Innovation Management Master Program
Track Selection and Mentor Matching

Program: Year 1 (2021/2022)

Q1	Q2	Q3	Q4
1ZM16 Management of Product Development	Track Elective	**1ZM11** Marketing and Innovation	**1ZM130 / 1ZM140** Design Science Methodology and Project
1JM06 Human Aspects of Innovation	Track Elective	**1BM110** Data Analytics for Business Intelligence	Track Elective
1ZM31 Multivariate Statistics	Track Elective	**1ZM65** System Dynamics	Track Elective

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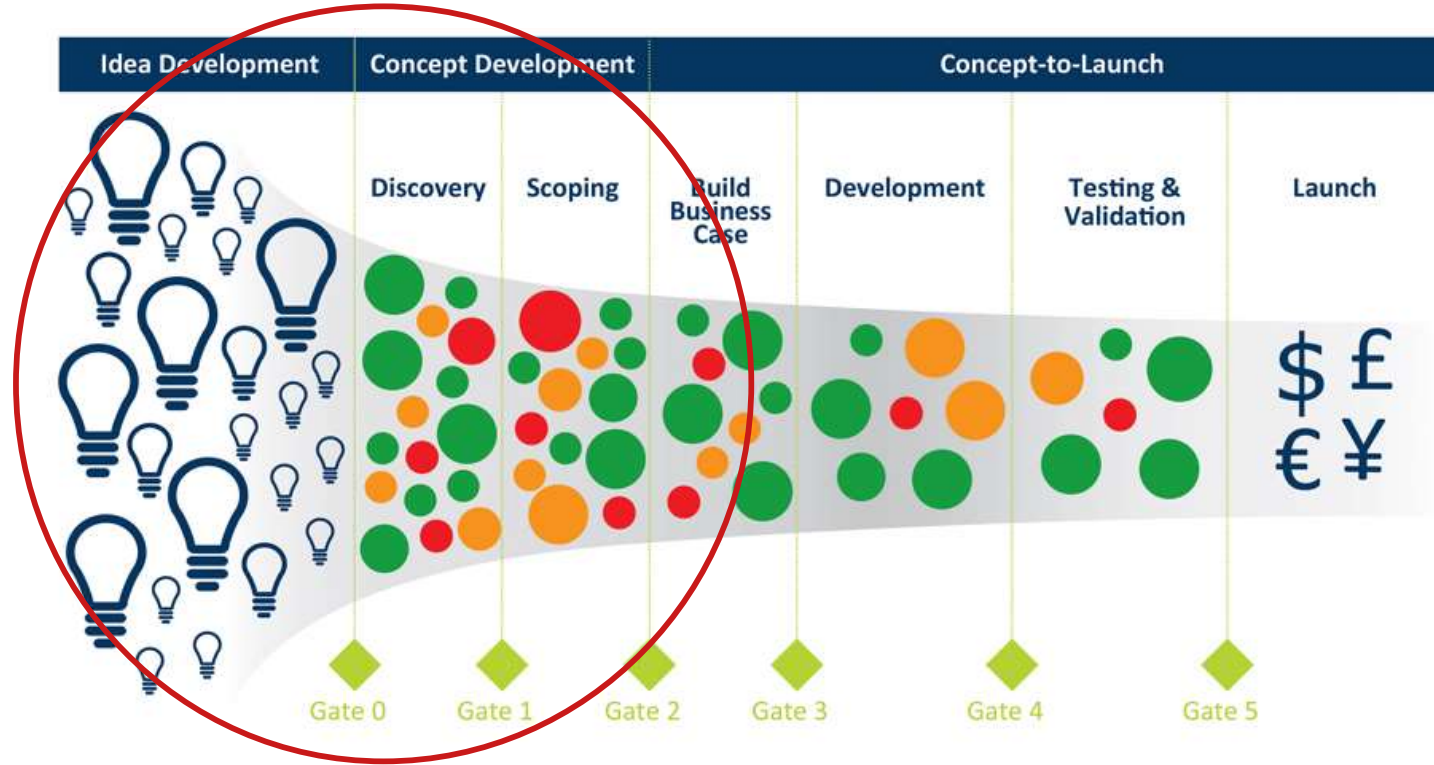Track = Set of courses on same theme.
Select at least 5 out of 9.

EXCELLENCE TRACK (TOP 10%)

BUSINESS AND PRODUCT CREATION TRACK

MANAGING INNOVATION PROCESSES TRACK

Business and Product Creation Track

FOCUS Front-end of the innovation process, where individuals think about setting up their own business, and where established companies start the development of new and innovative products

KEY WORDS Creative idea generation, opportunity identification, entrepreneurial actions, breakthrough projects, radically new products, exploration, new business models, start-ups

TYPICAL JOBS Product developer, innovation strategist, innovation manager, strategy consultant, business developer, business engineer, entrepreneur (CEO), project manager

COMPETENCIES Creativity, ability to cope with uncertainty, qualitative research skills

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Business and Product Creation Track

Q2 - 2021/2022

- 1JM100   Management of organizational change and innovation
- 1ZM20   Technology entrepreneurship
- 1ZM120   Entrepreneurial marketing
- 0EM160   Innovation and Intellectual Property Rights
- 1BM20   Business Analysis for IT Systems

Q4 - 2021/2022

- DBM160   Data Enabled Design
- 1ZM60   Selling new products
- 1ZM70   Entrepreneurial finance
- 1ZM90   Open innovation

Choose 5 out of 9, you may replace one with a free elective

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1ZM31 Multivariate Statistics	Track Elective	1ZM65 System Dynamics	Track Elective

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CURRENT STUDENTS: WHY DID YOU PICK THIS TRACK?

- "I am more interested in the creation of new products and businesses. I have already started multiple small businesses and I want to enhance myself in doing this."

- "I am an entrepreneurial student. I'm always working on business. For example I am now starting a company called X. Another clear reason is because I am a creative person. I'm always looking for new things."

- "I think that business and product creation will always be done almost entirely by people rather than software packages. So, in order to secure my future as much as possible, I think it is also the best choice to choose for a branch which will be mostly dependent on people."

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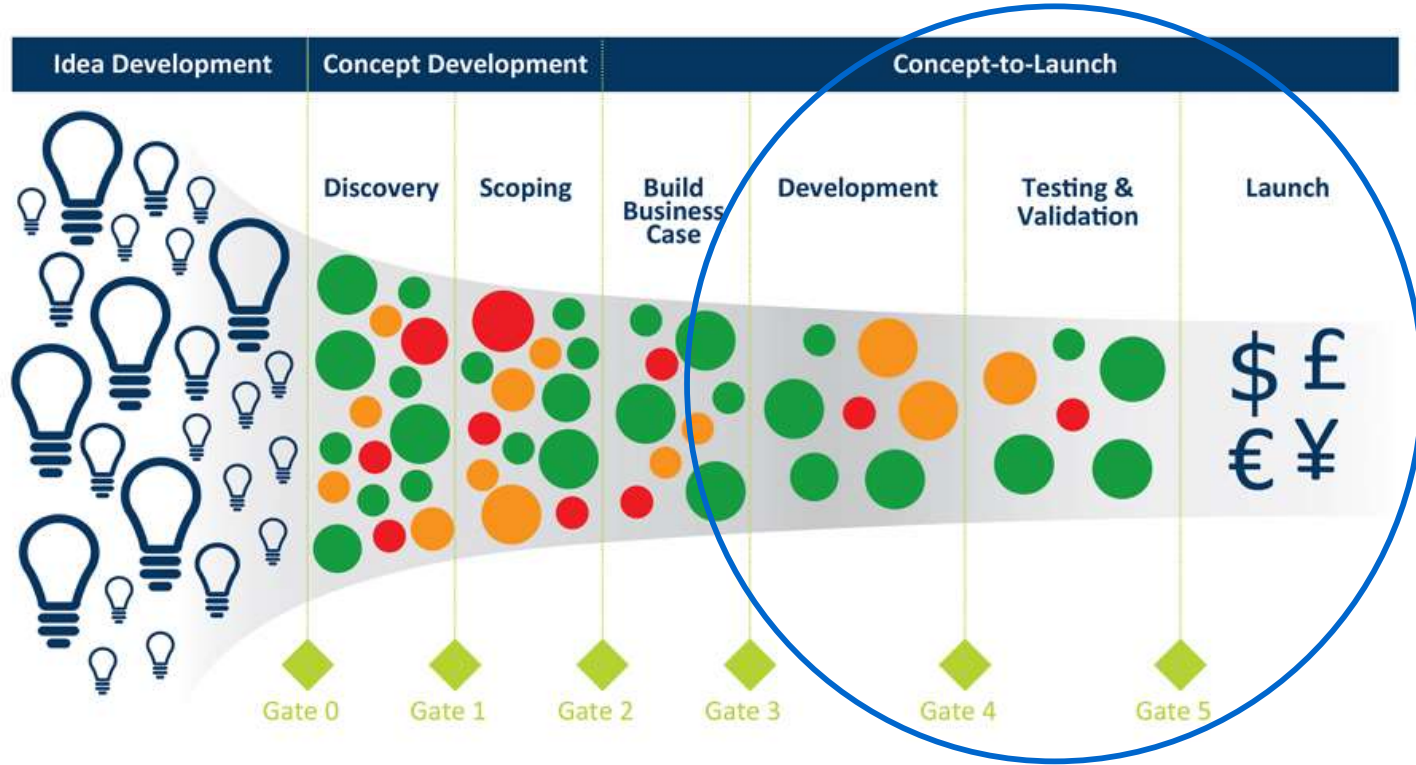
Managing Innovation Processes Track

FOCUS   Larger innovation projects (in terms of budget) and decisions that managers have to make to move new products through the development stages and finally launch it on the market, including the monitoring and continuous improvement of product/service performance

KEY WORDS   Marketing research, marketing strategy, process management, product lifecycle management, big data intelligence, sales and after-sales service management, product quality and reliability

TYPICAL JOBS   Business analyst, marketing manager/consultant, key account manager, sales manager, service manager, manager R&D department, project manager, strategic buyer, purchasing and supply chain manager

COMPETENCIES   Planning and optimization, systematic, quantitative research skills

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Managing Innovation Processes Track

Q2 - 2021/2022

- 1BM05   Business process management
- 1JM30   Managing team dynamics and team performance
- 1JM100   Management of organizational change and innovation
- 1ZM40   Strategy & technology management
- 1ZM55   Service innovation management

Q4 - 2021/2022

- 1JM21   Designing effective performance mgmt systems
- 1CM15   Project and process management
- 1ZM60   Selling new products
- 0EM190   Infonomics

Choose 5 out of 9, you may replace one with a free elective

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CURRENT STUDENTS: WHY DID YOU PICK THIS TRACK?

- "The monitoring and improvement of a product sounds interesting to me. I also like that it still holds on more to the logistic side of the Industrial engineering bachelor."

- "I am more motivated to launch products on the most optimal market, in the most optimal form, at the most optimal time, through the most optimal channels."

- "I would like to work on large innovation projects in larger companies instead of starting my own entrepreneurial company. Besides that, I am more interested in quantitative research. Also in the future I hope to work as a manager or consultant and not as a developer."

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THREE OPTIONS

1. Dual degree
2. Research track
3. Honors academy

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Excellence Track: 1. Dual Degree

Allows you to complete two masters

Currently popular combinations:

- Innovation Management – Innovation Sciences
- Innovation Management – Operations Management and Logistics
- Innovation Management – Industrial Design

Other "logical" combinations:

- Innovation Management – Human Technology Interaction
- Innovation Management – Mechanical Engineering
- Innovation Management – Medical Engineering
- Innovation Management – Computer Science and Engineering

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Excellence Track: 1. Dual Degree

- For top 10% students

- Program suggested by student and validated by two program managers

- Program consists of minimum 165 ECTS, maximum 195 ECTS

- Satisfies minimum demands of two Master programs

Thesis

- 45 ECTS

- Features topic on intersection of the two Master programs

- Two mentors, one from every Master program in the dual degree

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Excellence Track: 1. Dual Degree

Minimum requirements IM

▪	6 core courses	30 ECTS
▪	4 track elective courses	20 ECTS
▪	1 track design science project	<u>5 ECTS</u>
		55 ECTS
▪	Thesis	<u>45 ECTS</u>
		100 ECTS

Available for courses from other master program:

195 – 100 = max. 95 ECTS

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New & special dual degree option

- With Global Management of Innovation and Technology (GMIT) at Lappeenranta-Lahti University of Technology (LUT), Finland

- Focus on understanding, developing, and improving successful digitized offerings
  - artificial intelligence
  - machine learning
  - big data
  - smart sensors
  - smart home devices
  - connected electronic vehicles
  - humanoid service robots
  - digital twinning
  - augmented reality retail solutions
  - chatbot customer service

- Three year program: 1st year TU/e, 2nd year LUT, 3rd year TU/e

- Requirement: nominal first semester, motivation letter, cv, grade list, before April 1

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Some LUT courses

- CS30A7402 Software and Application Innovation, 6 ECTS

- CS30A0940 Intelligent product-service systems, 6 ECTS

- CS31A0760 Computational Data Analytics in Business Management 6 ECTS

- CT70A6001 Business intelligence and data mining 6 ECTS

- CT60A7610 Data-Intensive software systems 6 ECTS

- CT30A8922 User Experience Design   6 ECTS

- CT60A5103 Software Engineering Models and Modeling 6 ECTS

- CT60A5400 Fundamentals of Game Development   6 ECTS

- CT60A7322 Software Business Development   3 ECTS

- CT70A5000 Impact and Benefits of Digitalization   6 ECTS

- CT70A7000 Digital Business Platforms   6 ECTS

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- A special program integrated with a M.Sc. Program for selected excellent and ambitious students

- To develop advanced capabilities for
  - Research in Industrial Engineering

- To facilitate better entrance into
  - The PhD Program

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- A number of special courses

- With a total load of 30 ECTS
  - 10 ECTS within the standard 120 ECTS
  - 20 ECTS on top of the standard 120 ECTS

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- Consists of:
  - Two mini-research projects to discover two different research fields, in first year (5 ECTS per project)
  - PhD courses, in second year (10 ECTS)
- Master thesis project:
  - Is preceded by the writing of a PhD research proposal (instead of literature study and formulation thesis assignment)
  - Proposal can be used to compete for grants (at e.g. NWO)
  - Master thesis is first part of the PhD research
- Additional PhD courses can be followed in second year of master, as part of the electives
- PhD program can be completed in 3 instead of 4 years

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Further information research track

- Research Director IE, Prof.dr. Tom van Woensel

- Applications: contact research director or a professor (who will be your mentor)

- Criteria for selection: top 10% of the IE students, research attitude

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- IE Excellence Track can be combined with enrollment in TU/e Honors Academy

- HA offers a program for development personal leadership and professional development – with a min. load of 20 ECTS

focus on 'leadership in science', 'leadership in society' or 'leadership in industry'

- More info on https://www.tue.nl/en/education/graduate-school/honors-academy/

- Enrollment for excellent students, more information via Research Director IE (prof.dr. Tom van Woensel)

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Q1	Q2	Q3	Q4
Free Elective (may be international)	**Free Elective** (may be international)	**Master thesis**	
Free Elective (may be international)	**Free Elective** (may be international)		
Free Elective (may be international)	**Free Elective** (may be international)		

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International Semester options

- Technische Universität Darmstadt, Germany
- Karlsruhe Institute for Technology, Germany
- Technische Universität München, Germany
- Hamburg University of Technology, Germany
- Universität Duisburg-Essen, Germany
- University of Augsburg, Germany
- University of Passau, Germany
- Université Catholique de Louvain, Belgium
- KU Leuven, Belgium
- Universiteit Gent, Belgium
- Royal Institute of Technology Stockholm, Sweden
- Chalmers University of Technology, Sweden
- Linköping Institute of Technology, Sweden
- Aalto University, Helsinki, Finland
- Lappeenranta University of Technology, Finland
- Norwegian Institute of Technology, Trondheim, Norway
- Danmarks Tekniske Universitet, Kopenhagen
- Seeburg Castle University, Salzburg, Austria
- Politecnico di Torino, Italy
- Politecnico di Milano, Italy
- Roma Tor Vergata, Italy
- UCP Barcelona, Spain
- Universidad Politécnica de Madrid, Spain
- Universidad Politecnica de Valencia, Spain

- Universidade de Lisbon, Portugal
- Institut National Polytechnique de Grenoble, France
- Ecole Nationale Supérieure des Mines de Saint Etienne, France
- Lodz University of Technology, Poland
- University of Ljubljana, Slovenia
- Universida de Porto, Portugal
- Polytechnique de Montreal, Canada
- University of Manitoba, Canada
- Bogazici University, Istanbul, Turkey
- Koc University, Istanbul, Turkey
- Ankara Bilkent University, Turkey
- Istanbul Technical University, Turkey
- Beijing Institute of Technology, China
- Zhejiang University, China
- Bandung, Indonesia
- National University of Singapore
- Korea Advanced Institute of Sc and Tech, Daejon, South Korea
- Ulsan National Institute of Science and Technology, South Korea
- National Taiwan University of Science and Technology
- National Tsing Hua University, Hinchu, Taiwan
- American University in Cairo, Egypt
- University of Pretoria, South Africa
- University of Johannesburg, South Africa

- Instituto Tecnologico de Buenos Aires, Argentina
- Tecnológico de Monterrey, Mexico
- Universidad de Los Andes, Bogota, Colombia
- Universidade de Sao Paolo, Brasil
- Unicamp, Brasil
- Federal University of São, Brasil

Free elective suggestions

- Categorized by topic

- Alternative for or addition to international semester

- Can be added to (and integrated in) both BPC and MIP track

- May be extra-curricular

- Contact responsible lecturer when you have questions

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Free elective suggestions Q1

Code	Name	Dept	Category	Prerequisite knowledge
1JM11	Performance enhancement	IE&IS	Psychology	Yes
0FC05	Ethics of technology	IE&IS	Technology context	No
0EM120	Governing innovations	IE&IS	Technology context	Yes
0HM100	Introduction to the HTI domain	IE&IS	Technology focal area	No
1ZM160	Innovation and entrepreneurship study	IE&IS	Application	No
DDM110	Design for behavioral change	ID	Psychology / Strategy	Yes
DBM140	Embodying intelligent behavior in social context	ID	Technology focal area	No
2AMI10	Foundations of process mining	W&I	Methodology	No
2AMM20	Foundations of data mining	W&I	Methodology	No
2AMS10	Longitudinal data analysis	W&I	Methodology	No
SFC640	Academic writing in English	LC	Language	No
1MSE15	Internship – 15 ECTS	IE&IS	Application	No
1ZM150	Innovation Space Project - 10 ECTS	IE&IS	Application	No

Free elective suggestions Q2

Code	Name	Dept	Category	Prerequisite knowledge
1CM40	Retail operations	IE&IS	Operations management	Yes
0FC06	Philosophy of science and technology	IE&IS	Technology context	No
0EM170	Global connections	IE&IS	Technology context	No
0LM190	Philosophy and ethics of AI	IE&IS	Technology context	No
DBM180	Designing with advanced artificial intelligence	ID	Technology focal area	Yes
DBM170	Designing user interfaced with emerging technologies	ID	Technology focal area	No
SFC640	Academic writing in English	LC	Language	No
2AMI20	Advanced process mining	W&I	Methodology	Yes
2MMN20	Scientific programming	W&I	Methodology	Yes
1MSE15	Internship – 15 ECTS	IE&IS	Application	No
1ZM150	Innovation Space Project – 10 ECTS	IE&IS	Application	No
Any course from the "other" track				

Free elective suggestions Q3

Code	Name	Dept	Category	Prerequisite knowledge
1CM36	Game theory with applications to supply chain mgmt	IE&IS	Operations management	Yes
0HM240	The quantified self in health	IE&IS	Methodology / Technology context	Yes
0PDE05	Innovation bootcamp for transformative approaches to energy, mobility and smart cities	IE&IS	Application	No
0HM100	Introduction to the HTI domain	IE&IS	Technology focal area	No
2DI66	Advanced simulation	W&I	Methodology	Yes
2DMN00	Design and analysis of experiments	W&I	Methodology	No
2AMV10	Visual analytics	W&I	Methodology	No
DCM130	Design for social innovation	ID	Innovation design	Yes
DDM150	User experience theory and practice	ID	Technology focal area	Yes
DAM160	Creating corporate entrepreneurship	ID	Innovation design	No
SFC640	Academic writing in English	LC	Language	No
1MSE15	Internship – 15 ECTS	IE&IS	Application	No
1ZM150	Innovation Space Project – 10 ECTS	IE&IS	Application	No

INNOVATION MANAGEMENT – TRACK SELECTION AND MENTOR MATCHING

Free elective suggestions Q4

| Code	Name	Dept	Category	Prerequisite knowledge
1CM170	Sustainable supply chains	IE&IS	Operations management	Yes
1BM120	Computational intelligence	IE&IS	Methodology	Yes
0LM150	Entrepreneurship and corporate social responsibility	IE&IS	Innovation context	No
0HM160	Advanced social psychology and consumer behavior	IE&IS	Psychology	Yes
0HM270	Supercrunchers: The human in an era of data science	IE&IS	Methodology / Psychology	Yes
0HM280	Human-robot interaction	IE&IS	Methodology / IT	Yes
2AMS20	Statistics for big data	W&I	Methodology	Yes
DBM160	Data-enabled design	ID	Methodology	Yes
DDM150	User experience theory and practice	ID	Innovation design / Psychology	Yes
SFC640	Academic writing in English	LC	Language	No
1MSE15	Internship – 15 ECTS	IE&IS	Application	No
1ZM150	Innovation Space Project	IE&IS	Application	No
Any course from the "other" track				

- You select your mentor in Q2

- Your mentor is an experienced IM lecturer

- Role of mentor

  - Advice on study and electives

  - Advice on planning your international semester (e.g., university, courses)

  - Assistance with selection and preparation of thesis (topic, company)

  - Supervision of thesis project

    - Literature study (optional, 1ML05)

    - Research proposal (mandatory)

    - Thesis research and report

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1.   Select your specialization track
2.   Indicate your topics of interest within your track in a survey
     - Prepare by scanning / reading the sample theses
     - Really reflect on what you like now and would like to do in future
     - Select minimum 3, maximum 5 topics in your track
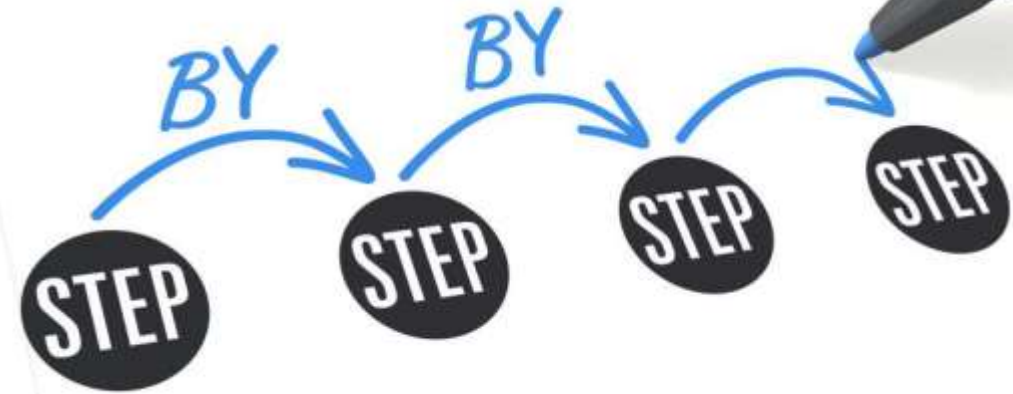
Topics in each track

| Business and Product Creation	Managing Innovation Processes
1 Creativity and innovation conceptualization (e.g., fuzzy-front end, idea generation, brainstorming)	1 NPD decision making and performance management (e.g., stage-gate, time-to-market, innovation speed, portfolio mgmt)
2 Innovation partnerships (e.g. alliances, open innovation; innovation networks)	2 Innovation within and across different teams and departments in the firm
3 Innovation climates and cultures, corporate entrepreneurship, and business incubators	3 Innovation through service management and marketing
4 Entrepreneurial marketing, selling radically new products, lead & first-time users, market exploration	4 Innovation leadership, task management, and change management
5 Entrepreneurial and NPD decision making	5 New product launch, selling, adoption, and diffusion
6 Innovation collaboration within organizations (e.g. collaboration across disciplines and departments, innovation in and by teams)	6 The role of individual employees in innovation
7 Characteristics of start-ups & traits and behaviors of individual entrepreneurs (e.g., problem solving, championing)	7 Innovation partners, networks, supplier mgmt, ecosystems, customer involvement
8 Business model generation and innovation	8 Big data, data-driven innovation, decision support systems, and market forecasting
9 Data- and technology-supported entrepreneurship and innovation	9 Business process modelling and improvement
10 Software and technology development	10 Marketing channel management, online and offline business

3. Mentors have indicated their topics of expertise and a "dating program" will match your interests with mentors having expertise in that domain

4. You receive a shortlist of mentors (at least 2, maximum 4) whom you may contact for an interview; please do NOT contact mentors that are not on your personal shortlist

5. Schedule your interviews (tip: through <u>secretaries office)</u>. Send lecturer a personal email with your motivation, CV, and topical interests. Be as specific as possible!

6. Prepare yourself!
    - What kind of project do you prefer? => Scan/read theses from library and collect inspiring academic articles! Take these to interview.
    - What are your strong/weak points? Be open and truthful to your mentor.
    - What do you expect of a mentor? Personal coaching? Weekly sessions? Leave you alone? Arrange company? Indicate this in interview.
    - At least discuss your planning and need for literature study… Also ask whether you are free to do the assignment you like, or whether you will be "handed" one.
    - Pre-cook questions and make notes!

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7. Mentor will make limited number of students an offer

8. You can accept or decline any offer.

   On acceptance: sign form a.s.a.p. (see website/Canvas)!

9. If you do not find a mentor, there is a free market,

   and thereafter an

   allocation procedure
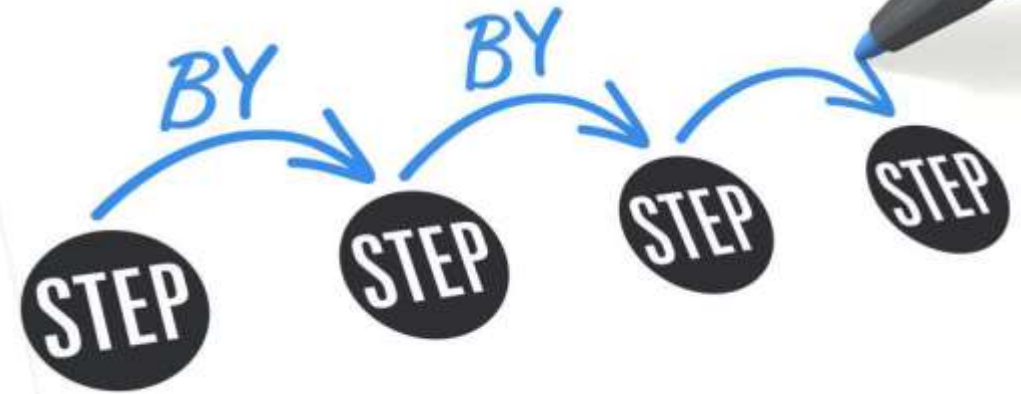
Important dates

- **29 October**   Deadline to fill in the 'Track preferences questionnaire'
- **5 November**   Date before you will receive the notification of your track
- **21 November**   Deadline to fill in the 'Themes questionnaire' and select your topics
- **26 November**   Date before you will receive a shortlist of mentors
- **29 Nov–11 Dec**   Interviews with (short-listed) mentors for an interview. No commitments!
- **13 – 23 December**   Mentor/student decisions. If match, you fill in "Form 01 IM Thesis Mentor Assignment" **a.s.a.p.(!)** and hand it in at education administration office.
- **10 – 21 January**   Canvas shows up-to-date overview of still available mentors (1MC10). Students without mentor can contact them without restrictions.
- **From 24 January onwards…**   Students still without a mentor will be allocated.

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Remember the following sources of

- https://www.tue.nl/en/education/graduate-school/master-innovation-management

- http://canvas.tue.nl (in this case [1MC10](1MC10))

- http://www.linkedin.com/groups/8827538/

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Slides will be posted on Canvas: 1MC10