

## STUDY GUIDE

### 1ZM20 TECHNOLOGY ENTREPRENEURSHIP

Academic year: 2015-2016



**Department of Industrial Engineering / ITEM**

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## 1. Introduction

Entrepreneurship is a key driver of our economy. Wealth and a high majority of jobs are created by small businesses started by entrepreneurially minded individuals, many of whom go on to create big businesses. Without the creative ideas of entrepreneurs our world would not be as advanced as it is today in the fields of culture, science and technology.

But also intrapreneurs (i.e. entrepreneurs within an existing organization in the corporate world) are becoming increasingly important as they help organizations to generate new business growth. However, not every employee has the proper set of competencies and behaviors to become an intrapreneur. Intrapreneurial leaders think and act differently, they have different motivations and aspirations, and they prefer working in different work environments. It is this differentiation that makes them the perfect candidate to lead new growth initiatives.

Consequently, the new generation of engineers should be able to understand and practice their entrepreneurial / intrapreneurial potential. Entrepreneurship Education is about *inspiring this potential*. People need the mind-set, skills and knowledge to generate creative ideas, and the entrepreneurial initiative to turn those ideas into action.

## 2. Information

### 2.1 Information about the subject

Entrepreneurship is a unique type of creative problem solving process that transforms an idea into an enduring and effective institution in the real world (either on your own or as part of an existing organization). Entrepreneurs not only bring together products and markets, but often also *create* the products and markets as part of the new business development process.

Throughout this course, you will learn to apply flexible and adaptive approaches towards decision making in new business development along with more familiar planning and prediction-based approaches. Using adaptive and flexible approaches (like effectuation), entrepreneurs take small organic steps during their decision making process and apply validated learning approaches as a way to deal with uncertainty. Accordingly, the intellectual content of the course is centered on the notion of “Validated Learning”, defined as an iterative learning process of trying out an initial idea, measuring it to validate the effect and incorporating the lessons learned into the succeeding test (Ries, 2012).

The main deliverables in the course are focused on identifying and testing the key factors that help you decide if a (technology based) idea is a real opportunity and validate and adjust the idea in the market. Therefore, identifying, defining, and understanding the market and all relevant stakeholders is a cornerstone of the course. Equally important, however, is investigating whether the idea is an opportunity for *you*. To answer that, you need to understand who you are and what you want, particularly in relation to the idea and the decision making process needed to further develop this idea. This course is designed to help you do that through a thoughtful and active exploration of the decisions you will make and the experiences you will encounter in pursuing an idea to its fulfillment.

### 2.2 General Information

<u>Course code:</u>	1ZM20
<u>ECTS Credits:</u>	5
<u>Target group:</u>	Innovation Management Operations Management & Logistics Business Information Systems Business and Product Creation Construction Management and Engineering EIT ICT labs Service Design and Engineering Certificate Technology Entrepreneurship and Management

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### 3. Position in Curriculum

This course is part of the Master Programme and Graduate School. In addition it is one of the courses belonging to the Certificate Program Technology Entrepreneurship and Management.

#### 3.1 Class planning: day, time, place

Semester A, Quartile 2, Timeslot D.

Classes are scheduled on (please refer to OASE / OWInfo for the exact date and location):

- Monday 18:45 - 20:30, Auditorium 6  
(Opening Lecture, **Only on Monday 9 November 2015**)
- Wednesday 13:45- 17:30, Auditorium 6  
(Face-to-face lecture: Case Discussion & Assignment Instructions)
- Friday 08:45-12:30, Auditorium 11 and Auditorium 14  
(Coaching session / workshop: Team Assignments)  
Please note: on Friday 8 January 2016 we will have a different location  
(The Auditorium is then reserved for the Open Day)  
08:45-12:30, Matrix 1.41 and Flux 1.04

#### 3.2 Relation with other subjects

Recommended follow-up courses in the Innovation Management Master are: *System Dynamics (1ZM65)*, *Entrepreneurial Marketing (1ZM120)*, *Strategy and Technology Management (1ZM40)*, *Entrepreneurial Finance (1ZM70)*, *Open Innovation (1ZM90)*.

#### 3.3 Admission Criteria

Enrollment in the Master programme / Graduate School or the Certificate Program Technology Entrepreneurship and Management.

#### **4. Learning Objectives**

The aim of this course is to develop your awareness, understanding and application of flexible and adaptive decision-making approaches along with more familiar prediction and planning-based methods for decision making in the face of uncertainty in new business development based on new technology.

Consequently, at the end of this course you should be able to:

- Distinguish flexible and adaptive decision-making logics as used by expert entrepreneurs from the prediction and planning-based approaches (i.e. traditionally accepted business management practices) and argue their application under different contingencies.
- Master the techniques that enable you to spot or create new business ideas.
- Validate and adjust a new business idea in the market (i.e. is an idea a real opportunity?) by assessing and incorporating the feedback from different stakeholders.
- Use flexible and adaptive (i.e., action-based) approaches to new business development.
- Assess yourself with respect to flexible and adaptive decision-making logics as opposed to prediction and planning-based approaches and reflect what factors helped or hindered you in flexible and adaptive approaches.

## 5. Organization

Below we provide an overview of the organization of the course.

### 5.1 General Course Overview and Structure

The course consists of four different parts.

PART I. Theory: The first part of this course will help you to create knowledge and understanding of Technology Entrepreneurship in general, and awareness and understanding of flexible and adaptive decision-making approaches along with more familiar prediction and planning-based methods for decision making in particular. To do so, theory will be outlined in the web lectures & plenary face-to-face lectures as well as in the required textbook and articles. Please note that not all theory will be dealt with during class and that students partly need to rely on *self-study* when preparing for their final exam.

PART II. Practice: The second part of the course will show lessons learned from ‘real-life’ case examples as well as entrepreneurs that will share their experiences with you during a number of testimonials.

PART III. Application (Team Assignment): The third part of this course is focused on internalizing and applying the theory discussed in class by means of ‘*learning by doing*’. More in particular, within a team setting, you will apply the flexible and adaptive decision-making approaches along with more familiar prediction and planning-based methods for decision making in the face of uncertainty in new business development based on new technology.

PART IV. Reflection (Individual Assignment): The final part of the course is related to assessing yourself with respect to flexible and adaptive decision-making logics as opposed to prediction and planning-based approaches and reflect what factors helped or hindered you in flexible and adaptive approaches

The structure of the course is as follows:

Monday	Tuesday	Wednesday	Thursday	Friday	Follow-up
Preparatory activities before Wednesday		Face-to-face lecture: Case discussion & assignment instructions	Preparatory activities before Friday	Workshops / Coaching sessions & Assignment	Follow-up activities after Friday

Each part of the week as well as the corresponding material belonging to that particular part of the week will be represented by a unique colour so that you understand which part of the week we are dealing with.

Each week, there are two moments in time that we will meet each other face-to-face:

1. On **Wednesday** we will have the face-to-face lectures (case discussion & assignment instructions).

- In preparation of these lectures, you are required to watch the web lectures and read the literature (chapters and/or articles) and case related to that particular week to develop an in-depth understanding of the theory (indicated as **Preparatory activities before Wednesday**).
- Contribution to discussion forum on Oncourse.  
In the lectures on Wednesday a case will be discussed. In preparation of this case, students are inclined to read the case and answer the preparatory question relating to the case. The answer to this question (and possibly other remarks) have to be communicated using the associated Oncourse forum.

2. On **Friday** we will have the workshops / coaching sessions. Please note that **attendance** to the workshops / coaching sessions on Friday is **mandatory**. Not showing up *will have consequences* unless a valid reason for absence is provided by the student.

The general objective of these workshops / coaching sessions is to apply the theory and associated practical tools to your own business idea. This is translated in a number of weekly assignments.

- Some of the assignments require preparation in the form of gathering information, preparing questions or an intermediary presentation (indicated as **Preparatory activities before Friday**).
- The workshops / coaching sessions offer you the opportunity to practice certain skills, develop your own business idea and receive support and feedback in completing the assignment.
- In general, after the workshop you get 1 week to complete the assignment (indicated as **Follow-up activities after Friday**).

All material will be posted on Oncourse & detailed information about the assignment will be provided during the face-to-face lecture on Wednesday.

Two dates are particularly important with respect to the team assignment.

**Before Wednesday 11 November 2015**, teams of maximum 5 students should be formed. You can subscribe for a team via Oase. Each team will be assigned to a coach and to a particular time slot on Friday. The schedule including your coach, time slot and location will be made available on Oncourse.

**On Tuesday 17 November 2015, you have to submit** a one page document about the Business Idea of your group. Based on this document you will receive a **Go / No Go** to develop your business idea further during the rest of the course.

### **Submitting the weekly assignments**

Please name your documents in the following way:

- Business model slide deck (ppt format)
  - Team#\_week#\_BM\_part1
- Week Assignment (word or pdf format)
  - Team#\_week#\_part2
- Reflection report (word or pdf format)
  - Student name\_week#\_part3

Documents that are not properly named, will not be evaluated by your coach.

### General write-up format

When handing in your assignment(s) always....

- Write in clear English. Be precise in making statements/claims and try to avoid sentences that may somehow be ambiguous;
- Develop a complete but to-the-point storyline;
- Make a cover page listing the course, the number of the team, the name of the particular assignment, the name of the students and their student numbers;
- Use page numbering and spell check!;
- Use 12 point Times New Roman with 2cm margins on all sides.

### Deadlines

All deliverables related to the assignments can be mailed to your responsible coach ([m.m.a.h.cloodt@tue.nl](mailto:m.m.a.h.cloodt@tue.nl) or [a.s.a.bobelyn@tue.nl](mailto:a.s.a.bobelyn@tue.nl)). The deadline of each assignment is at 11:59 PM of the indicated day.

## 5.2 Class Planning

The specific structure for each particular week is posted on Oncourse:

<https://oncourse.tue.nl/2015/>

In table 1 (see Appendix 1) you will find a brief overview of each week, but remember **it is important that you read the structure document at the start of each week very carefully** (see Oncourse).

## 5.3 Oncourse

To visit Oncourse please go to the following website: <https://oncourse.tue.nl/2015/>

- Log-in with your TU/e account (username and password)
- Click on the course category IE & IS
- Click on ‘Technology Entrepreneurship (1ZM20)’

### How to use Oncourse

There is a manual available on :

<https://oncourse.tue.nl/2015/course/view.php?name=manuals>

## 5.4 Mediasite

When you click on a particular web lecture in Oncourse you will be automatically transferred to Mediasite. Be aware that Mediasite can be identified by your internet browser as an ‘unsafe’ environment. If you are not able to see the web lecture adjust your settings (e.g. ‘show this content’).

- Log-in with your TU/e account (username and password)
- The web lecture will start in the Oncourse Environment.

### Optional

Go to the following media website: [videocollege.tue.nl](http://videocollege.tue.nl)

- Log-in with your TU/e account (username and password)
- Click on TU/e lectures
- Click on (1) Industrial Engineering
- Click on 1ZM20 Technology Entrepreneurship

## 5.5 Course material

### Compulsory Literature:

#### Textbook

Textbook: Burns, P., 2014, *New Venture Creation: a framework for entrepreneurial start-ups*, Palgrave Macmillan, UK. ISBN: 978-1-137-33289-9

#### Obligatory Chapters:

- 1-6
- 8
- 10-15

#### Articles

- Chesbrough H. and R.S. Rosenbloom, 2002, The role of the business model in capturing value of innovation: evidence from Xerox Corporation's technology spin-off companies, *Industrial and Corporate Change*, volume 11, issue 3, pp. 529-555.
- Gans, J.S. & Stern, S. 2003, The product market and the market for "ideas": commercialization strategies for technology entrepreneurs. *Research Policy*, Volume 32, pp. 333-350.
- Read, S., Dew, N., Sarasvathy, S.D., Song, M., & Wiltbank, R. 2009, Marketing under uncertainty: the logic of an effectual approach, *Journal of Marketing*, Volume 73, issue 3, pp. 1-18
- Sarasvathy, S.D., 2001, Causation and effectuation: toward a theoretical shift from economic inevitability to entrepreneurial contingency, *Academy of Management Review*, volume 26, issue 2, 243-263.

#### (Web)lecture slides

- 7 weeks of Web lectures
- 7 weeks of Face-to-Face lecture slides

### Optional additional literature:

#### Textbook

- Chapters 7, 9 and 16 of the course handbook by Paul Burns.

## 6. Type of examination

### 6.1 Type of examination

- Written exam - 30% of the final result
- Final Assignment - 70% of the final result

**1. Written Exam (Individual exam):** The individual exam is a closed-book exam covering the compulsory literature consisting of the textbook, the articles and the (web)lectures. Please note, you have to hand in the complete exam at the end of the exam session (it is not allowed to take the exam home).

**2. Weekly Assignment (Team and Individual):** The weekly assignment consists of three parts and **all three parts have to be handed in each week!** You can send the assignment via e-mail to your team's lecturer before the specified deadline. The assignment descriptions are posted on Oncourse.

- The business model slide deck including that particular week's iterations and a proper argumentation why the iterations are made. This is a team assignment.
- The assignment of that particular week. This is a team assignment.
- The reflection report of that particular week. This is an individual assignment.

**3. The final assignment** will consist of:

I. A 2 minutes video pitch & a final report containing the ultimate business model as well as an elaborated description of and argumentation for all the different building blocks. The final report is an integration of the findings of all week assignments and the last iteration of your business model. We also expect you to incorporate the feedback you received from the coaches. The final report may consist of 20 pages maximum (excluding title page and appendices). The format to be used for the 2 minutes video pitch and final report can be found on Oncourse (80% of the final assignment).

II. The collection of all 7 reflection reports (20% of the final assignment).

**Deadline for the final assignment is: Friday 15 January 2016, 11:59 PM at the latest.**

Note, deadlines are final and should be respected.

## **Final grade**

The final grade will consist of a weighted average of the final assignment and the exam. The final assignment will determine 70% - and the exam will determine 30% of the final grade of the course. **To pass the course, the final grade must equal 5.5 or higher.**

A retake of the team assignment is offered and consists of an adjustment of the final report and/or video pitch in those areas that are qualified as unsatisfactory.

A re-exam of the individual exam is offered and consists of a closed-book exam covering the compulsory literature comprising the textbook, the articles and the (web)lectures. Please note, you have to hand in the complete re-exam at the end of the exam session (it is not allowed to take the re-exam home).

Students who score below 5.5 after their re-examination have to redo the whole course in the next academic year.

## **6.2 Compulsory course material**

See section 5.5 Course Material. In that section we provide an overview of the compulsory course material.

## **6.3 Planning of examination**

### Assignment deadlines:

- Deadline Week 1: 17 November 2015 and 20 November 2015
- Deadline Week 2: 27 November 2015
- Deadline Week 3: 4 December 2015
- Deadline Week 4: 18 December 2015
- Deadline Week 5: 18 December 2015
- Deadline Week 6: 8 January 2016
- Deadline Week 7: 15 January 2016
- Deadline final assignment: 15 January 2016

### Written Exam

Written Exam (1ZM20): Semester A, Quartile 2, Thursday, 21-01-2016, 13:30-16:30

Written Re-exam (1ZM20): Semester B, Quartile 3, Thursday, 14-04-2016, 18:00-21:00

## **6.4 Dates feedback**

- Q&A session: Wednesday, 13<sup>th</sup> of January 2016, question and answer session.
- Exam: Wednesday, 3<sup>rd</sup> of February 2016, inspection session.
- Final assignment: Wednesday 17<sup>th</sup> of February 2016, Overall feedback and inspection session.

## **6.5 Assessment criteria**

The assessment criteria for the final assignment are posted on Oncourse (will follow as soon as possible).

## **7. Anti-plagiarism**

When you submit your work under your own name you are asserting ownership of that work. When using ideas of another person, you must give that person appropriate credit through referencing. Referencing serves multiple purposes: (i) it allows readers to further explore sources you have consulted, (ii) it shows the depth of your own thinking and process of inquiry, (iii) it allows you and your readers to compare and contrast your position with other people's positions, agreeing with some, disagreeing with others, and (iv) it gives proper credit to the hard work that many people have done before you.

## **8. Contact**

For questions please contact Dr. Myriam Cloudt ([m.m.a.h.cloudt@tue.nl](mailto:m.m.a.h.cloudt@tue.nl))

## 9. More information

Please consult **Oase** (<http://onderwijs1.tue.nl/>)

a) Login

b) Go to 'Activities' and click on '1ZM20 Technology Entrepreneurship'

Please consult **Oncourse** (<https://oncourse.tue.nl/2015/>)

a) Login

b) Go to 'course category IE & IS' and click on 'Technology Entrepreneurship (1ZM20)'

Please consult **Mediasite** (web lectures) ([videocollege.tue.nl](http://videocollege.tue.nl))

a) Login

b) Go to TU/e lectures and click on (1) Industrial Engineering and then click on 1ZM20 Technology Entrepreneurship

## APPENDIX 1

**Table 1. Organization of the course**

WEEK	DATE	TIME	FORMAT	TOPIC	LECTURER	LOCATION
1	9-11	18:45-20:30	Opening lecture	Introduction of the course "Technology Entrepreneurship"	M. Cloudt	AUD 6
1			Preparatory Activities Before Wednesday	Read the studyguide; Watch web lectures; Read chapters 1 & 3 and article Sarasvathy (2001); Read case "TerraCycle"; Read the handout PDF "27 creativity & innovation techniques explained"		
1	11-11	13:45-17:30	Face-to-face lecture	Opportunity Generation and Effectuation / Causation & Case: TerraCycle	M. Cloudt	AUD 6
1	Deadline is 11-11		Preparatory Activities Before Friday	Set-up a team & list some problems that a good business idea could solve		
1	13-11	08:45-12:30	Coaching Session	Creative problem solving & use of creativity techniques.	A. Bobelyn N. Kerstens (M. Cloudt)	AUD 11 AUD 14
1	Deadline is 17-11		Follow-up activities week 1	Assignment 1		
2			Preparatory Activities Before Wednesday	Watch Web lectures; Read chapter 5 and article Chesbrough and Rosenbloom (2002); Read case "Uber"		

2	18-11	13:45-17:30	Face-to-face lecture	Business Model Development & Case: Uber	M.Cloudt	AUD 6
2			Preparatory Activities Before Friday			
2	20-11	08:45-12:30	Coaching session	Value Proposition Canvas	M. Cloudt A. Bobelyn	AUD 11 AUD 14
2	Deadline is 27-11		Follow-up activities week 2	Assignment 2		
3			Preparatory Activities Before Wednesday	Watch Web lectures; Read chapters 2, 10, 12 and 13; Read case "Yahoo!"		
3	25-11	13:45-17:30	Face-to-face lecture	The entrepreneur and the winning team & Case: Yahoo!	M. Cloudt	AUD 6
3			Preparatory Activities Before Friday			
3	27-11	08:45-12:30	Coaching session	Negotiation skills	STU	AUD 11 AUD 14
3	Deadline is 4-12		Follow-up activities week 3	Assignment 3		
4			Preparatory Activities Before Wednesday	Watch Web lectures; Read chapters 4, 5 & 6 and article Gans and Stern (2003) & Read et al., (2011); Read case "Senz Umbrellas"		
4	2-12	13:45-17:30	Face-to-face lecture	Commercialization strategies & Case: Senz Umbrellas	A. Bobelyn	AUD 6
4			Preparatory Activities Before Friday	Prepare presentation on current state of business model		
4	4-12	08:45-12:30	Workshop	Intermediary presentations	M. Cloudt A. Bobelyn	AUD 11 AUD 14

4	Deadline is 18-12		Follow-up activities week 4	Assignment week 4		
5			Preparatory Activities Before Wednesday	Watch Web lectures; Read chapter 11; Read case “Senz Umbrellas”		
5	9-12	13:45-17:30	Face-to-face lecture	Risk and Uncertainty & Case: Senz Umbrellas	A. Bobelyn	AUD 6
5			Preparatory Activities Before Friday			
5	11-12	08:45-12:30	Workshop	Q&A risk & uncertainty	M. Cloodt A. Bobelyn	AUD 11 AUD 14
5	Deadline is 18-12		Follow-up activities week 5	Assignment week 5		
6			Preparatory Activities Before Wednesday	Watching Web lectures; Read chapters 14 & 15; Read case “DataMining”		
6	16-12	13:45-17:30	Face-to-face lecture	Discovery based planning at Data Mining	A. Bobelyn	AUD 6
6			Preparatory Activities Before Friday	Read assignment week 6 and mail questions		
6	18-12	08:45-12:30	Workshop	Q&A financial planning	M. Cloodt A. Bobelyn	AUD 11 AUD 14
6	Deadline is 8-1-2016		Follow-up activities week 6	Assignment week 6		
7			Preparatory Activities Before Wednesday	Watching Web lectures; Read chapter 8, Read case “Terracycle”		
7	6-1	13:45-17:30	Face-to-face lecture	Growth and exit & Case: Terracycle	A. Bobelyn	AUD 6
7			Preparatory Activities Before Friday	Prepare pitch		

<b>7</b>	<b>8-1</b>	<b>08:45-12:30</b>	<b>Workshop</b>	<b>Pitching your business idea</b>	<b>M. Cloodt A. Bobelyn</b>	<b>Matrix 1.41 Flux 1.04</b>
7	<b>Deadline is 15-1-2016</b>		Follow-up activities week 7	Assignment week 7		
<b>8</b>			<b>Wrap-up</b>			
<b>8</b>	<b>13-1</b>	<b>13:45-17:30</b>	<b>Q&amp;A: assignment and exam</b>		<b>M. Cloodt A. Bobelyn</b>	<b>AUD 6</b>
	<b>15-1</b>		<b>Submit final assignment</b>			
	<b>21-1</b>		<b>Exam</b>			