Department of Management Sciences and Technology

Study packages for exchange incoming students of the Department of Management Sciences and Technology

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## Overview of the study packages

### Winter Term

| Management of Product Development in an International Environment |
|---|---|
| Product Planning | 6 ECTS |
| Technology Management | 6 ECTS |
| Innovation Marketing | 6 ECTS |
| International Business | 6 ECTS |
| Quantitative Methods – Statistics and Operations Research | 6 ECTS |
| Business Model Generation & Green Technologies | 2 ECTS |
| German Language Course | 4 ECTS |

In order to study 30 ECTS you can either choose 5 out of 6 modules or only 4/6 when you take the language course (4 ECTS) together with 1 Nontechnical Elective Complementary Courses for Master (each 2 ECTS) or 1 course of Business and Management (2 ECTS).

### Summer Term

| Innovation & Sustainability |
|---|---|
| Innovation Management | 6 ECTS |
| Waste & Energy | 6 ECTS |
| Marketing of Innovation | 6 ECTS |
| Economics | 6 ECTS |
| TUHH goes circular - Sustainability Seminar | 2 ECTS |
| Accenture Campus Innovation Challenge | 2 ECTS |
| Corporate Entrepreneurship & Green Innovation | 2 ECTS |
| German Language Course | 4 ECTS |

In order to study 30 ECTS you have to take the 4 modules à 6 ECTS and can additionally choose between Nontechnical Elective Complementary Courses for Master (each 2 ECTS) to complement your language course (4 ECTS).
Study package: Management of Product in an International Environment – Winter Term

**Product Planning | 6 ECTS**

**Recommended Previous Knowledge**
Good basic-knowledge of Business Administration

**Theoretical Knowledge**
Students will gain deep insights into Product Planning and its process-related aspects, its organisational-related aspects, its human-resource related aspects as well as working-tools, methods and instruments.

**Capabilities**
Students will gain insights into the processes and methods of product planning and design thinking.

**Technology Management | 6 ECTS**

**Recommended Previous Knowledge**
Bachelor knowledge in business management

**Theoretical Knowledge**
Students will gain deep insights into:

- Technology Timing Strategies
- Technology Strategies and Lifecycle Management
- Technology Intelligence and Planning
- Technology Portfolio Management
- Technology Acquisition and Exploitation
- IP Management
- Technology Organization & Management
- Technology Funding & Controlling

**Capabilities**
The course aims to:

- Develop an understanding of the importance of Technology Management - on a national as well as international level
- Equip students with an understanding of important elements of Technology Management (strategic, operational, organizational and process-related aspects)
- Foster a strategic orientation to problem-solving within the innovation process as well as Technology Management and its importance for corporate strategy
- Clarify activities of Technology Management (e.g. technology sourcing, maintenance and exploitation)

**Innovation Marketing Project Seminar | 6 ECTS**

**Recommended Previous Knowledge:**
none

**Theoretical Knowledge**
Students can...

- understand the process and the tools of market analysis for innovations (e.g. market potential, market growth, market segmentation)
- explain the concepts of target customers, market definition and market growth
- select the appropriate approach for leading a competitive analysis
• explain the key market-related issues (strengths and weaknesses) of technology-based business opportunities

Capabilities
Students are capable of...

• analyzing the market potential of inventions and innovative business ideas by using appropriate methods.
• investigating whether a market is still open for a given innovation and develop a first concept for the market entry strategy and the marketing mix.
• searching for relevant information (primary and secondary market data).
• analyzing, aggregating, and interpreting the gathered data and giving well founded recommendations based on the findings.
• writing a scientific report that includes the literature background as well as the development of their methods, their results, conclusions and recommendations.

International Business | 6 ECTS

Recommended Previous Knowledge
Bachelor-level knowledge in marketing and (international) strategic management; basic understanding of market segmentation, modes of market entry, strategic management, pricing theory and marketing instruments.

The previous knowledge which is required for this module is taught by e-learning modules. Students receive access data and information regarding the online learning module after enrolment at TUHH.

Theoretical Knowledge
The students will develop a thorough understanding of the following:

• Selling to organizations and marketing strategies in B2B markets
• Relevant theories, methods and tools for operational B2B marketing
• Relevant theories for intercultural communication
• Theoretical knowledge of
  o the importance of globalization for firms and the challenges facing companies in the context of their international operations;
  o methods of measuring the internationalization degree of companies and the resulting practical implications;
  o target market strategies, market entry strategies and foreign operation modes and allocation strategies;
  o different types of international organizational structures (e.g. global organization, network organization, transnational organization);
  o "culture" and its impact on human interaction.

Capabilities
The students will be able to apply this knowledge to

• identify and systematically address relevant partners when selling to business organizations;
• place, price and communicate industrial products with the help state-of-the-art B2B marketing tools;
• define the specifics of global industries and respond to them deriving appropriate practical recommendations (global competitors, regional consumers, local and global suppliers, etc.);
• derive advantages and disadvantages of different target market, market entry, timing and allocation strategies;
apply the theoretical knowledge to business cases or real examples (e.g. internationalization processes of well-known hotel chains or franchise companies, etc.);
interpret symbols, rituals and gestures appropriately in an intercultural context.

**Quantitative Methods - Statistics and Operations Research | 6 ECTS**

**Recommended Previous Knowledge**
Knowledge of Mathematics on the Bachelor Level. Relevant previous knowledge is taught and tested by an online module.

**Theoretical Knowledge**
The students know

- different methods from the field of descriptive statistics and can explain them and their importance for Business Analysis;
- different discrete and continuous distribution functions and can explain their meaning and their areas of application
- the laws of probability theory as, e.g. the Bayes rule, and can explain them;
- different methods of of inferential statistics - e.g. confidence intervals, hypothesis testing and regression analysis - and can explain their theoretical background;
- the history and relevance of Operations Research;
- linear programming methods for solving planning problems and can explain them;
- selected methods of transportation and network optimization and can explain them;
- integer programming models and methods, e.g. for location planning;
- appropriate software for solving these problems.

**Capabilities**
Students are able to:

- collect empirical data by appropriate methods, to aggregate, classify and analyze the data and to draw conclusions from them also in complex and realistic situations, e.g. for time series;
- recognize different distribution functions and to apply them in the solution of Business problems;
- apply laws of probability, as e.g. the Bayes rule, to construct solutions for Business problems;
- select appropriate methods of inferential statistics, apply them to Business problems and evaluate the results of their analysis;
- construct appropriate quantitative - linear or integer - models for Business planning situations;
- apply methods from linear and integer programming and interpret and evaluate the results;
- apply methods from transport and network planning and interpret and evaluate the results;
- solve the problems with appropriate software, carry out sensitivity analyses and evaluate the results;
- develop a critical judgement of the different methods and their applicability;
- use models and methods from Statistics and OR to analyse problems from the areas of business and engineering and to evaluate the results;
- apply their theoretical knowledge of the different methods to practical problems.
Business Model Generation & Green Technologies | 6 ECTS

Recommended Previous Knowledge
none

Theoretical Knowledge

- Overview about Green Technologies
- Introduction to Business Model Generation
- Business model patterns
- Design techniques for business ideas
- Strategy development
- Value proposition architecture
- Business plan and financing
- Component-based foundations
- Lean Entrepreneurship

Capabilities

Based on examples and case studies primarily in the field of green technologies, students learn the basics of Business Model Generation and will be able to develop business models and to evaluate start-up projects.
Study package: Innovation & Sustainability – Summer Term

Innovation Management | 6 ECTS

Recommended Previous Knowledge
Basic knowledge in business administration

Theoretical Knowledge
Innovation is key to corporate growth and sustainability. In this lecture, Prof. Herstatt presents a systematic way from generating ideas to the successful implementation of innovations.

Waste and Energy | 6 ECTS

Recommended Previous Knowledge
Basics of process engineering

Theoretical Knowledge
Students are able to describe and explain in detail techniques, processes and concepts for treatment and energy recovery from wastes.

Capabilities
The students are able to select suitable processes for the treatment and energy recovery of wastes. They can evaluate the efforts and costs for processes and select economically feasible treatment Concepts. Students are able to evaluate alternatives even with incomplete information. Students are able to prepare systematic documentation of work results in form of reports, presentations and are able to defend their findings in a group.

Innovation Marketing | 6 ECTS

Recommended Previous Knowledge
- Basic understanding of business administration principles (strategic planning, decision theory, project management, international business)
- Bachelor-level Marketing Knowledge (Marketing Instruments, Market and Competitor Strategies, Basics of Buying Behavior)
- Understanding the differences between B2B and B2C marketing
- Understanding of the importance of managing innovation in global industrial markets
- Good English proficiency; presentation skills

Theoretical Knowledge
Students will have gained a deep understanding of:

- Specific characteristics in the marketing of innovative products and services
- Approaches for analyzing the current market situation and the future market development
- The gathering of information about future customer needs and requirements
- Concepts and approaches to integrate lead users and their needs into product and service development processes
- Approaches and tools for ensuring customer-orientation in the development of new products and innovative services
- Marketing mix elements that take into consideration the specific requirements and challenges of innovative products and services
- Pricing methods for new products and services
- The organization of complex sales forces and personal selling
- Communication concepts and instruments for new products and services
Capabilities
Based on the acquired knowledge students will be able to:

- Design and to evaluate decisions regarding marketing and innovation strategies
- Analyze markets by applying market and technology portfolios
- Conduct forecasts and develop compelling scenarios as a basis for strategic planning
- Translate customer needs into concepts, prototypes and marketable offers and successfully apply advanced methods for customer-oriented product and service development
- Use adequate methods to foster efficient diffusion of innovative products and services
- Choose suitable pricing strategies and communication activities for innovations
- Make strategic sales decisions for products and services (i.e. selection of sales channels)
- Apply methods of sales force management (i.e. customer value analysis)

Economics | 6 ECTS
Recommended Previous Knowledge
none

Theoretical Knowledge
The students know

- the most important principles of individual decision making in a national and international context
- different market structures and types of market failure
- the functioning of a single economy (including money market, financial and goods markets, labor market)
- the difference between and the interdependence of short and long run equilibria
- the significance of expectations on the effects of economic policy
- the various links between economies
- different economic policies (trade, monetary, fiscal and exchange rate policy) and their effects on the home and foreign economies

Capabilities
The students are able to model analytically or graphically

- the most important principles of individual decision making in a national and international context
- the market results of different market structures and market failure
- the welfare effects of the market results
- expectations hypothesis
- the functioning of an economy (including money market, financial and goods markets, labor market)
- links between economies
- the effects of economic policies (trade, monetary, fiscal and exchange rate policies)

Corporate Entrepreneurship & Green Innovation | 2 ECTS
Recommended Previous Knowledge
none

Theoretical Knowledge

- Overview about Green Innovation
- Introduction to Corporate Entrepreneurship
- Entrepreneurial thinking in established companies
- Entrepreneurs and managers
- Strategic innovation processes
- Corporate Venturing
- Product Service Systems
- Open Innovation
- User Innovation

**Capabilities**
Based on examples and case studies primarily in the field of green innovation, students learn the basics of corporate entrepreneurship and will be able to implement entrepreneurial thinking in established companies and to describe strategic innovation processes.