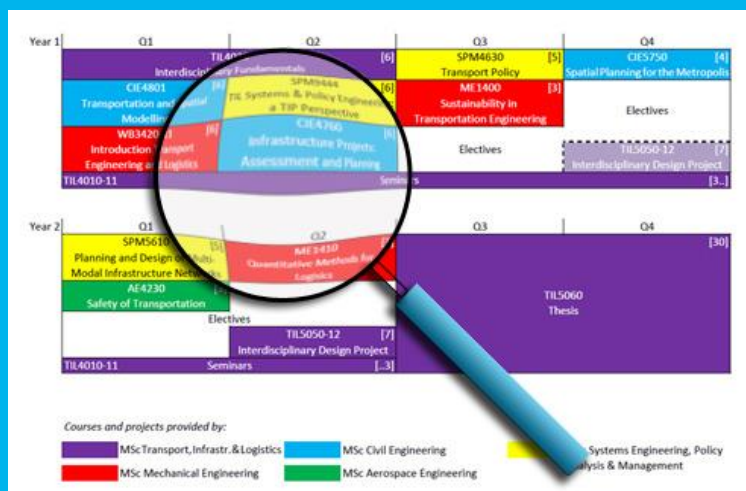


# MSc Transport, Infrastructure and Logistics

## Programme Navigator 2022





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## Student information

*Programme*[til.tudelft.nl](https://til.tudelft.nl)*Student Portal*[student.tudelft.nl](https://student.tudelft.nl)*Lecturers*[phonebook.tudelft.nl](https://phonebook.tudelft.nl)*Courses*[studyguide.tudelft.nl](https://studyguide.tudelft.nl)*Digital Learning  
Environment*[brightspace.tudelft.nl](https://brightspace.tudelft.nl)*Schedules*[mytimetable.tudelft.nl](https://mytimetable.tudelft.nl)*Director of Studies*[dr.ir. Dingena Schott](mailto:dr.ir.Dingena.Schott@tudelft.nl)

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## Location information



Technische Universiteit Delft  
Delft University of Technology

MSc Programme  
Transport Infrastructure and Logistics

is an interfaculty programme of:

Faculty of Civil Engineering  
and Geosciences

Building 23  
Stevinweg 1  
2628 CN Delft

Faculty of Technology,  
Policy and Management

Building 31  
Jaffalaan 5  
2628 BX Delft

Faculty of Mechanical,  
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Section Transport  
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# Overview

## MSc Transport, Infrastructure and Logistics 2022 (120 EC)

### Courses (75 EC)

#### 1 Fundamentals (28 EC)

TIL4030-20	TIL Research and Design Methods
TIL6022	TIL programming
CIEQ6002	Transport Modelling and Analysis
SEN1221	Statistical Analysis of Choice Behaviour
ME44206	Quantitative Methods for Logistics
ME44312	Machine learning for Transport and Multi-Machine Systems

#### 2 Specialisations

##### 2.1 Specialisation TG - Transport Governance (27 EC)

CIEQ6212	Urban Regions, Transport and Economics
WM1301T	Ethics of Transportation
SEN171a	Advanced Evaluation Methods for Transport Policy Decision-making
SEN1721	Travel behavior research
TPM032a	Multi Criteria Decision Analysis
AR0168	People, Movement and Public Space

##### 2.2 Specialisation TN - Transport Networks (28 EC)

CIEQ6212	Urban Regions, Transport and Economics
CIEM6301	Railway Traffic Management
CIEQ6232	Public Transport Demand and Network Planning and Operations
CIEQ6233	Railway Operations and Control
SEN1721	Travel Behaviour Research
AE4423-20	Airline Planning and Optimization

##### 2.3 Specialisation TO - Traffic Operations (27 EC)

CIEQ6003	Traffic Modelling and Management
CIEQ6223	Intelligent Vehicles for Safe and Efficient Traffic: Design and Assessment
SEN9110	Simulation Master Class
ME44200	Operations and Maintenance
ME44305	System Analysis and Simulation
AE4423-20	Airline Planning and Optimization

##### 2.4 Specialisation LS - Logistics Systems (26 EC)

CIEQ6213	Analysis and Modelling of Freight and Logistics Systems
SEN9720	Logistics and Supply Chain Innovations
TPM028a	Decision Making in Multimodal Transport Systems
ME44101	Dynamics and Interaction of Material and Equipment
ME44300	Multi-Machine Coordination for Logistics
ME44311	Advanced Operations Management

#### 3 Free Electives

##### 3.1 Free Electives T&P - Transport and Planning

CIEQ6003	Traffic Modelling and Management
CIEM6303	Emerging topics for transport & planning
CIEQ6211	Advanced Transport Modelling
CIEQ6212	Urban Regions, Transport and Economics
CIEQ6223	Intelligent Vehicles for Safe and Efficient Traffic: Design and Assessment
CIEQ6222	Traffic safety
CIEQ6224	Advanced Urban and Motorway Traffic Flow Modelling and Control
CIEQ6221	Active modes: traffic and transport
CIEM6301	Railway traffic management
CIEQ6231	Public Transport System and Supply Planning and Operations
CIEQ6233	Railway operations and control
CIEQ6213	Analysis and Modelling of Freight and Logistics Systems
CIEQ6232	Public Transport Demand and Network Planning and Operations



**3.2 Free Electives T&L - Transport and Logistics**

SEN115a	Law and Institutions
SEN171a	Advanced Evaluation Methods for Transport Policy Decision-making
SEN1721	Travel Behaviour Research
SEN1741	Innovations in Transport and Logistics
SEN9110	Simulation Master Class
SEN9720	Logistics and Supply Chain Innovations
SEN9725	Supply Chain Gaming
TPM004a	Transport Safety
TPM023a	Cost-Benefit Analysis: Theory and Application
TPM028a	Decision Making in Multimodal Transport Systems
TPM032a	Multi-criteria Decision Analysis

**3.3 Electives MME - Multi-Machine Engineering**

ME44101	Dynamics and Interaction of Material and Equipment
ME44106	Structural Design with FEM
ME44110	Integration Project Multi-Machine Systems
ME44115	Discrete Element Method (DEM) Simulation
ME44125	Reliability and Maintenance of Transport Equipment
ME44200	Operations and Maintenance
ME44210	Drive & Energy Systems
ME44300	Multi-Machine Coordination for Logistics
ME44305	System Analysis and Simulation
ME44311	Advanced Operations Management

**3.4 Other Free Electives****3.4.1 Electives C&O - Control and Operations**

AE4321-15	Air Traffic Management
AE4423-20	Airline Planning and Optimization
AE4446	Airport Operations

**3.4.2 Electives U - Urbanism**

AR0168	People, Movement and Public Space
AR0228	Infrastructure and Environment Method Module
AR3CS021	Seminar Cross Domain City of the Future
AR8003TU	Legal and Governance

**3.4.3 Electives TIL - Other TIL fields**

CME2300	Financial Engineering
ME41106	Intelligent Vehicles 3mE
MT44070	Shipping Management
RO47016	Automotive Human Factors
WI4062TU	Transport, Routing and Scheduling
WM1301TU	Ethics of Transportation

**3.5 TIL Free Electives**

TIL6000	TIL Capita Selecta
TIL6020	TIL Scientific Assignment

**Projects and Thesis (45 EC)****4 Projects (15 EC)**

TIL4020-20	TIL Research Project
TIL5050-20	TIL Design Project

**5 Thesis (30 EC)**

TIL5060	TIL Thesis
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# Program




Category	EC
Courses	75
Fundamentals	28
Specialization + Electives	47
Projects and Thesis	45
Projects	15
Thesis	30
Total	120



<b>Courses</b>	<b>75</b>
<b>Fundamentals</b>	<b>28</b>
TIL Research and Design Methods	7
TIL programming	3
Transport Modelling and Analysis	5
Statistical Analysis of Choice Behaviour	5
Machine Learning for Transport and Multi-machine systems	3
Quantitative Methods for Logistics	5



<b>Specialisations</b>			
<i>Transport Governance</i>	27	<i>Transport Networks</i>	28
Urban Regions, Transport and Economics	4	Urban Regions, Transport and Economics	4
Ethics of Transportation	3	Railway Traffic Management	5
Adv. Evaluation Methods for Transp.Policy Decision making	5	Public Transport Demand and Network Planning and Operations	5
Multi criteria decision analysis	5	Railway Operations and Control	5
Travel Behaviour Research	5	Travel Behaviour Research	5
People, Movement and Public Space	5	Airline Planning and Optimization	4
<i>Traffic Operations</i>	27	<i>Logistics Systems</i>	26
Traffic Modelling and Management	6	Analysis and Modelling of Freight and Log. Systems	4
Intelligent Vehicles for Safe and Efficient Traffic	4	Logistics and Supply Chain Innovations	5
Simulation Master Class	5	Decision Making in Multi-modal Transport Systems	5
Operations and Maintenance	3	Dynamics and Interaction of Material and Equipment	4
System Analysis and Simulation	5	Multi-Machine Coordination for Logistics	3
Airline Planning and Optimization	4	Advanced Operations and Production Management	5
<i>Free Electives</i>		<i>Transport &amp; Planning</i>	
<i>TIL electives</i>		<i>Control &amp; Operations</i>	
		<i>Transport &amp; Logistics</i>	
		<i>Urbanism</i>	
		<i>Multi-Machine Engineering</i>	
		<i>Other electives</i>	

<b>Projects and Thesis</b>	<b>45</b>
<b>Projects</b>	<b>15</b>
TIL Research Project	5
TIL Design Project	10
<b>Thesis</b>	<b>30</b>
TIL Thesis	30

Courses and projects provided by:

 MSc Civil Engineering  
 MScTIL  
 Interfaculty Program

 MSc CoSEM  
 MSc Aerospace Engineering

 MSc Mechanical Engineering  
 MSc Architecture



# 1. Fundamentals

Course	EC
TIL4030-20 TIL Research and Design Methods	7
TIL4030-20 P1 Integrated Design Exercise	4
TIL4030-20 P2 Written Exam	1
TIL4030-20 P3 Scientific Paper	2
TIL6022 TIL Programming	3
CIEQ6002 Transport Modelling and Analysis	5
SEN1221 Statistical Analysis of Choice Behaviour	5
ME44312 Machine learning for Transport and Multi-Machine Systems	3
ME44206 Quantitative Methods for Logistics	5
<b>Total</b>	<b>28</b>
<b>Compulsory</b>	

Year 1	Q1	Q2	Q3	Q4
	TIL4030-20 [7] TIL Research and Design Methods Integrated Design Exercise [4] Written Exam [1]		ME44312 [3] Machine learning for Transport and Multi-Machine Systems	Specialisations Electives
		SEN1221 [5] Statistical Analysis of Choice Behaviour		
		ME44206 [5] Quantitative Methods for Logistics		
	TIL6022 [3] TIL Programming	CIEQ6002 [5] Transport Modelling and Analysis		

Year 2	Q1	Q2	Q3	Q4
	Specialisations Electives		TIL5060 [30] TIL Thesis	
	TIL4020-20 [5] TIL Research Project Research Proposal [4] Literature Review [1]	TIL5050-20 [10] TIL Design Project		
	Preparation [0] Vision & Scope [2]	Analysis & Design [8]		

Courses and projects provided by:

TIL	MSc Transport, Infrastructure & Logistics
CIE	MSc Civil Engineering
SEN	MSc Complex Systems Engineering & Management
ME	MSc Mechanical Engineering

## 2.Specializations

Specialisation TG: Transport Governance (27 EC)

Specialisation TN: Transport Networks (28 EC)

Specialisation TO: Traffic Operations (27 EC)

Specialisation LS: Logistics Systems (26 EC)

Choose 1 Specialization

Transport Governance		Transport Networks		Traffic Operations		Logistics Systems	
Urban Regions, Transport and Economics	4	Urban Regions, Transport and Economics	4	Traffic Modelling and Management	6	Analysis and Modelling of Freight and Log. Systems	4
Ethics of Transportation	3	Railway Traffic Management	5	Intelligent Vehicles for Safe and Efficient Traffic	4	Logistics and Supply Chain Innovations	5
Adv. Evaluation Methods for Transp.Policy Decision making	5	Public Transport Demand and Network Planning and Operations	5	Airline Planning and Optimization	4	Decision Making in Multi-modal Transport Systems	5
Travel Behaviour Research	5	Railway Operations and Control	5	Simulation Master Class	5	Dynamics and Interaction of Material and Equipment	4
Multi criteria decision analysis	5	Travel Behaviour Research	5	Operations and Maintenance	3	Multi-Machine Coordination for Logistics	3
People, Movement and Public Space	5	Airline Planning and Optimization	4	System Analysis and Simulation	5	Advanced Operations and Production Management	5

Courses provided by:

- MSc Civil Engineering
- MSc Complex Systems Engineering & Management
- MSc Mechanical Engineering
- MSc Aerospace Engineering
- MSc Architecture, Urbanism & Building Sciences
- Interfaculty education

## 2.1 Specialization TG: Transport Governance

Course	EC	
CIEQ6212	Urban Regions, Transport and Economics	4
SEN1721	Travel Behaviour Research	5
SEN171a	Advanced Evaluation Methods for Transport Policy Decision-making	5
TPM032a	Multi Criteria Decision Analysis	5
WM1301TU	Ethics of Transportation	3
AR0168	People, Movement and Public Space	5
Total		27

*In a chosen specialisation all courses are compulsory*

Year 1	Q1	Q2	Q3	Q4
	TIL4030-20 [7] TIL Research and Design Methods <i>Integrated Design Exercise</i> [4, <i>Scientific Paper</i> [2] <i>Written Exam</i> [1]	SEN1221 [5] Statistical Analysis of Choice Behaviour	ME44312 [3] Machine learning for Transport and Multi-Machine Systems SEN1721 [5] Travel Behaviour Research WM1301TU [3] Ethics of Transportation	CIEQ6212 [4] Urban Regions, Transport and Economics AR0168 [5] People, Movement and Public Space
	Electives	ME44206 [5] Quantitative Methods for Logistics		
	TIL6022 [3] TIL Programming	CIEQ6002 [5] Transport Modelling and Analysis	Electives	

Year 2	Q1	Q2	Q3	Q4
	SEN171a [5] Advanced Evaluation Methods for Transport Policy Decision-making TPM032a [5] Multi Criteria Decision Analysis	Electives	TIL5060 TIL Thesis [30]	
	TIL4020-20 [5] TIL Research Project <i>Research Proposal</i> [4] <i>Literature Review</i> [1] <i>Preparation</i> [0] <i>Vision &amp; Scope</i> [2]	TIL5050-20 [10] TIL Design Project <i>Analysis &amp; Design</i> [8]		

Courses and projects provided by:

TIL	MSc Transport, Infrastructure & Logistics
CIE	MSc Civil Engineering
SEN	MSc Complex Systems Engineering & Management
ME	MSc Mechanical Engineering
IF	Interfaculty Education
AR	MSc Architecture, Urbanism & Building Sciences

## 2.2 Specialization TN: Transport Networks

Course	EC
CIEQ6212 Urban Regions, Transport and Economics	4
CIEM6301 Railway Traffic Management	5
CIEQ6233 Railway Operations and Control	5
CIEQ6232 Public Transport Demand and Network Planning and Operations	5
SEN1721 Travel Behaviour Research	5
AE4423-20 Airline Planning and Optimization	4
<b>Total</b>	<b>28</b>

*In a chosen specialisation all courses are compulsory*

Year 1	Q1	Q2	Q3	Q4
	TIL4030-20 TIL Research and Design Methods <i>Integrated Design Exercise</i> <i>Written Exam</i>	[7] [4] <i>Scientific Paper</i> [2] [1]	ME44312 [3] Machine learning for Transport and Multi-Machine Systems	CIEQ6212 [4] Urban Regions, Transport and Economics
	Electives	SEN1221 [5] Statistical Analysis of Choice Behaviour	SEN1721 [5] Travel Behaviour Research	CIE6233 [5] Railway Operations and Control
	ME44206 [5] Quantitative Methods for Logistics		Electives	CIEQ6232 [5] Public Transport Demand and Network Planning and Operations
	TIL6022 [3] TIL Programming	CIEQ6002 [5] Transport Modelling and Analysis		

Year 2	Q1	Q2	Q3	Q4
	CIEM6301 [5] Railway Traffic Management	AE4423-20 [4] Airline Planning and Optimization	TIL5060 TIL Thesis [30]	
	Electives			
	TIL4020-20 [5] TIL Research Project <i>Research Proposal</i> <i>Literature Review</i> <i>Preparation</i> [0] <i>Vision &amp; Scope</i> [2]	TIL5050-20 [10] TIL Design Project <i>Analysis &amp; Design</i> [8]		

Courses and projects provided by:

TIL	MSc Transport, Infrastructure & Logistics
CIE	MSc Civil Engineering
SEN	MSc Complex Systems Engineering & Management
ME	MSc Mechanical Engineering
AE	MSc Aerospace Engineering

## 2.3 Specialization TO: Traffic Operations

Course	EC
CIEQ6003 Traffic Modelling and Management	6
CIEQ6223 Intelligent Vehicles for Safe and Efficient Traffic: Design and Assessment	4
SEN9110 Simulation Master Class	5
ME44200 Operations and Maintenance	3
ME44305 System Analysis and Simulation	5
AE4423-20 Airline Planning and Optimization	4
<b>Total</b>	<b>27</b>

*In a chosen specialisation all courses are compulsory*

Year 1	Q1	Q2	Q3	Q4
	TIL4030-20 [7] TIL Research and Design Methods <i>Integrated Design Exercise</i> [4] <i>Scientific Paper</i> [2] <i>Written Exam</i> [1]	SEN1221 [5] Statistical Analysis of Choice Behaviour	ME44312 [3] Machine learning for Transport and Multi-Machine Systems	CIEQ6223 [4] Intelligent Vehicles for Safe & Efficient Traffic: Design and Assessment
	Electives		ME44305 [5] System Analysis and Simulation	
	ME44206 [5] Quantitative Methods for Logistics		ME44200 [3] Operations and Maintenance	Electives
	TIL6022 [3] TIL Programming	CIEQ6002 [5] Transport Modelling and Analysis	CIEQ6003 [6] Traffic Modelling and Management	
Year 2	Q1	Q2	Q3	Q4
	SEN9110 [5] Simulation Master Class	AE4423-20 [4] Airline Planning and Optimization	TIL5060 [30] TIL Thesis	
	Electives			
	TIL4020-20 [5] TIL Research Project <i>Research Proposal</i> [4] <i>Literature Review</i> [1] <i>Preparation</i> [0] <i>Vision &amp; Scope</i> [2]	TIL5050-20 [10] TIL Design Project <i>Analysis &amp; Design</i> [8]		

Courses and projects provided by:

TIL	MSc Transport, Infrastructure & Logistics
CIE	MSc Civil Engineering
SEN	MSc Complex Systems Engineering & Management
ME	MSc Mechanical Engineering
AE	MSc Aerospace Engineering

## 2.4 Specialization LS: Logistics Systems

Course	EC
CIEQ6213	4
SEN9720	5
TPM028a	5
ME44101	4
ME44300	3
ME44311	5
<b>Total</b>	<b>26</b>

*In a chosen specialisation all courses are compulsory*

Year 1	Q1	Q2	Q3	Q4
	TIL4030-20 TIL Research and Design Methods <i>Integrated Design Exercise</i> [4] <i>Written Exam</i> [1]	[7] [2] [5] [5] [5] [3] [5]	ME44312 [3] Machine learning for Transport and Multi-Machine Systems	CIEQ6213 [4] Analysis and Modelling of Freight and Logistics Systems
	Electives	SEN1221 Statistical Analysis of Choice Behaviour	ME44311 [5] Advanced Operations and Production Management	ME44300 [3] Multi-Machine Coordination for Logistics
	ME44206 Quantitative Methods for Logistics	CIEQ6002 [5] Transport Modelling and Analysis	Electives	
	TIL6022 [3] TIL Programming			
Year 2	Q1	Q2	Q3	Q4
	ME44101 [4] Dynamics and Interaction of Material and Equipment	TPM028a [5] Decision Making in Multimodal Transport Systems	TIL5060 TIL Thesis [30]	
	SEN9720 [5] Logistics and Supply Chain Innovations	Electives		
	TIL4020-20 [5] TIL Research Project <i>Research Proposal</i> [4] <i>Literature Review</i> [1] <i>Preparation</i> [0] <i>Vision &amp; Scope</i> [2]	TIL5050-20 [10] TIL Design Project <i>Analysis &amp; Design</i> [8]		

Courses and projects provided by:

TIL	MSc Transport, Infrastructure & Logistics
CIE	MSc Civil Engineering
SEN	MSc Complex Systems Engineering & Management
ME	MSc Mechanical Engineering

### 3. Free Electives

Free Electives T&P - Transport and Planning

Free Electives T&L - Transport and Logistics

Free Electives MME - Multi-Machine Engineering

Free External electives

Free Electives C&O - Control and Operations

Free Electives U – Urbanism

Free Electives TIL - Other TIL fields

Choose any free elective from the list. Choices outside the list are subject to the approval of the Board of Examiners and should be preliminarily checked by the program coordinator.

Minimum number of credits required per specialization: TG (20EC), TN (19EC), TO (20EC), LS(21 EC)

Transport & Planning		Transport & Logistics		Multi-Machine Engineering		External		TIL electives	
Public Transp. Syst. and Supply Plan. and Op.ns	5	Law and Institutions	5	Dynamics and Interaction of Material and Equipment	4	Airline Planning and Optimization	4	TIL Capita Selecta	1
Traffic Modelling and Management	6	Adv. Eval. Methods for Transp. Dec.-mak.	5	Structural Design with FEM	4	Airport Operations	4	TIL Scientific Assignment	7
Advanced Urban and Motorway Traffic Flow Modelling and Control	5	Travel Behaviour Research	5	Integration Project Multi-Machine Systems	5	Air Traffic Management	4		
Advanced Transport Modelling	3	Innovations in Transport and Logistics	5	Discrete Element Method (DEM) Simulation	4	People, Movement and Public Space	5		
Emerging Topics for Transport and Planning	4	Simulation Master Class	5	Reliability and Maintenance of Transport Equipment	3	Infrastructure & Environment Method Module	5		
Railway Traffic Management	5	Logistics and Supply Chain Innovations	5	Operations and Maintenance	3	Seminar Cross Domain City of the Future	5		
Intelligent Vehicles for Safe & Efficient Traffic	4	Supply Chain Gaming	5	Drive and Energy Systems	3	Legal and Governance	5		
Traffic Safety	4	Transport Safety	4	Multi-Machine Coordination for Logistics	3	Financial Engineering	4		
Urban Regions, Transport and Economics	4	Cost-Benefit Analysis: Theory and Application	4	System Analysis and Simulation	5	Intelligent Vehicles 3mE	5		
Public Transp. Dem. and Network Plan. and Op.ns	5	Decision Making in Multi-modal Transport Systems	5	Advanced Operations and Production Management	5	Automotive Human Factors	5		
Active modes: Traffic and Transport	5	Multi-criteria Decision Analysis	5			Shipping Management	5		
Analysis and Modelling of Freight and Log. Systems	4					Transport, Routing and Scheduling	3		
Railway Operations and Control	5					Ethics of Transportation	3		



### 3.1 Electives T&P – Transport and Planning

#### Course

EC

CIEQ6231	Public Transport System and Supply Planning and Operations	5
CIEQ6003	Traffic Modelling and Management	6
CIEQ6224	Advanced Urban and Motorway Traffic Flow Modelling and Control	5
CIEQ6211	Advanced Transport Modelling	3
CIEQ6212	Urban Regions, Transport and Economics	4
CIEQ6223	Intelligent Vehicles for Safe and Efficient Traffic: Design and Assessment	4
CIEQ6222	Traffic safety	4
CIEM6303	Emerging Topics for Transport and Planning	4
CIEQ6221	Active modes: traffic and transport	5
CIEQ6233	Railway operations and control	5
CIEQ6213	Analysis and Modelling of Freight and Logistics Systems	4
CIEQ6232	Public Transport Demand and Network Planning and Operations	5
CIEM6301	Railway traffic management	5

*Choose only courses not already chosen as part of specialisation*

Q1	Q2	Q3	Q4
(TN) CIEM6301* [5] Railway Traffic Management		(TO) CIEQ6003 [6] Traffic Modelling and Management	(LS) CIEQ6213 [4] Analysis and Modelling of Freight and Log. Systems (TN) CIEQ6233 [5] Railway Operations and Control (TO) CIEQ6223 [4] Intelligent Vehicles for Safe & Efficient Traffic (TG -TO) CIEQ6212 [4] Regions, Transport and Networks CIEQ6221 [5] Active Modes: Traffic and Transport CIEQ6224 [5] Adv. Urban and Motorway Traff. Flow Mod. and Control

Courses provided by:

CIE MSc Civil Engineering  
Track Traffic and Transport Engineering

(TG) Course is part of Specialisation TG - Transport Governance  
 (TN) Course is part of Specialisation TN - Transport Networks  
 (TO) Course is part of Specialisation TO - Traffic Operations  
 (LS) Course is part of Specialisation LS - Logistics Systems

*\*Available from 2023/2024  
CIEM6303 to be scheduled*

## 3.2 Electives T&L – Transport and Logistics

### Course

EC

SEN115a	Law and Institutions	5
SEN171a	Advanced Evaluation Methods for Transport Policy Decision-making	5
SEN1721	Travel Behaviour Research	5
SEN1741	Innovations in Transport and Logistics	5
SEN9110	Simulation Master Class	5
SEN9720	Logistics and Supply Chain Innovations	5
SEN9725	Supply Chain Gaming	5
TPM004a	Transport Safety	4
TPM023a	Cost-Benefit Analysis: Theory and Application	4
TPM028a	Decision Making in Multimodal Transport Systems	5
TPM032a	Multi-criteria Decision Analysis	5

*Choose only courses not already chosen as part of specialisation*

Q1	Q2	Q3	Q4
(TG) SEN171a [5] Advanced Evaluation Methods for Transport Decision-making	SEN1741 [5] Innovations in Transport and Logistics	SEN115a [5] Law and Institutions	
(TO) SEN9110 [5] Simulation Master Class	SEN9725 [5] Supply Chain Gaming	(TG - TN) SEN1721 [5] Travel Behaviour Research	
(LS) SEN9720 [5] Logistics and Supply Chain Innovations	(LS) TPM028a [5] Decision Making in Multimodal Transport Systems		
(P) TPM004a [4] Transport Safety			
TPM023a [4] Cost-Benefit Analysis: Theory and Application			
(TG) TPM032a [5] Multi-criteria Decision Analysis			

*Courses provided by:*

**SEN** MSc Systems Engineering, Policy Analysis and Management  
Track Transport & Logistics

(TG) Course is part of Specialisation TG - Transport Governance  
 (TN) Course is part of Specialisation TN - Transport Networks  
 (TO) Course is part of Specialisation TO - Traffic Operations  
 (LS) Course is part of Specialisation LS - Logistics Systems

### 3.3 Electives MME – Multi-Machine Engineering

#### Course

EC

ME44101	Dynamics and Interaction of Material and Equipment	4
ME44106	Structural Design with FEM	4
ME44110	Integration Project Multi-Machine Systems	5
ME44115	Discrete Element Method (DEM) Simulation	4
ME44125	Reliability and Maintenance of Transport Equipment	3
ME44200	Operations and Maintenance	3
ME44210	Drive & Energy Systems	3
ME44300	Multi-Machine Coordination for Logistics	3
ME44305	System Analysis and Simulation	5
ME44311	Advanced Operations and Production Management	5

*Choose only courses not already chosen as part of specialisation*

Q1	Q2	Q3	Q4
(LS) ME44101 [4] Dynamics and Interaction of Material and Equipment	ME44106 [4] Structural Design with FEM	ME44110 [5] Integration Project Multi-Machine Systems	
ME44210 [3] Drive & Energy Systems		ME44115 [4] Discrete Element Method (DEM) Simulation	(LS) ME44300 [3] Multi-Machine Coordination for Logistics
		ME44125 [3] Reliability and Maintenance of Transport Equipment	(TO) ME44200 [3] Operations and Maintenance
		(TO) ME44305 [5] System Analysis and Simulation	
		(LS) ME44311 [5] Advanced Operations and Production Management	

*Courses provided by:*

ME	MSc Mechanical Engineering Track Multi-Machine Engineering
(TG)	Course is part of Specialisation TG - Transport Governance
(TN)	Course is part of Specialisation TN - Transport Networks
(TO)	Course is part of Specialisation TO - Traffic Operations
(LS)	Course is part of Specialisation LS - Logistics Systems

### 3.4 External Free Electives

Free Electives C&O - Control and Operations






Free Electives U - Urbanism

Free Electives TIL - Other TIL fields

*Choose only courses not already chosen as part of specialisation*

Q1	Q2	Q3	Q4
AR3CS021 [5] Seminar Cross Domain City of the Future	(TG) WM1301TU [3] Ethics of Transportation	(P) AR0168 [5] People, Movement and Public Space	
AR8003TU [5] Legal and Governance	(P) AR0228 [5] Infrastructure and Environment Method Module	WI4062TU [3] Transport, Routing and Scheduling	AR0228 [5] Infrastructure and Environment Method Module
CME2300 [4] Financial Engineering	(TN - TO) AE4423-20 [4] Airline Planning and Optimisation	AE4446 [4] Airport Operations	RO47016 [5] Automotive Human Factors
	AE4321-15 [4] Air Traffic Management		
	ME41106 [5] Intelligent Vehicles 3mE	MT44070 [5] Shipping Management	

Courses provided by:

	MSc Aerospace Engineering, Track Control & Operations
	AR Electives
	CEG Electives
	3mE Electives
	Interfaculty Education EEMCS / TPM

- (TG) Course is part of Specialisation TG - Transport Governance  
 (TN) Course is part of Specialisation TN - Transport Networks  
 (TO) Course is part of Specialisation TO - Traffic Operations  
 (LS) Course is part of Specialisation LS - Logistics Systems

### 3.5 TIL and Other Free Electives

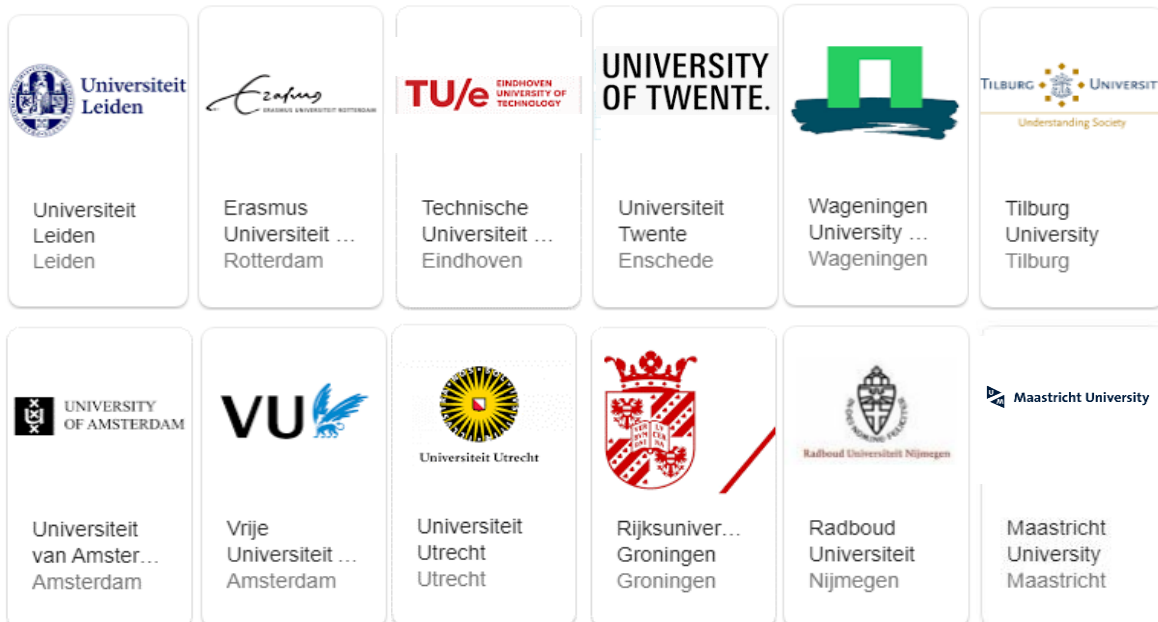
Course	EC
TIL6000 TIL Capita Selecta ( <i>in conjunction with AR3CS021 only</i> )	1
TIL6020 TIL Scientific Assignment	7
Free electives	



Q1	Q2	Q3	Q4
Free elective	Free elective	Free elective	Free elective
TIL6020 [7] TIL Scientific Assignment	TIL6020 [7] TIL Scientific Assignment	TIL6020 [7] TIL Scientific Assignment	TIL6020 [7] TIL Scientific Assignment
TIL6000 [1] TIL Capita Selecta			

Courses provided by:

MSc Transport, Infrastructure and Logistics




## 4. Projects and Thesis

Project type	EC
Projects	15
Thesis	30
Total	45

Year 1	Q1	Q2	Q3	Q4
	TIL4030-20 [7] TIL Research and Design Methods <i>Integrated Design Exercise</i> [4] <i>Scientific Paper</i> [2] <i>Written Exam</i> [1]		Fundamentals Specialisations Electives	
Year 2	Q1	Q2	Q3	Q4
	Specialisations Electives		TIL5060 TIL Thesis [30]	
	TIL4020-20 [5] TIL Research Project <i>Research Proposal</i> [4] <i>Literature Review</i> [1] <i>Preparation</i> [0] <i>Vision &amp; Scope</i> [2]	TIL5050-20 [10] TIL Design Project <i>Analysis &amp; Design</i> [8]		

Courses and projects provided by:

 MSc Transport, Infrastructure and Logistics

## 4.1 Projects

	<i>Project</i>	<i>EC</i>
TIL4020-20	TIL Research Project	5
TIL4020-20 P1	<i>Research Proposal</i>	4
TIL4020-20 P2	<i>Literature Review</i>	1
TIL5050-20	TIL Design Project	10
TIL5050-20 P0	<i>Preparation</i>	0
TIL5050-20 P1	<i>Vision &amp; Scope</i>	2
TIL5050-20 P2	<i>Analysis &amp; Design</i>	8
	<i>Total</i>	15

*Compulsory*

Year 2	Q1	Q2	Q3	Q4
	TIL4020-20 [5] TIL Research Project <i>Research Proposal</i> [4] <i>Literature Review</i> [1]		TIL4020-20 [5] TIL Research Project <i>Research Proposal</i> [4] <i>Literature Review</i> [1]	
	<i>Analysis &amp; Design</i> [8] TIL Design Project TIL5050-20 [10]	<i>Preparation</i> [0] <i>Vision &amp; Scope</i> [2] TIL5050-20 [10] TIL Design Project <i>Analysis &amp; Design</i> [8]	<i>Analysis &amp; Design</i> [8] TIL Design Project TIL5050-20 [10]	<i>Preparation</i> [0] <i>Vision &amp; Scope</i> [2] TIL5050-20 [10] TIL Design Project <i>Analysis &amp; Design</i> [8]

*Projects provided by:*

MSc Transport, Infrastructure and Logistics



## 4.2 Thesis

*Project*

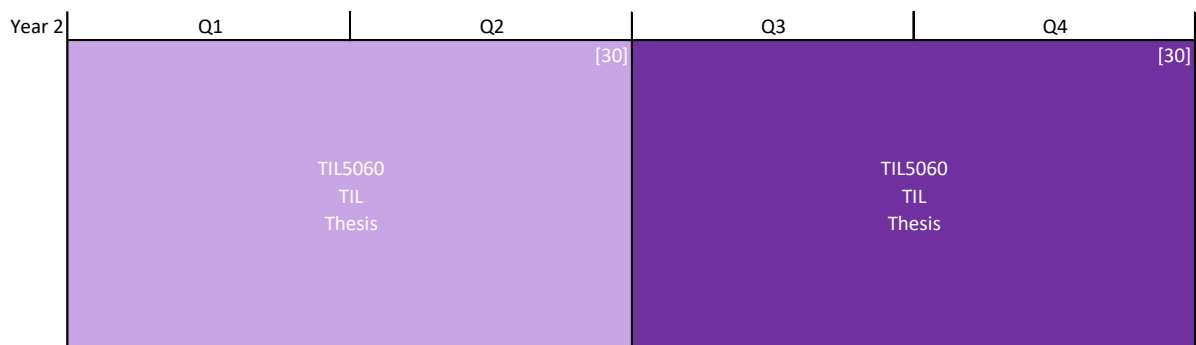
*EC*

**TIL5060**

TIL Thesis

30

*Compulsory*



*Projects provided by:*

**MSc Transport, Infrastructure and Logistics**

## Extras

- A Honours Programme Master
- B Cross Domain Graduation Studio 'City of the Future'
  - B.1 Example courses Cross Domain Graduation Studio 'City of the Future'
  - B.2 Cross Domain Graduation Studio 'City of the Future': Specialisations D & O
  - B.3 Cross Domain Graduation Studio 'City of the Future': Specialisations P & E
- C Schakelprogramma HBO (Bridging Programme)
- D Convergentieprogramma WO (Convergence Programme)
  - D.1 Convergence Programme: Specialisation P - Policy
  - D.2 Convergence Programme: Specialisation D - Design
  - D.3 Convergence Programme: Specialisation O - Operations
  - D.4 Convergence Programme: Specialisation E - Engineering
- E Example Electives
  - E.1 Example Electives in Specialisation TG – Transport Governance
  - E.2 Example Electives in Specialisation TN – Transport Networks
  - E.3 Example Electives in Specialisation TO – Traffic Operations
  - E.4 Example Electives in Specialisation LS – Logistics Systems


## A. Honours Programme Master


	<i>Course or project</i>	<i>EC</i>
	<i>Interfaculty course 5 credits - Choose one course</i>	
UD2010	Critical Reflection on Technology	5
UD2012	Business Leadership for Engineers	5
TPM019A	Leadership Skills for Engineers	5
TIL6020	TIL Scientific Assignment	7
	<i>Thematically consistent set of Electives</i>	8
	<i>Total</i>	<i>20</i>

*Optional*  
*20 EC on top of MSc programme*

Q1	Q2	Q3	Q4
Electives	Electives	Electives	Electives
TIL6020 [7] TIL Scientific Assignment	TIL6020 [7] TIL Scientific Assignment	TIL6020 [7] TIL Scientific Assignment	TIL6020 [7] TIL Scientific Assignment
UD2010 [5] Critical Reflection on Technology	UD2010 [5] Critical Reflection on Technology	UD2012 [5] Business Leadership for Engineers	
TPM019a [5] Leadership Skills for Engineers			UD2010 [5] Critical Reflection on Technology

*Courses provided by:*

 MSc Transport, Infrastructure and Logistics

 Interfaculty Education TPM

## B. Cross Domain City of the 'Future'

	Course or project	EC
AR3CS021	Seminar Cross Domain City of the Future	5
TIL6000	TIL Capita Selecta ( <i>in conjunction with AR3CS021 only</i> )	1
TIL5060	TIL Thesis	30

*Courses are optional as part of graduation studio*

Year 1	Q1	Q2	Q3	Q4
	TIL4030-20 TIL Research and Design Methods <i>Integrated Design Exercise</i> <i>Written Exam</i>	[7] [4] [1]	TIL4020-20 TIL Research Project <i>Research Proposal</i> <i>Literature Review</i>	[5] [4] [1]
		SEN1221 Statistical Analysis of Choice Behaviour	ME44312 Machine learning for Transport and Multi-Machine Systems	[5] [3]
		ME44206 Quantitative Methods for Logistics		[5]
	TIL6022 TIL Programming	[3]	CIEQ6002 Transport Modelling and Analysis	[5]
Year 2	Q1	Q2	Q3	Q4
	TIL6000 TIL Capita Selecta	[1]		
	AR3CS021 Seminar Cross Domain City of the Future	[5]		
	TIL4020-20 TIL Research Project <i>Research Proposal</i> <i>Literature Review</i> <i>Preparation [0] Vision &amp; Scope [2]</i>	[5] [4] [1]	TIL5050-20 TIL Design Project <i>Analysis &amp; Design [8]</i>	[10]
				TIL5060 TIL Thesis
				[30]

Courses and projects provided by:

TIL	MSc Transport, Infrastructure & Logistics
CIE	MSc Civil Engineering
SEN	MSc Complex Systems Engineering & Management
ME	MSc Mechanical Engineering
AR	MSc Architecture, Urbanism & Building Sciences

## C. Schackelprogramma HBO

	<i>Vak</i>	<i>EC</i>
IFEEMCS012100	Calculus for Engineering, deel 1	3
IFEEMCS012200	Calculus for Engineering, deel 2	3
IFEEMCS012300	Calculus for Engineering, deel 3	3
IFEEMCS010400	Lineaire Algebra	5
IFEEMCS010500	Kansrekening en Statistiek	3
WI1909TH	Differentiaalvergelijkingen	3
CTB1420-17	Transport & Planning	5
TB111c	Probleemanalyse	5
	<i>Totaal</i>	<i>30</i>

<i>Verplicht of te ronden vóór aanvang MSc-opleiding</i>
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Schakeljaar	Q1	Q2	Q3	Q4
	IFEEMCS012100 [3] Calculus for Engineering deel 1	IFEEMCS012200 [3] Calculus for Engineering deel 2	IFEEMCS012300 [3] Calculus for Engineering deel 3	IFEEMCS010500 [3] Kansrekening en Statistiek
	IFEEMCS010400 [5] Lineaire Algebra	WI1909TH [3] Differentiaal- vergelijkingen		CTB1420-17 [5] Transport & Planning
	TB111c [5] Probleem- analyse			

*Vak afkomstig uit:*

IFEEMCS	Interfacultair onderwijs EWI
CTB	BSc Civiele Techniek
TB	BSc Technische Bestuurskunde

## D. Convergentieprogramma WO

	Vak	Onderdeel	EC
	<i>Analyse</i>		<i>(kies 1 vak)</i>
IFEEMCS012100	Calculus for Engineering, deel 1		3
CTB1001-16 Toets 1	Analyse	Analyse deeltentamen 1	3
WBMT1050 Toets 1	Wiskunde 1	Analyse 1 - deeltentamen	3
	<i>ingangseis voor CIE4801-18 Transport Modelling</i>		
	<i>Lineaire Algebra</i>		<i>(kies 1 vak)</i>
WI1807TH1-21	Linear Algebra		3
CTB1002 Toets 1	Lineaire Algebra Toets 1		3
WBMT1051 Toets 1	Wiskunde 2	Lineaire Algebra 1 - deeltentamen	3
	<i>ingangseis voor CIE4801-18 Transport Modelling</i>		
	<i>Kansrekening en Statistiek</i>		<i>(kies 1 vak)</i>
IFEEMCS010500	Kansrekening en Statistiek		3
CTB2200	Kansrekening en Statistiek		3
WBMT2049 T1	Wiskunde 4	Kansrekening en Statistiek - deeltentamen	3
	<i>ingangseis voor SEN1221 Statistical Analysis of Choice Behaviour</i>		

Uit elke categorie 1 vak op te nemen als Free Elective in MSc-opleiding

Year 1	Q1	Q2	Q3	Q4
	TIL4030-20 [7] TIL Research and Design Methods <i>Integrated Design Exercise</i> [4] <i>Scientific Paper</i> [2] <i>Written Exam</i> [1]		ME44312 [3] Machine learning for Transport and Multi-Machine Systems	Specialisations Electives
	ME44206 [5] Quantitative Methods for Logistics			
	IFEEMCS012100 CTB1001-16 T1 WBMT1050 T1 WI1807TH1-21 Lin. Alg. [3] TIL6022 [3] TIL Programming	Analyse [3] CIEQ6002 Transport Modelling and Analysis CTB2200 Kansrek. & Statistiek [3]	CTB1002 T1 WBMT1051 T1 IFEEMCS010500 WBMT2049 T1 Kansrek. & Statistiek [3]	
Year 2	Q1	Q2	Q3	Q4
	Specialisations Electives	SEN1221 [5] Statistical Analysis of Choice Behaviour	TIL5060 [30] TIL Thesis	
	TIL4020-20 [5] TIL Research Project <i>Research Proposal</i> [4] <i>Literature Review</i> [1] <i>Preparation</i> [0] <i>Vision &amp; Scope</i> [2]	TIL5050-20 [10] TIL Design Project <i>Analysis &amp; Design</i> [8]		

Courses and projects provided by:

TIL	MSc Transport, Infrastructure & Logistics
CIE	MSc Civil Engineering
SEN	MSc Complex Systems Engineering & Management
ME	MSc Mechanical Engineering
	Mathematics options for Convergence Programme

## D.1 Convergence Program – Specialization Transport Governance

Year 1	Q1	Q2	Q3	Q4
	TIL4030-20 [7] TIL Research and Design Methods <i>Integrated Design Exercise</i> [4] <i>Scientific Paper</i> [2] <i>Written Exam</i> [1]		ME44312 [3] Machine learning for Transport and Multi-Machine Systems	CIEQ6212 [4] Urban Regions, Transport and Economics
	ME44206 [5] Quantitative Methods for Logistics		SEN1721 [5] Travel Behaviour Research	AR0168 [5] People, Movement and Public Space
	IFEEMCS012100 [3] CTB1001-16 T1 [3] WBMT1050 T1 [3]	CIEQ6002 [5] Transport Modelling and Analysis	WM1301TU [3] Ethics of Transportation	Electives
	WI1807TH1-21 Lin. Alg. [3] TIL6022 [3] TIL Programming	CTB2200 [3] Kansrek. & Statistiek [3]	IFEEMCS010500 [3] WBMT2049 T1 [3] Kansrek. & Statistiek [3] WBMT1051 T1 [3] CTB1002T1 [3] Lineaire Algebra 1 [3]	IFEEMCS010500 [3] Kansrek. & Statistiek [3]
Year 2	Q1	Q2	Q3	Q4
	SEN171a [5] Advanced Evaluation Methods for Transport Policy Decision-making	SEN1221 [5] Statistical Analysis of Choice Behaviour	TIL5060 TIL Thesis [30]	
	TPM032a [5] Multi Criteria Decision Analysis	Electives		
	TIL4020-20 [5] TIL Research Project <i>Research Proposal</i> [4] <i>Literature Review</i> [1] <i>Preparation</i> [0] <i>Vision &amp; Scope</i> [2]	TIL5050-20 [10] TIL Design Project <i>Analysis &amp; Design</i> [8]		

## D.2 Convergence Program – Specialization Transport Networks

Year 1	Q1	Q2	Q3	Q4
	TIL4030-20 [7] TIL Research and Design Methods <i>Integrated Design Exercise</i> [4] <i>Scientific Paper</i> [2] <i>Written Exam</i> [1]		ME44312 [3] Machine learning for Transport and Multi-Machine Systems	CIEQ6212 [4] Urban Regions, Transport and Economics
	ME44206 [5] Quantitative Methods for Logistics		SEN1721 [5] Travel Behaviour Research	CIE6233 [5] Railway Operations and Control
	IFEEMCS012100 [3] CTB1001-16 T1 [3] WBMT1050 T1 [3]	CIEQ6002 [5] Transport Modelling and Analysis	Electives	CIEQ6232 [5] Public Transport Demand and Network Planning and Operations
	WI1807TH1-21 Lin. Alg. [3] TIL6022 [3] TIL Programming	CTB2200 [3] Kansrek. & Statistiek [3]	IFEEMCS010500 [3] WBMT2049 T1 [3] Kansrek. & Statistiek [3] WBMT1051 T1 [3] CTB1002T1 [3] Lineaire Algebra 1 [3]	
Year 2	Q1	Q2	Q3	Q4
	CIEM6301 [5] Railway Traffic Management	AE4423-20 [4] Airline Planning and Optimization	TIL5060 TIL Thesis [30]	
		SEN1221 [5] Statistical Analysis of Choice Behaviour		
	TIL4020-20 [5] TIL Research Project <i>Research Proposal</i> [4] <i>Literature Review</i> [1] <i>Preparation</i> [0] <i>Vision &amp; Scope</i> [2]	TIL5050-20 [10] TIL Design Project <i>Analysis &amp; Design</i> [8]		



## D.3 Convergence Program – Specialization Traffic Operations

Year 1	Q1	Q2	Q3	Q4
	TIL4030-20 [7] TIL Research and Design Methods <i>Integrated Design Exercise</i> [4] <i>Scientific Paper</i> [2] <i>Written Exam</i> [1]		ME44312 [3] Machine learning for Transport and Multi-Machine Systems	CIEQ6223 [4] Intelligent Vehicles for Safe & Efficient Traffic: Design and Assessment
	ME44206 [5] Quantitative Methods for Logistics		ME44305 [5] System Analysis and Simulation	
	IFEEMCS012100 [3] CTB1001-16 T1 WBMT1050 T1 Analyse	CIEQ6002 [5] Transport Modelling and Analysis	ME44200 - Operations and Maintenance [3] CIEQ6003 - Traffic Modelling and Management [6]	
	WI1807TH1-21 Lin. Alg. [3] TIL6022 [3] TIL Programming	CTB2200 Kansrek. & Statistiek [3]	IFEEMCS010500 WBMT2049 T1 Kansrek. & Statistiek [3] WBMT1051 T1 CTB1002T1 Lineaire Algebra 1 [3]	Electives
Year 2	Q1	Q2	Q3	Q4
	SEN9110 [5] Simulation Master Class	AE4423-20 [4] Airline Planning and Optimization	[30] TIL5060 TIL Thesis	
	Electives	SEN1221 [5] Statistical Analysis of Choice Behaviour		
	TIL4020-20 [5] TIL Research Project <i>Research Proposal</i> [4] <i>Literature Review</i> [1] <i>Preparation</i> [0] <i>Vision &amp; Scope</i> [2]	TIL5050-20 [10] TIL Design Project <i>Analysis &amp; Design</i> [8]		

## D.4 Convergence Program – Specialization Logistics Systems

Year 1	Q1	Q2	Q3	Q4
	TIL4030-20 [7] TIL Research and Design Methods <i>Integrated Design Exercise</i> [4] <i>Scientific Paper</i> [2] <i>Written Exam</i> [1]		ME44312 [3] Machine learning for Transport and Multi-Machine Systems	CIEQ6213 [4] Analysis and Modelling of Freight and Logistics Systems
	ME44206 [5] Quantitative Methods for Logistics		ME44311 [5] Advanced Operations and Production Management	
	IFEEMCS012100 [3] CTB1001-16 T1 WBMT1050 T1 Analyse	CIEQ6002 [5] Transport Modelling and Analysis	Electives	ME44300 [3] Multi-Machine Coordination for Logistics
	WI1807TH1-21 Lin. Alg. [3] TIL6022 [3] TIL Programming	TPM028a [5] Decision Making in Multimodal Transport Systems	IFEEMCS010500 WBMT2049 T1 Kansrek. & Statistiek [3] WBMT1051 T1 CTB1002T1 Lineaire Algebra 1 [3]	IFEEMCS010500 Kansrek. & Statistiek [3]
Year 2	Q1	Q2	Q3	Q4
	ME44101 [4] Dynamics and Interaction of Material and Equipment	SEN1221 [5] Statistical Analysis of Choice Behaviour	[30] TIL5060 TIL Thesis	
	SEN9720 [5] Logistics and Supply Chain Innovations	Electives		
	TIL4020-20 [5] TIL Research Project <i>Research Proposal</i> [4] <i>Literature Review</i> [1] <i>Preparation</i> [0] <i>Vision &amp; Scope</i> [2]	TIL5050-20 [10] TIL Design Project <i>Analysis &amp; Design</i> [8]		

