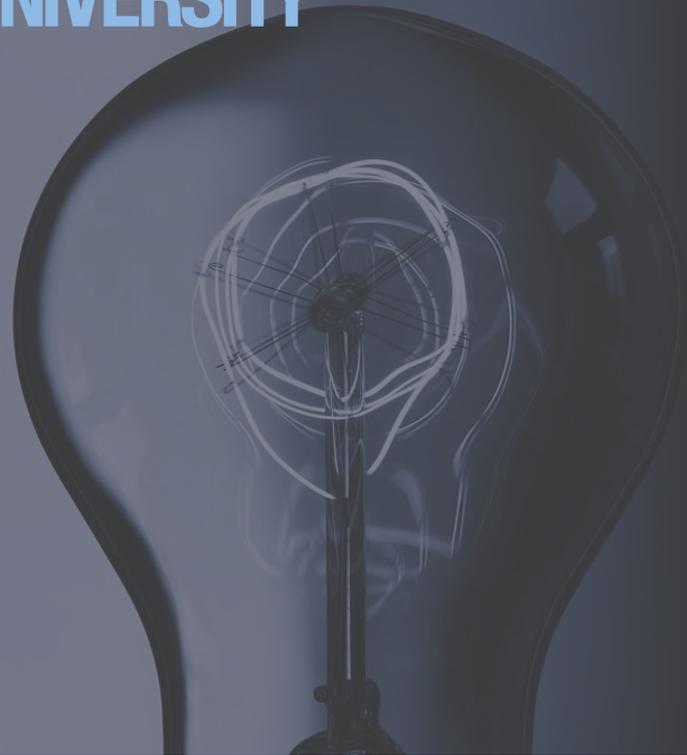




Research Area
Technology,
Innovation, Marketing,
Entrepreneurship

RWTHAACHEN
UNIVERSITY



MANAGING THE INNOVATION PROCESS (MIP) – ONLINE FORMAT

PROF. FRANK T. PILLER

SYLLABUS

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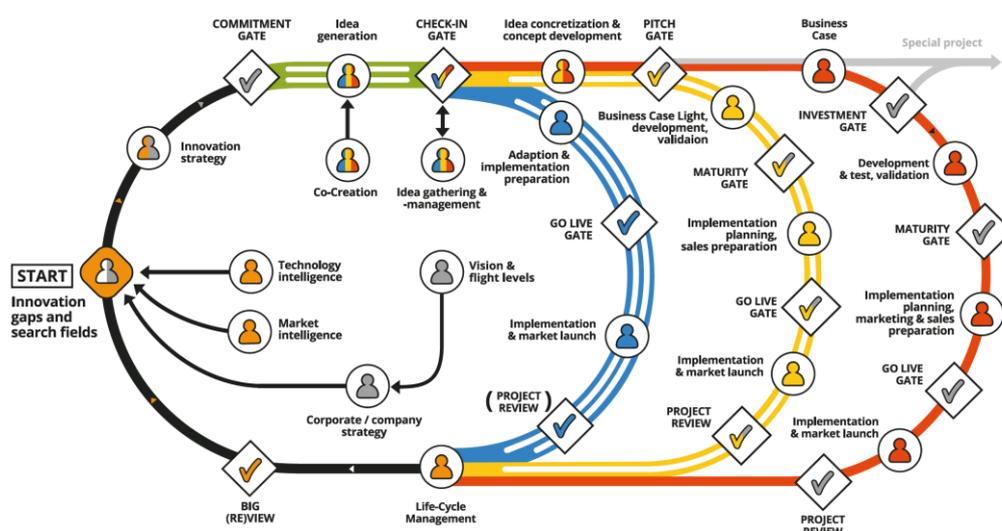
Teaching assistant: Anja Leckel | leckel@time.rwth-aachen.de

SUMMER TERM 2019

1 COURSE OVERVIEW

Course Name	Managing the Innovation Process (online)
Degree Programs	1. Master BWL 2. Master Wi.Ing. 3. Master Wirtschaftswissenschaften Note: This is a TIM Core Lecture
Lecturers	Prof. Dr. Frank Pilller
Coordinator	Anja Leckel (leckel@time.rwth-aachen.de)
Location, Time	Online video lectures and assignments at your convenience

Content Description: This lecture follows the various activities along the **stages of the innovation process on the level of an innovation project**. It provides participants with a decision structure along these stages, following the “Big Picture” of innovation management (see Figure below). The main part of the lecture provides an introduction into methods of gathering need information and creative problem solving. We place a special emphasis on evaluation methods for idea screening and concept selection. The class will end by looking into the final stages of an innovation project (market launch) and the evaluation of project performance.



In participant presentations, we will learn about examples from industry and about new developments and discuss how they change the textbook knowledge. We will contrast our current understanding of the innovation process, as taught in this class, with upcoming conceptions of innovation, like Design Thinking, SCRUM, or agile iterative development.

Qualification Objectives:	Participants shall ... <ul style="list-style-type: none"> ▪ understand different process structures of an innovation project, their contingencies, and central activities along the phases of the innovation process; ▪ know sources for customer need information and different approaches of market research and customer co-creation; ▪ know different methods supporting technical problem solving to generate solution information, including creativity techniques. ▪ experience the importance of soft skills and leadership capabilities for managing innovation successfully; ▪ know core theoretical work explaining success factors on the level of an innovation project and get insight into recent empirical research on these factors;
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	<ul style="list-style-type: none">▪ be able to connect theories of innovation and models explaining innovation success with actionable knowledge for industry practice;▪ develop the ability to critically reflect common perceptions about innovation management and gain their own understanding of the factors making an innovation project successful.
Literature:	Relevant literature will be available at the beginning of the semester in the online course.
Examination / Grading	Written exam (100%). You have the possibility to gain +0.3 / 0.4 or even +0.6 / 0.7 bonus points on your exam grade by either <ol style="list-style-type: none">1. Submitting online assignments (case studies) and peer-reviews of your fellow students' assignments. These online assignments serve as a very good exam preparation, since they are structured alike OR2. Alternatively, in 2019, you also have the option to achieve those bonus points by taking part in an interactive Design Thinking course.
Participation Requirements:	<ul style="list-style-type: none">▪ Solid command of English
Group Size:	unlimited
Workload:	Approx. 40 hours of lecturing and exercises Approx. 90 hours of individual preparation
Type of Teaching:	Video lectures, homework. The course will be managed via the e-learning platform edX . You will be registered to the platform after admission to the class.
Language:	All lectures and materials will be in English language.
Credits:	5

You can find further information about the **MIP InClass** (not taking place in 2019) and the **MIP Online** format in the 10 min Video Teaser by Prof. Piller on the TIME website: <http://www.time.rwth-aachen.de/cms/TIME/Studium/Veranstaltungsuebersicht/~htdw/Veranstaltungstrailer-SoSe/>

2 COURSE ORGANIZATION

Schedule for Managing the Innovation Process Summer Term 2019

The course comprises of weekly **video lectures** and voluntary online assignments. Videos will be streamed on edX. All videos available all semester long. Online assignments will be announced via email.

Modules	Video lectures
Week 1	-Introduction Video & Best of MIP Overview Video -TIM Bootcamp Videos* -The Big Picture
Week 2	The Frontend of Innovation (FEI) -Trend Analysis and Opportunity Recognition -Methods of Trend Analysis and Opportunity Recognition
Week 3	-Starting an Innovation Project: Strategy Phase the Product Innovation Charter -Idea Generation & Enrichment -Concept Generation
Week 4	-Generating Market Insights: “Voice of the Customer” and ODI -Empathic Design: Observing customers and users -Co-Creation: Gathering Ideas and Concepts from the Periphery
Week 5	Creativity theory and techniques: -Part I: What is creativity? -Part II: Different Schools of Creativity -Part III: Amabile’s Componential Theory of Creativity -Part IV: Creativity techniques
Week 6	Development Stage: - Technical Problem Solving - Product protocol - Systematic problem solving
Week 7	- Experimentation as a core activity of problem solving - TRIZ (or TIPS): Theory of Inventive Problem Solving) - Open Innovation
Week 8	Evaluating and Screening - Part I: Innovation is Experimentation - Part II: Scoring Models for Internal Selection - Part III: Concept Testing with Customers - Part IV: Rapid Experimentation
Week 9	Launch and Nurture stage: - Diffusion and Adoption - Sales Forecasting: ATAR model - “Crossing the chasm” or: not all people are the same
Week 10	- A model of consumer reactions towards new products - Methods and principles - Ramp Up of Manufacturing
Week 11	Project Review: Project controlling and KPIs for Innovation
Week 12	Recap

At the end of the semester, there will be a few (optional) **exam preparation sessions**. Dates will be announced via Email during the semester. They will take place on Wednesdays 16:30-18:00 in room B037 (3011|037) in Kackertstr. 7. Please note that these sessions will not take place on all of the dates appearing in RWTHonline at the beginning of the semester.

* **TIM Bootcamp:** If you have never had an innovation class with Prof. Piller, please watch our **Mini-MOOC: The TIM Bootcamp**. On edX or following this link, if you want to watch it earlier.

<http://frankpiller.com/inno-class-videos> (time required: about 2 hours)

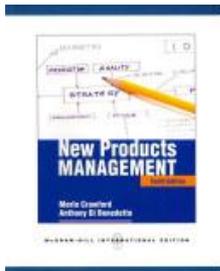
This series of short videos will introduce you into innovation management and provides important definitions and concepts.

3 REQUIRED READINGS AND CLASS MATERIALS

Required readings will be communicated via e-mail and edX to all class participants.

Optional:

To clarify certain aspects, we recommend the following textbook for this class:



This customer-centric perspective on innovation management helped us to outline the class, and we refer frequently to it:

Charles Merle Crawford & Anthony Di Benedetto: **New Products Management**, 10th edition, New York: McGrawHill, 2011.
Note that also an 11th edition (2014) is available of this book, which of course can also be used for the class. However, the RWTH library mainly stocks the 10th edition (2011).



Another good book we will refer to frequently is:

Steven Eppinger and Karl Ulrich. **Product Design & Development**, 4th edition, New York: McGrawHill, 2008.



The “Big Picture” framework that we use throughout the class is described in more detail in this short book

Hans Joachim Lercher: **Big Picture: The Innovation Model**. Graz: Campus02, 2017. Available for **free download** at SSRN:
<https://ssrn.com/abstract=2965373>

4 Online Format

Dear Students of Managing the Innovation Process (MIP online), welcome to the online class of this TIM core lecture!

Customize your class schedule

The MIP course has always been an interactive in-class core lecture on Technology and Innovation Management with Prof. Frank Piller. However, as many master students need to adapt their studies to internships, semesters abroad, student jobs etc., we offer you a way to follow this course completely online and to customize your class schedule: You can decide when to watch the lecture videos, when to read additional literature, and whether & when you want to engage in voluntary online assignments to check your understanding and gain bonus points on your exam grade.

This is how the online course works

You will join an online course room on a platform called "edX edge". You will get a manual via the moodle course room. The moodle course room will only be used for initial documents, emails and grading. edX is a video-centered platform offering "Massive Open Online Courses" (MOOC). All lecture modules will be released at the beginning of the semester. You can find the topics for each week in the syllabus. In order to give you the freedom to schedule for yourself - but at the same time setting some incentives to follow the class throughout the semester - we set a two-weeks timeframe to submit and peer-review home-work assignments for each topic area of the course. Peer-reviews are an important part of the

Each assignment and peer-review is worth an indicated number of points - according to the amount of effort that is needed. If you reach 60% of the total number of points, you will get a bonus of 0,3 / 0,4 on your exam grade. 85% will give you a bonus of 0,6 / 0,7.

Tutorials

Moreover, we will offer a few In-Class tutorials – purely voluntary, no compulsory attendance – to discuss your questions, organizational issues, and exemplary exam questions from previous years.

The final exam

The final exam (computer exam in the Zuselab) covers all the lecture videos and all the additional material that is clearly indicated as "required readings".

The official examination guidelines:

The course grade will be determined based on one of the following modes of evaluation:

- Option A: examination (100%, graded, 75 min.*)
- Option B: examination (50%, graded, 75 min.*) and paper (50%, graded)
- Option C: paper (100%, graded)

*60 Min exam + 15 Min. to read the case

Module component for options A and C: There is also the possibility to improve grades on the voluntary submission of written exercises. For each written exercise, 1-10 points are awarded, depending on the extent and difficulty. The grade of the regular examination can be improved by 0.3 or 0.4 points if 1. the regular examination was passed without this improvement with a grade of 4.0 or better, and 2. if at least 60% of the possible points for written exercises were achieved. The grade of the regular examination can be improved by 0.6 or 0.7 points of score if 1. the regular test was passed without this improvement with a grade of 4.0 or better and 2. if at least 85% of the possible points for written exercises were achieved

The final mode of evaluation (A, B, or C) will be announced at the beginning of the course. Otherwise, **option A applies.**

5 Design Thinking Project Course in summer 2019

Together with Dr. Susanne S. Wosch, manager at Deutsche Telekom AG and associate lecturer at TIM, we will provide an optional Design Thinking Project Course in summer 2019. **Successfully participating in all six sessions of this course and the group work associated with it, will bring the following benefits:**

1. You will learn/deepen your knowledge on applying the design thinking methodology, which will be rewarded with a certificate by Dr. Susanne Wosch as approved design thinking lecturer.
2. You will participate in an up to date and business relevant challenge.
3. You will receive bonus points on your exam grade as an alternative to submitting online case assignments during the semester.

There will be 6 in-class sessions: 30 April, 14 May, 11 June, 18 June, 25 June, 9 July Taking place in room B301, Kackertstr. 7, 3. floor. Tuesdays, 2:00pm to 6:00pm.

Maximum of 32 students. Registration via email to Anja Leckel via Leckel@time.rwth-aachen.de with a short motivation and confirmation to be available in all six sessions. First come, first serve. Waiting list only up to April 30. No moving up after first session. Certificate and grade bonus only with full participation.

There will be a separate and much more detailed course outline for this Design Thinking Course in the moodle course room.

Short introduction to the Design Thinking Course:

Overall goal: Students gain conceptual and practical knowledge about Design Thinking including Business Modelling.

Design Thinking is a (human-centered) approach for creative problem solving. It stands for a methodology, a working process, a mindset and even for the organizational transformation it entails. At the core are key elements like user-centricity, co-creation and iterative working styles. In our course setup, this is reflected in highly diverse teams, a continuous immersion into the user's perspective and the relentless pursuit of the best solution. This requires a holistic and unbiased way of thinking as well as the capability to change perspectives and make sense of the combination of observation and information.

This course provides participants with an experience- and application-oriented introduction to the Design Thinking methodology. Subsequently we will create business models of our generated solutions. The focus is on four key aspects:

1. User Centricity: We will put the users and their needs in the center of our considerations along the entire process.
2. Open ideation approach: We will create a broad spectrum of ideas to solve the problem applying distinctive ideation methods and prioritization criteria.
3. Rapid prototyping and testing: We will turn the selected ideas into tangible prototypes and will experience user feedback on prototypes by testing.
4. Transfer to business model: In addition, we will develop different business models for selected solutions and test if they are acceptable for users and feasible for the market.

The course comprises six four-hour in-class sessions following a step-wise methodological approach to contribute to a solution of real social and economic background. During this course the group is divided into five teams. The participants will experience the methodology via learning by doing - after short introduction of the respective step of the methodology.

After successfully completing this course, the students are able to use this methodology for different daily challenges.