Introduction to MSc Program in Operations Management & Logistics

September 4, 2018
Welcome

- About the program director: Tarkan Tan (t.tan@tue.nl), Pav F7
1. Introduction (Aud 7) – 14:30-16:00

- 14:30 - 15:15: An overview of OML MSc Program (Tarkan Tan, OML MSc Program Director)
- 15:15 - 15:20: Industria (Koen van Wershoven)
- 15:20 - 15:30: Reflections by an Alumnus (Roy van Hugten, ASML)
- 15:30 - 16:00: Track and mentor matching
2. Poster Session (Aud) – 16:00-16:15

3. Interactive Session (Paviljoen Canteen) – 16:30-17:30
   • Panel session on student expectations
   • Quiz on visited posters
   • General quiz

4. BBQ and Prize Ceremony (The Villa) – 17:30-19:00
“How do I find my way?” - Practical information and important dates

- **Contact:** Marjan Vrijnsen - de Corte, Vice director of Education IE

- **In case of questions:** Onderwijsadministratie-IEIS@tue.nl

/School of Industrial Engineering
Main Features of the OML Master Program

• MSc OML = 2 years = 8 quarters
  - 2 periods (‘quarters’) per semester
  - 8 weeks classes; 2 weeks exams per period
  - Interim period (re-exams) in the summer

• European Credit Transfer System (ECTS)
  - Based on student estimated workload
  - 1 ECTS = 28 hrs of workload
  - Most courses: 5 ECTS = 140 hrs
  - Typically 3 courses per quarter = 15 ECTS = 420 hrs
  - MSc OML = 2 years = 8 quarters = 120 ECTS = 3360 hrs
Registration for courses via OSIRIS

- You need to register in the OSIRIS system for each course you plan to take.
- Go to https://osiris.tue.nl/student
- Deregister from the course if you decide to drop the course (as a courtesy to the professor and your fellow students)
Registration for exams via OSIRIS

• Also, register for the exams (unless there is no written exam for a course):
  • Via OSIRIS https://osiris.tue.nl/
  • Taking exam without being registered: exam will not be graded
  • Withdraw exam registration if you decide not to take the exam (otherwise a no-show will appear on your grade list)
# Registration deadlines

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<thead>
<tr>
<th>Quarter</th>
<th>Registration</th>
<th>Late registration</th>
<th>Registration deadline for exams</th>
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<tbody>
<tr>
<td>1</td>
<td>26-08</td>
<td>30-08 (17:00)</td>
<td>14-10</td>
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<td>14-10</td>
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<td>15-11 until 06-01</td>
<td>11-01 (17:00)</td>
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<td>4</td>
<td>15-11 until 24-03</td>
<td>29-03</td>
<td>09-06</td>
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The deadlines are inclusive. After registering for an examination, a student can withdraw no later than five working days before the examination period.
Important Registration Dates 2018-2019
Q1+Q2

• Sept 3: Start of OML master courses

• Sept 4: Intro OML (course code 1S126)

• September 7: Registration deadline to courses (external students)

• October 14, 2018: Registration deadline to courses in Q2 and exams in Q1

• January 6, 2019: Registration deadline to exams in Q2
“How do I find my way?” - Practical information and important dates

More info:
https://educationguide.tue.nl/programs/graduate-school/masters-programs/operations-management-and-logistics/

In case of questions:
Onderwijsadministratie-IEIS@tue.nl
Introduction September 2018
MSc OML

Welcome on Board

TU/e
Technische Universiteit Eindhoven
University of Technology

Where innovation starts
Study Advisor

Ir. Anja C.J. Kirkels

https://educationguide.tue.nl/organization/advisors-and-tutors/

Or contact: Ir. A.C.J. Kirkels, Study Advisor Master OML
Pav. C 15, tel.: 0402472428, a.c.j.kirkels@tue.nl
Department of Industrial Engineering and Innovation Sciences
Technische Universiteit Eindhoven
You may contact the study advisor for:

- Questions about the planning of your study

- Study-related or personal issues that may affect your success in the program
An overview of OML MSc Program: Main Features

• Medium of instruction is English.

• Most courses are quarter courses.
  • Exception: 1CM180 Configuration Management, 2.5 ects, Q3.

• All students are encouraged to go abroad for an international semester.
OML MSc program has 5 (+1) tracks, that consist of:
(i) Courses that belong together;
(ii) Master thesis subjects for which those courses are relevant.

• Before the end of the first quarter, each student is coupled to a track and a mentor.
Tracks

1. Data Intensive Industries
2. Capital Goods
3. Consumer Goods
4. Service Operations
5. Transportation

(+ a Free Track for honors students)
To avoid misunderstandings!

- We have one OML Master program: the choice for a track will not be specified on your diploma.

- Tracks are not meant to limit you; they provide guidance for your study, i.e. they help you select relevant courses from the beginning of your program.

- All courses are open to all students and there are no track-specific limitations to master’s theses.
Master’s Thesis

- Selection of specific research area after first quarter, together with the mentor
- Close relationship with mentor
- Last two quarters dedicated to (MSc.) research project (literature review prior to that)
Program Structure

• Courses fall into four categories:
  • Core courses (10 ects)
  • Track core courses (20 ects)
  • Specialization electives (min 15 ects)
  • Free electives (max 40 ects)
    − Can also take homologation courses (max 15 ects)

• MSc Thesis:
  • Literature review (5 ects)
  • Research proposal + Thesis work: (30 ects)
  • More than 90% of the projects are conducted in industry
Core Courses (All tracks)

• **1JM11 Performance Enhancement**

In this course, students get familiarized with the diverse aspects of human performance in organizations. Students will increase their knowledge about the performance of individual employees as well as the performance of teams using state-of-the-art developments in the field of Work and Organizational Psychology. This course is aimed at teaching students how to apply theoretical knowledge in order to enhance human performance. Furthermore, students are trained to critically read scientific articles and to design new studies in the area of performance enhancement.

• **1JM110 Research Methods**

The objective of this course is to provide the students with methodological knowledge and maturity in undertaking research into operations management. It introduces philosophical issues in the theory of knowledge, ethical issues in research conduct, and considers quantitative and qualitative methods in turn, addressing issues in specific approaches, and considerations in data collection, simulation, and analysis. The course is taught through weekly lectures and several assignments, which aim to enhance the understanding of specific methods. For the small group assignments, students will study some of the research methods in depth. They will work on the assignments in groups. Several lecturers from different disciplines will contribute to this course. The emphasis throughout is on understanding the conceptual underpinning of different methods, and their strengths and limitations in research.
Core Requirements

- The students also need to acquire sufficient knowledge in financing and accounting. This can be obtained from 1CM22 Integrated Financial & Operations Management, as well as
  - BSc courses (such as the current 1CK40 AND 1-out-of-two:1CK80 or 1CK90),
  - or a course during the international semester.

- Furthermore, the students need to have sufficient knowledge in programming and simulation at the start of the program, as this knowledge is pre-requisite in some courses. The students missing this knowledge are strongly recommended to follow a homologation course (such as 1BK50) which will consume from the free elective space.
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<th>Year 1</th>
<th>Semester A (Q1 + Q2)</th>
<th>30 ECTS: international experience and/or electives, literature study (1ML05)</th>
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<th>Year 2</th>
<th>Semester B (Q3 + Q4)</th>
<th>30 ECTS: Master Thesis Project (1<em>M96), including research proposal (</em>: B=IS, C=OPAC, J=HPM, Z=ITEM)</th>
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Specialization Electives: Choose at least 3 (≥15ECTS)

0LM120 - Med. Tech (DII)
12M31 - Mult. Stat (DII/CaG/CoG/SO/T)
1CM120 - AMSL (CaG)
1BM10 - E-Business (SO)
1CM150 - APSS (DII/CaG/CoG)
2IM135 - IPM (DII)
1BM05 - BPM (DII/CaG/CoG)
1BM41 - BISA (DII/CaG/CoG/SO/T)
1CM10 - MAMS (DII/CoG/SO/T)
1J1M100 - MOCl (DII/SO)
1CM110 - DMTL (CoG)
1JM30 - MTDP (DII/SO)
2IMV20 - V (DII)
1CM22 - IFOM (DII/CaG/CoG/ST)
1ZM65 - SD (SO/T)
1CM36 - GT (CaG/CoG/T)
2DI66 - AS (DII/CaG/CoG/ST)
1BM110 - DABI (CaG/CoG/SO/T)
1CM180 - CM (CaG)
1BM20 - BAITS (DII/SO/T)
1CM100 - MEIM (DII/CaG/CoG/SO/T)
1JM21 - DEP (DII/CaG/CoG/ST)
1BM120 - CI (CaG/CoG/SO/T)
1CM170 - SSC (CaG/CoG/T)
2IMD15 - DE (DII)

Tracks: DII (Data Intensive Industries), CaG (Capital Goods), CoG (Consumer Goods), SO (Service Operations), T (Transportation)

Requirements Year 1 MSc OML: 10 ECTS core, 20 ECTS track core, 15 ECTS specialization, 15 ECTS free electives

Core requirement: students need to have sufficient knowledge in accounting and finance (example: Q3 - 1CM22)

Homologation course for students who lack programming and simulation knowledge that is pre-requisite in some courses (Q1 - 1BK50)
Specialisation electives in Q1

<table>
<thead>
<tr>
<th>Data Intensive industries</th>
<th>Capital Goods</th>
<th>Consumer Goods</th>
<th>Service Operations</th>
<th>Transportation</th>
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<td>0LM120</td>
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The E-Business course addresses the architecture (structure) and systems (technology) for support of e-business. Business and organization aspects are also discussed.

The focus is on inter-organizational business operation in which information and communication technology is an enabling factor.

E-commerce, most significantly business-to-business e-commerce, is an important category of e-business in this respect.

E-business paradigms like dynamic service outsourcing and highly dynamic supply chains.

Architecture aspect of the framework, covering the mapping of organization architectures to information system and technology class architectures.

Architecture and technology standards in the e-business field.

Analysis of complex e-business structures.
1CM120 - Advanced Maintenance and Service Logistics

• Reflect on the societal role of service logistics and maintenance.
• Design maintenance concepts using quantitative models and insights from traditional and condition based maintenance optimization.
• Analyze and optimize single and multi-location spare parts inventory networks.
• Coordination involved with setting up a service logistics network including service engineers, spare parts and tools.
• Read and understand scientific literature on maintenance and service supply chains

/School of Industrial Engineering

TU/e Technische Universiteit Eindhoven University of Technology
What is an APS: a) the basic components and modules, b) its relation to other Enterprise Management Systems, c) what the typical drivers are for APS implementation

What type of APS-es should be used for which type of production control problems

Basic components of an APS model and how this varies for different environments (e.g. jobshop vs semi-process)

Design criteria that should be applied (autonomy, level of support, transparency, user interface)

Typical phases of an APS implementation and what are the characteristics of every phase

Different modeling paradigms that underlie APS engine logic and when to apply what paradigm
OLM120 - Perspectives on Medical Technology

- Knowledge about developments in biomedical technology through the perspective of philosophy and ethics, science and technology studies, and psychology.
- Identify cases in which ethical issues and stakeholder issues are highly salient to new medical technologies, and formulate a scientifically- and ethically well-supported viewpoint on the design, use and management of such technologies.
- Ability to use ethical theories and concepts to critically assess and analyze medical technology in both a written and an oral format.
1ZM31 - Multivariate statistics

- Extend and deepen the prior knowledge of methodology, both for explanatory and applied business research. More specifically, univariate/bivariate analysis techniques will be extended to multivariate techniques.
- Students will apply these techniques using assignments which reflect both the conceptual (e.g., reviewing articles) and empirical (e.g., conducting data analysis) focus of the course.
- Students learn which technique is most appropriate to be utilized in a given situation and how to interpret results of multivariate analyses.
• The course covers the three main types of process mining:
  • Discovery (takes an event log and produces a process model without using any a-priori information).
  • Conformance (an existing process model is compared with an event log of the same process).
  • Enhancement (extend or improve an existing process model using information about the actual process recorded in some event log).
• Offline and online setting.
Program OML 2018-2019: details

https://studiegids.tue.nl/opleidingen/graduate-school/masters-programs/operations-management-and-logistics/curriculum/
International semester

• Important to line up with mentor
• Information available at IE-IS International Office
• Option: International Research Internship (1GSI15) – 15 ects
Options within the program

- Double diploma (INPG – France and KAIST- Korea)
  - For students with undergraduate diploma at TU/e or UT – IE
  - Apply at admission committee before end of your first semester
  - Five-semester programs
  - Max 4 students / program / year
- Dual Degree Programs with other MSc programs at TU/e
- Excellence Program
- Honors Academy
- Technology Entrepreneurship and Management Certificate
IE Excellence
Tracks for M.Sc. Programs
OML and IM

A chance and a challenge to excel

Prof. dr. ir. Paul Grefen
Research Director
School of Industrial Engineering

Technische Universiteit Eindhoven
University of Technology

Where innovation starts
What is an excellence track?

- A special program integrated with a M.Sc. Program for selected excellent and ambitious students
- To develop advanced capabilities for
  - Research in Industrial Engineering
  - Design in Data Science applied to Industrial Engineering
- To facilitate better entrance into
  - The PhD Program for researchers
  - The PDEng Program for designers
What does an excellence track contain?

- 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
IE Excellence Track in Research

• 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
IE Excellence Track in Research: Advantages

- Development of extra research skills
- Ideal preparation for continuation as PhD student after completion of the master program
- Priority for positions within the PhD program of Industrial Engineering (but, we give no guarantee)
- PhD program can be completed in 3 instead of 4 years
- Equivalent to research (Mphil) masters, as seen at Tilburg University and Erasmus University
IE Excellence Track in Research

- Further information: Research Director IE
  - Prof.dr.ir. Paul Grefen
- Applications: contact research director or a professor (who will be your mentor)
- Criteria for selection: top 10% of the IE students, research attitude
IE Excellence track in Design

- 30 ECTS choice from PDEng courses:
  - Program currently in transition
    - from Industrial Engineering (IE, TU/e)
    - to Data Science for IE (JADS, Den Bosch)
  - Programmatic details under elaboration
IE Excellence Track in Design

- If completed successfully, preferred access to the PDEng program
  - Executed by Jheronimus Academy for Data Science (JADS), Den Bosch
- On a contract to prepare for and execute a design project for a specific company
- Supervised by design mentor
- Further information/applications: coordinator PDEng program
  - Dr.ir. Noud Gademann
- Criteria for selection: top 30% IE students, design attitude
Why?

- Additional academic knowledge and experience (more ‘bang for your buck’)
- Improved entrance in post-doctoral programs
  - PhD for research
  - PDEng for design
- Explicit entry into the ranks of ambitious, excellent students
  - If you are interested in a ‘more-than-usual’ career path
Honors Academy

- IE Excellence Track can be combined with enrollment in TU/e Honors Academy
- HA offers a program for development personal skills – with a load of 5-20 ECTS
- If combined with IE-ET, we advise 5 ECTS HA + 15 ECTS HT on top of regular program
- Enrollment for excellent students, via Research Director (prof.dr.ir. Paul Grefen)
- Check procedures on Honors Academy web site
Certificate Technology Entrepreneurship and Management (CTEM)

CTEM Program 1TEMM9

Target group
The program is aimed at Msc, PhD and PDEng students of the TU/e and starts twice a year (September / February).

Content of the program
The CTEM program helps you to enlarge your knowledge and improve your practice-based experience in the area of business management and technology entrepreneurship.

http://oase.tue.nl/Activiteiten/Pages/Informatie.aspx?coursecode=1ZSM0&educationyear=2015&educationInstanceId=00000000-0000-0000-0000-000000000000

Certificate Technology Entrepreneurship and Management (CTEM)

- **CTEM broad**: offers the opportunity to broaden your knowledge in entrepreneurship and management. Next to your technical specialization (regular study program), CTEM broad will enlarge your knowledge with respect to business management in general, and new product development in particular. As such, you will be able to operate successfully in a corporate environment.

- **CTEM in depth**: offers the opportunity to deepen your knowledge in the area of technology entrepreneurship. In addition, it improves and enlarges your entrepreneurial skills and practice-based experience in new venture development.

(https://studiegids.tue.nl/verbreding/certificaten/technology-entrepreneurship-and-management-msc/)
Useful Links & Tips

- [http://studiegids.tue.nl/en](http://studiegids.tue.nl/en)
- Schedules, exams, course related: [https://osiris.tue.nl/](https://osiris.tue.nl/)
- Department and program related information: [http://educationguide.tue.nl/gs/oml](http://educationguide.tue.nl/gs/oml)

- Join our Linkedin group: *Operations Management & Logistics TU/e*: program news, jobs, traineeships, etc.
- International students: make use of your student mentor (study buddy)
Academic fraud
Dr.ir. A. Haans – Dr. M.H. Jansen-Vullers
version 12-01-2016

Fraud includes any behavior or negligence on part of the student that makes it impossible for an examiner to form a correct judgement of his or her knowledge, insight and skills, or that is aimed at intentionally influencing the outcome of the examination process

• Types of fraud:
  • Exam fraud (e.g., using not-allowed materials during an exam)
  • Plagiarism (e.g., taking credit for material that is not your own)
  • Scientific fraud (e.g., fabricating data)
Fraud and then...

- When a suspicion of fraud is raised... during or after exams or projects... the student receives no grade (yet), and case is handed over to the exam committee

- If fraud is established, then consequences could be severe with respect to:
  - Passing the course
  - Binding Study Recommendation
  - Graduating with a judicium (grote waardering / cum laude)
  - Starting courses in next year
What is exam fraud?
Beyond the obvious (e.g., peeking “spieken”)

During written examinations, the following actions will in any case be deemed to constitute fraud or attempted fraud:

- using another person's proof of identity/campus card (student identity card)
- Not being able to prove your identity (campus card)
- having a mobile telephone or any other type of media-carrying device on your desk or in your clothes
- using, or attempting to use, unauthorized resources and aids, such as the internet, a mobile telephone, etc.
- using a clicker that does not belong to you
- having any paper at hand other than that provided by TU/e, unless stated otherwise
- visiting the toilet (or going outside) without permission or supervision
Main mistake

- Mobile phones, smart watches, etc
- NOT on your desk
- NOT in your clothes
- Must be switched off and in your bag!!
What is plagiarism?

• Plagiarism is taking credit for material that is not your own; putting your name on a piece of work in which other people’s work or ideas are used without giving *proper* credit to the original source.

• This will *always* be considered plagiarism, even when...
  … it was done unintentional or by accident (e.g., handing in the wrong document, or not knowing how to cite or refer to sources)
  … one of your co-authors copied others people’s ideas or texts without crediting the source
  … it involved copyright-free texts or images
  … the original source was a website without clear authorship
  … the idea came from a fellow student during an informal discussion

Consequences of academic fraud

- With any suspicion of fraud, the exam committee is to decide whether or not fraud occurred, if so...

- ...the **default** punishment for first time offenders is:
  - Student fails on the entire course (even when plagiarism occurred in a small intermediate assignment)
  - Student is excluded from taking the exams of that course for one year
  - The misconduct will be entered into the student’s file
  - and no longer eligible for a judicium when graduating (met hoge waardering / cum laude)

- ...the **maximum** punishment (e.g., for a recidivist):
  - Student’s education at TU/e will be terminated

How to prevent plagiarism?
Doubts? Contact your teacher!

- Some advice in how to prevent plagiarism:
  - Keep track of the sources you read. Especially the location of online content may be easily forgotten if not systematically noted down.
  - Make notes about the sources you read, indicating each and every time what you copy-pasted and/or paraphrased. This prevents forgetting which were your own words and ideas and which were not.
  - Use proper ways of citing or referring to a source. When in doubt contact the teacher!
  - Include the necessary source references immediately while writing. Do not wait until after your work is finished.
  - Keep track of how your ideas and/or writings have developed over time. Other people, including your group members, must be able to trace the originality of your work.
  - Make sure to have examined every document on which you appear as an author.
  - Never submit anything that contains plagiarism. If you suspect plagiarism by a group member, then do not put your name on the manuscript.
  - Do not wait until the final moment to finalize a document. Time pressure makes you more vulnerable to mistakes, and less attentive to plagiarism by group members.

The TU/e SkillsLab team provides students with on demand online and offline activities, tailored for the various Graduate Programs.
Which skills do we address?

- Teamwork Skills
- Presentation Skills
- Academic Writing Skills
- Other Skills
Team Work Workshop
‘First Impressions’

Goal: Providing insights in how other people think of you and how to influence these first impressions

“Refreshing, interesting & relevant”

“I liked the personal touch and individual reflections”
Multiple Thesis Writing Workshops

Goal: Improving Academic Writing Skills, applied to the thesis writing process

Set of sequential workshops

± 25 attendees per workshop
What can you do?

- Participate in events or online trainings
- Give Feedback after participating
- Share your ideas with us!
How can you find us?

www  skillslab.tue.nl

facebook.com/skillslab

email  skillslab@tue.nl
Use the website https://educationguide.tue.nl/

- Rules and regulations
- Forms
- News and updates

It is your responsibility to be informed!
Questions?
Welcome on Board and Have a Great Time

Contact:
t.tan@tue.nl
http://tue.nl/staf/t.tan
Industria

- Study association for all Industrial Engineering students at the TU/e
- Founded in 1963
- ± 1400 members, of whom ± 350 active members
The 55th board

Merijn Boer
Project Manager

Noor Jungerius
Secretary

Mathijs Driessen
Officer of External Relations

Koen van Wershoven
Chairman

Dana Leclaire
Treasurer

Stef Creemers
Educational Officer
Industria : The four pillars
Industria master Committees

• Master Study Club
• Counsils
• Graphical committee
• Scope
• ICT-committee
• TBKx
Upcoming events

• Thursday 13-09 Pullûh Vullûh
• Wednesday 26-09 Lustrum opening party
Infolunch
International Research Project 2019
Vancouver - Seattle - Portland - San Francisco

Digital Business Era
Stretch your boundaries

https://industria.tue.nl/irp
Manager Service Supply Chain Planning

Who am I

- Born 1988, in the south of the Netherlands
- Married in June
- Living in Veldhoven, with our two cats Teddy & Beer
- Love travelling

- Studied Mechanical Engineering 2008-2012
- Did my pre-master 2012-2013
- Studied OML 2013-2015
  - Graduated at Fugro Marine services on developing optimal replacement policies in condition based maintenance

My working life

- Before 2011: Various small jobs
- 2011: Gemco International
  - Purchase and logistics Engineer
  - Purchaser
  - QHSE Manager
- 2012: Bachelor Thesis at Nedschroef
- 2015: Tool planning analyst at ASML
- 2017: Manager Service Supply Chain Planning at ASML
  - Responsible for the planning of service parts and tools in the customer supply chain
  - Leading a team of 6 young professionals
ASML develops and manufactures machines for making chips

Manufacturing loop:

Lithography is the critical tool for producing chips
Moore's Law holds steady for more than 40 years

Moore's Law:
The amount of transistors per given area doubles every 2 years at similar cost.

The industry is sustained by the need to make cheaper, smaller ICs that do more.
Opportunities for an industrial engineer

- **SCM**
- **Supply Chain Planning**
  - Supply Plan / MPS
  - Capacity preparation
  - Inventory
- **Product Lifecycle Management**
  - Material Availability for new systems
  - Phased ordering
  - Release for Volume
- **Supplier Network Management**
  - Material Availability for volume production
  - Supplier Performance in n-tier network
  - Ramp flexibility
- **Customer Supply Chain Management**
  - Material Availability for installed base
  - Spare parts and upgrades
  - Machine relocations
- **Logistic Service Operations**
  - Trade Compliance
  - 3PL network
  - Costs per Transaction
Supply Chain Management (SCM)

Opportunities for an industrial engineer

- Supply Plan / MPS
- Capacity preparation
- Inventory
- Material Availability for new systems
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Supply Chain Management (SCM)

Opportunities for an industrial engineer

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What do I manage?

Example: USA network structure
Operations Management and Logistics
Which elements of my study do I leverage

**Hard skills**
- Statistical courses
- Spare parts management / Maintenance management (Managing Capitol Goods)
- Supply chain operations management
- Operations planning and control
- Information systems / process management
- Understanding financials

**Soft skills**
- Process minded
- Critical thinking and drive for results
- Team dynamics & Performance
- Working in project teams
- Human performance
- Having fun
Track & Mentor Matching
Track and Mentor System, to Assist You in Your Study Process

- **Track matching:**
  - Based on student preferences and research capacities

- **Mentor matching:**
  - Free Market: interviews to match students with mentors within the tracks

**Role of the Mentor**

- Advise on / approval of electives
- Advise on planning your international semester (e.g., school, courses)
- Assistance with selection and preparation of thesis (topic, company)
- Topic of thesis needs to match with research interests of the mentor
- Supervision of thesis project
Tracks

1. Data Intensive Industries
2. Capital Goods
3. Consumer Goods
4. Service Operations
5. Transportation
(+ a Free Track for honors students)
Data Intensive Industries

/School of Industrial Engineering
Data Intensive Industries

- Structural analysis of business processes and related data is a critical driver for business success.
- In principle, all organizations could make extensive use of data in decision making, but industries that typically are more data intensive include online retailers, information technology sector, banks, etc.
- The students in this track learn how to use methods, techniques and tools for advanced analysis of business processes to support organizations in optimal data-driven decision making.
- Main research topics of OML within this track are data mining, process mining, machine learning, computational intelligence, decision support, business process management, and human performance.
Capital Goods
Capital Goods

• Capital goods are machines and tools that are used in the production of other goods rather than being sold to consumers.

• Technical systems such as MRI scanners, wafer scanners, baggage systems, and large-scale computers are examples of capital goods.

• The students learn how to address problems concerning capital goods from OML perspective, such as availability and capacity utilization.

• Main research topics of OML within capital goods sector are production planning, inventory planning, maintenance & reliability, sustainability, forecasting, and human performance.
Consumer Goods
Consumer Goods

- Consumer goods are tangible commodities that are produced and subsequently purchased to satisfy the current wants and perceived needs of the buyer.
  - Examples: automobiles, household appliances, food, beverages, clothing, and gasoline.
- Students learn how to address problems concerning consumer goods from OML perspective, such as forecasting and inventory management.
- Main research topics of OML within consumer goods sector are inventory planning, store operations, warehousing, pricing, assortment planning, forecasting, and human performance.
Process Industry

- Process industries cover all conversion processes where through mixing, forming, or chemical reactions commodities or specialties are produced.
- Process industries are part of the Consumer Goods track.
- Many projects have been conducted in the process industry over many years.
- Examples include:
  - Chemical (Dow Chemical, SABIC, Shell Chemicals)
  - Pharmaceutical (Bayer)
  - Food, Beverage, Personal Care (Heineken, Procter & Gamble, Friesland Campina)
- Many aspects are covered including production, inventory, logistics, supply chain, transport, sustainability.
Service Operations
Service Operations

• A service system is the collection of equipment, layout, and procedures used to provide the service to meet customer demands.
• Examples: Call centers, financial institutions, medical services, and information technology services.
• The students in this track learn how to cover issues relating to the people, processes, infrastructure, and relationships necessary to ensure the high-quality, cost-effective provision of service necessary to meet business needs.
• Main research topics of OML within consumer goods sector include business process management and human performance.
Transportation
Transportation

- The transportation sector consists of companies involved in the transportation of goods or people.
  - Examples: railroads, trucking companies, and air carriers.
- Students learn how to address issues relating to transportation of goods and people in the most effective and efficient way.
- Main research topics of OML within transportation sector are transportation optimization, port and terminal operations, sustainability, business process management, and human performance.
Special/Free Track

- Meant for honours students who want to design their own master program
- May apply also to double degree students
Example: Consumer Goods

Main research topics: inventory planning, store operations, warehousing, pricing, assortment planning, forecasting, and human performance.

Track core courses:

• 1-out-of-2:
  • 1BM110 Data Analytics for Business Intelligence
  • 1BM41 Business Information Systems Architecture

• 1-out-of-2:
  • 1CM10 Modeling & Analysis of Manufacturing Systems
  • 1CM100 Multi-Echelon Inventory Management

• 1CM40 Retail Operations
• 1CM140 Design of Operations Planning and Control Systems
Example: Consumer Goods (contd)

Track specialization electives: (choose at least 3 - in addition to track core courses -)

- 1BM05 Business Process Management
- 1BM41 Business Information Systems Architecture
- 1BM110 Data Analytics for Business Intelligence
- 1BM120 Computational Intelligence
- 1CM10 Modeling & Analysis of Manufacturing Systems
- 1CM22 Integrated Financial & Operations Management
- 1CM36 Game theory with applications to supply chain management
- 1CM100 Multi-Echelon Inventory Management
- 1CM110 Decision Making in Transport and Logistics
- 1CM150 Advanced Planning and Scheduling Systems
- 1CM170 Sustainable Supply Chains
- 1JM21 Designing effective performance management systems
- 1ZM31 Multivariate Statistics
- 2DI66 Advanced Simulation

TU/e Technische Universiteit Eindhoven University of Technology
OML Program: details

https://studiegids.tue.nl/opleidingen/graduate-school/masters-programs/operations-management-and-logistics/curriculum/
To avoid misunderstandings!

- **We have one OML Master program**
  Your track will not be specified on your diploma

- **Tracks are not meant to limit you**
  They provide guidance for your study

- **All courses are open to all students**

- **There are no track-specific limitations to master’s theses**
Mentor selection procedure OML

- **Student can request interviews from multiple mentors**
  Send an email to the mentor(s) that you’d like to meet and attach your CV, transcripts, courses currently being taken and (partial/assignment) grades, and a motivation letter.

- It can happen that a mentor receives too many requests; then the mentor may reject requests

- Mentor decides on students autonomously

- You can request advice from your track coordinator
Mentor Matching Coordinator

Mieke H. van Marion

Pav A.46.a
M.H.v.Marion@tue.nl

/School of Industrial Engineering
Information on mentors

For research interests, see
• Personal web pages:  
  http://www.tue.nl/universiteit/faculteiten/industrial-engineering-innovation-sciences/de-faculteit/medewerkers/per-afdeling/

For completed master theses, see OML link on:
• http://library.tue.nl/catalog/Repository.StartPage.cls
## Research Specialisations

<table>
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<tr>
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<tr>
<td>dr. A.E. Akçay</td>
<td>dr. Z. Atan</td>
<td>dr. Z. Atan</td>
<td>dr. A. Chockalingam</td>
<td>prof.dr. E. Demerouti</td>
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<td>dr. O. Türetken</td>
<td>dr. A. Chockalingam MSc</td>
<td>dr. A. Chockalingam MSc</td>
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<td>prof.dr.ir. J.C. Fransoo</td>
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<td>ir. dr. S.D.P. Flapper</td>
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</table>
Track Coordinators

• Data Intensive Industries: Uzay Kaymak

• Consumer Goods: Karel van Donselaar

• Capital Goods: Simme Douwe Flapper

• Service Operations: Oktay Türetken

• Transportation: Luuk Veelenturf
Procedure

[https://studiegids.tue.nl/opleidingen/graduate-school/masters-programs/operations-management-and-logistics/important-dates/](https://studiegids.tue.nl/opleidingen/graduate-school/masters-programs/operations-management-and-logistics/important-dates/)

- **Sep 3–9: Orientation**
  Information by track coordinators

- **Sep 10-21: Mentor/student meetings**
  No commitments can be made!

- **Sep 24-28: Mentor/student decisions**
  Fill in ‘Form 01 OML Assignment Thesis Mentor’ and submit to teaching administration. CANVAS shows an up-to-date overview.

- **Oct 1-5: Unmatched students are allocated**

- **Oct 8-12: First long meeting with the mentors**
  Fill in ‘Form 02 OML Elective Courses’ and submit to teaching administration.
Mentor guidance during Master program

- **Month 3**: matching with one of the mentors
  - discuss with mentor general interest, and electives program for second and third semester, including international term (formal approval)

- **Month 3-17**: Master Thesis preparation
  - meet bimonthly with mentor to discuss research topic and questions, possible company involvement
  - role of mentor is role model researcher, accompanies the student in selecting a good (design-oriented) research question

- **Month 18-24**: Master Thesis (full time)
  - guidance during thesis project
Final qualifications of Master program

- Disciplinary knowledge

- Independently conduct a research project (thesis project)
  - development of new knowledge and insights in a purposeful and methodical way

- Construct a (re)design of a business process, based on this research project
  - synthetic activity aimed at the realisation of new/modified artefacts, creating value in accordance with predefined requirements
Master Thesis Project

- 30 cp (840hrs), one full time semester
- Student should spend at least 20% of time on campus
- Self-contained (i.e., includes essentials of preliminary work)
- Formal formatting requirements (max. 50 pages, uncensored, poster)
- Judged by mentor, second assessor, and third assessor (check by examination board)
• Master thesis evaluation criteria:
  • Thesis
    – Scientific quality and scope
    – Quality of research method
    – Quality of solution
    – Written communication
  • Process and other skills
    – Project management and planning
    – Internal and external cooperations
    – Academic attitude
    – Societal awareness
    – Oral communication
Master Thesis Preparation

- Literature review (1ML05), 5 cp (140 hrs), max. 25 pgs
  - scoping of the research area
  - literature study
  - identification of relevant research questions

- Research proposal
  - definition and discussion of research questions
  - research design (methodology)
  - project plan (timing)
  Approval by mentor and second assessor
Finding the mentor that is best for you
1. Questions to ask yourself

Answer the following questions:
1. What do you want to do after your master study? Why?
2. What do you want to get out of your master project? Why?
3. What are your strong / weak points? Why?
4. What do you want and what are you able to contribute to development of new knowledge? Why? - Methodology and type of problem – list top 3
5. What type of organization would you like your thesis to focus on? Why? – function and industry sector
6. What are the characteristics of the best master thesis mentor for you? For what do you want most support, for what less? Why?
2. OPTIONAL: Meeting with your track coordinator

Preparation: Send in advance (in English):
• your answers to questions 1-6.
• CV
• Transcripts
• Courses you are currently taking and (partial/assignment) grades obtained
3. Meetings with potential mentors

- Be well-prepared for the meeting.
- Try to assess whether it will be a good match between the two of you.
- Make sure that you give a fair representation of yourself.
- Make sure that the questions that you have about the mentor are answered.
4. After the meetings with potential mentors

- Try to assess which mentors will meet your expectations.
- Be prompt in responding to the mentors.
- Go for a second round, if necessary.
Summary

• Choose your track
• Choose your mentor

Good luck and have fun!
Questions?

“Any questions?”

Questions are guaranteed in life; Answers aren’t.