie/businesscoach>. The website header features the KU LEUVEN logo and the text 'Faculteit Industriële Ingenieurswetenschappen'. A navigation menu includes links for Home, Studeren, Onderzoek, Samenwerken, Nieuws & agenda, Over de faculteit, and Contact. Below the header, a breadcrumb trail reads 'Home > Studeren > Haal meer uit je studie > Business coaches'. The main heading is 'Business coaches'. A large photograph shows a group of eleven people standing on a rooftop with a cityscape in the background. A caption at the bottom of the photo reads: 'De business coaches helpen ondernemingsgezinde studenten met het waarmaken van hun plannen.' The Windows taskbar at the bottom shows the search bar with the text 'Typ hier om te zoeken', several application icons, and system information including '8°C Bewolkt', '9:21', and '18/11/2022'.

# Business coaching

## DAG VAN DE ONDERNEMENDE STUDENT

**Donderdag 11 mei**  
**10:00 tot 15:00**

Ontdek het **aanbod** en de **ondersteuning** om te starten als **student-ondernemer**

**Aanwezige partners**

**Cafeteria Campus Gent**

**Vrije toegang**

**unizo**

**vo ka** Vlaams netwerk van ondernemingen

**GENTREPRENEUR**

**vlaio.org** Vlaams Jonge Ondernemingen

Organisatie:

**KU LEUVEN**

**Odisee** DE CO-HOGESCHOOL **JUMP**