



## Emerging Technology-Based Innovation & Entrepreneurship

### About Emerging Technology-Based Innovation & Entrepreneurship

The specialisation Emerging Technology-Based Innovation & Entrepreneurship aims at students that want to gain in-depth knowledge of how emerging and transformational technologies contribute to societal challenges and provide opportunities for innovation and entrepreneurship. New emerging technologies can transform industries and have economic, social and environmental impact. Examples of emerging technologies include smart grids, 5G, wireless technology, AI, and cloud computing.

Building on the concept of Responsible Innovation, students learn to better understand how new emerging technologies can have a variety of social, economic and environmental impacts and how these impacts can be balanced. Knowing these impacts and how to take the benefit from emerging technologies in a responsible way provides opportunities for innovation managers and entrepreneurs over those who lack such understanding. By making use of specific strategic niche management and instruments we focus on the process by which newly developed technologies move from initial idea to successful new technologies in the market and the strategies which firms can apply in those markets to make their technologies successful. In particular, we focus on the emergence of dominant designs, identifying commercial applications of new technologies and the role of various stakeholders in (innovation) networks.

In the second quarter students can choose whether to follow the stream of Corporate entrepreneurship or the stream Turning technology into business. Corporate entrepreneurship investigates how incumbents can develop an organization which is more conducive to entrepreneurial behaviour and how it can manage corporate venture programs to tap into emerging technologies and new and small business ventures. Turning Technology into Business takes the new technology as the starting point and tries to identify commercial applications.

### Learning objectives

After following this specialization you will

- Be able to understand the concept of responsible innovation and how it affects or provides to social, environmental and economic impact.
- Have insight into the dynamics and emergence of new technologies and the role of networking among firms in establishing a dominant design.

- Be able to analyse specific markets in which a technology-based product can be introduced based upon the course Turning technology into Business.
- Have a thorough understanding of corporate entrepreneurship; the contexts, the forms, and its relationship with strategic management,
- Have skills to analyse strategic situations and design appropriate corporate entrepreneurial strategies to benefit from emerging and transformational technologies.

### **Job Specialisation**

Emerging technology-based innovation and entrepreneurship is becoming increasingly important in a fast moving society where many new opportunities arise every day. Essential skills and insights from experience are acquired from this specialization, which focuses on technology-based entrepreneurship. These skills are highly effective. It is a natural extension to the Management of Technology master programme.

### **Target group**

You are a second year master students MOT, EPA or CoSEM. You want to broaden your knowledge with an entrepreneurial perspective.

### **Detailed description**

#### TPM033a Sustainable Innovation and Transitions (3ects) (mandatory) (Sept-Oct)

This course deals with system innovations towards sustainability and specific analytical frameworks, strategies and intervention instruments aiming at such system innovations. Analytical frameworks, strategies and instruments such as Strategic Niche Management (SNM) and Functions of Innovation Systems (FIS) are used to assess the current status of the niche in question, identify bottlenecks and opportunities, and propose a strategy for (subsequently) dealing with or exploiting them.

#### TPM959a Technology Battles (3ects) (mandatory) (Sept-Oct)

In this course we focus on (strategic) factors for technology dominance. To realize emerging technologies, often, specialized components must be interconnected in complex systems and thus interoperability standards, dominant designs or platforms are needed. We will focus on the phenomena and the processes by which they are established.

#### TPM029a Responsible Innovation (3ects) (mandatory) (Sept-Oct)

The concept of Responsible Innovation, provides an understanding of how new emerging technologies can have a variety of social, economic and environmental impacts. Such an understanding can help to balance these impacts take benefit from emerging technologies in a responsible way.

#### TPM406a Corporate Entrepreneurship and Start-ups (6ects) (Nov-Jan)

Corporate entrepreneurship can be defined as the creation of new business and strategic renewal within existing organizations. This course examines the various forms of corporate entrepreneurship and the relationship with corporate strategy in particular. You will develop knowledge and skills to analyse strategic situations and design the most appropriate solutions in terms of corporate entrepreneurship strategy and organization. Following our thoughts on corporate entrepreneurship in a corporate setting we also focus on university spin-out creation and the role of science parks.

#### TPM416a Turning Technology into Business (6ects) (Nov-Jan)

The course Turning Technology into Business is for those students who want to explore the commercial potential of new technologies developed at TU Delft. In the course you learn to analyse the potential of new technologies based on technology (patent) analyses and market analyses. The objective is to identify opportunities for commercial exploitation of the technology. You work in groups of diverse students in a project which will be finalized with a report and presentations.

### **Method of Assessment**

Each separate module has its own method of assessment (assignments, written or oral exam, essay or individual project) as described in their individual course descriptions.

### **Additional information**

*If students are currently doing courses within an annotation programme, students will receive an TU Delft Annotation certificate when the master programme is finished by 30 September 2022 at the latest. No annotation certificates will be issued after this date. It is not possible to apply for an annotation programme after 1 September 2020.*

This specialisation can be extended in order to obtain the Entrepreneurship Annotation. An annotation is a complementary document to your degree. In order to obtain this annotation, on top of the courses described above - you need to take WM4001TU Entrepreneurship Annotation Week (2 EC) and an extra entrepreneurship related course worth at least 5 EC dependent on the master you are in. You can either take WM4003TU Additional Entrepreneurship Annotation Final Thesis (8 EC) or add an entrepreneurial touch to your MSc thesis. You'll decide upon your exact programme together with the coordinator of the Entrepreneurship Annotation: Delft Centre for Entrepreneurship.

**Contact**

In case of questions, please contact the coordinators Geerten van de Kaa (C3.050) [g.vandekaa@tudelft.nl](mailto:g.vandekaa@tudelft.nl) and Victor Scholten (C2.170, 015 2789596) [v.e.scholten@tudelft.nl](mailto:v.e.scholten@tudelft.nl).