MSc Transport, Infrastructure and Logistics

Programme Navigator AY 2023/2024

TUDelft — Delft University of Technology

Challenge the future

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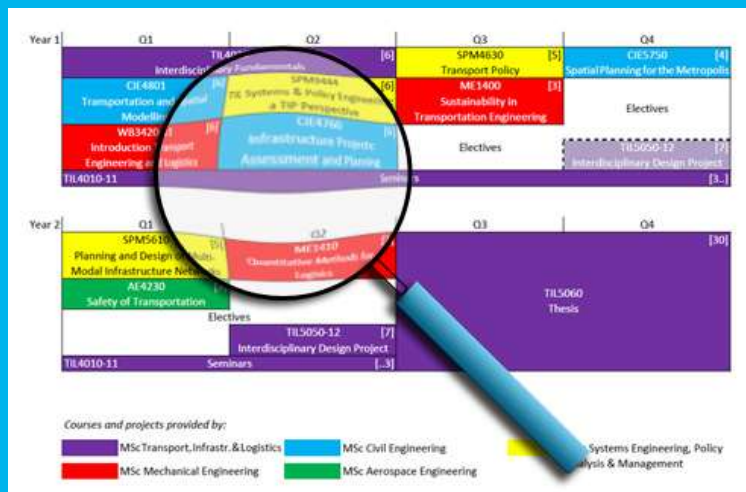
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Student information

Programme til.tudelft.nl	*Student Portal* student.tudelft.nl	*Lecturers* phonebook.tudelft.nl
Courses studyguide.tudelft.nl	*Digital Learning Environment* brightspace.tudelft.nl	*Schedules* mytimetable.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	Faculty of Technology, Policy and Management	Faculty of Mechanical, Maritime, and Materials Engineering
Building 23 Stevinweg 1 2628 CN Delft	Building 31 Jaffalaan 5 2628 BX Delft	Building 34 Mekelweg 2 2628 CD Delft
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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	Regions, Transport and Networks
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	Regions, Transport and Networks
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	Freight Transport Networks and 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	Transitions, Sustainability and Innovations
CIEQ6211	Transport Modelling: Traffic Assignment
CIEQ6212	Regions, Transport and Networks
CIEQ6223	Intelligent Vehicles for Safe and Efficient Traffic: Design and Assessment
CIEQ6222	Traffic safety
CIEQ6224	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	Freight Transport Networks and 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
TPM040a	Logistics Systems Engineering

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 and Cargo 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

Program

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

Courses		75
Fundamentals		**28**
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

Specialisations

Transport Governance	27	Transport Networks	28	Traffic Operations	27	Logistics Systems	26
Regions, Transport and Networks	4	Regions, Transport and Networks	4	Traffic Modelling and Management	6	Freight Transport Networks and 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	Simulation Master Class	5	Decision Making in Multi-modal Transport Systems	5
Multi criteria decision analysis	5	Railway Operations and Control	5	Operations and Maintenance	3	Dynamics and Interaction of Material and Equipment	4
Travel Behaviour Research	5	Travel Behaviour Research	5	System Analysis and Simulation	5	Multi-Machine Coordination for Logistics	3
People, Movement and Public Space	5	Airline Planning and Optimization	4	Airline Planning and Optimization	4	Advanced Operations and Production Management	5

Free Electives	Transport & Planning	Transport & Logistics	Multi-Machine Engineering
TIL electives	Control & Operations	Urbanism	Other electives

Projects and Thesis		45
Projects		**15**
TIL Research Project		5
TIL Design Project		10
Thesis		**30**
TIL Thesis		30

Courses and projects provided by:	
■ MSc Civil Engineering	■ MSc CoSEM	■ MSc Mechanical Engineering
■ MScTIL	■ MSc Aerospace Engineering	■ MSc Architecture*
■ Interfaculty Program		

*Courses offered by MSc Architecture require registration into the BIS system (https://bis.bk.tudelft.nl/student)

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
	Total	*28*

Compulsory

Year 1

Q1	Q2	Q3	Q4
TIL4030-20 [7] TIL Research and Design Methods		ME44312 [3] Machine learning for Transport and Multi-Machine Systems	
Integrated Design Exercise [4]	*Scientific Paper* [2]		
Written Exam [1]	SEN1221 [5] Statistical Analysis of Choice Behaviour	Specialisations Electives	
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 TIL Thesis [30]	
TIL4020-20 [5] TIL Research Project	TIL5050-20 [10] TIL Design Project		
Research Proposal [4]			
Literature Review [1]			
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*	
Regions, Transport and Networks	4	Regions, Transport and Networks	4	Traffic Modelling and Management	6	Freight Transport Networks and 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	Regions, Transport and Networks	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 *Integrated Design Exercise [4* *Scientific Paper [2]* *Written Exam [1]*		ME44312 [3] Machine learning for Transport and Multi-Machine Systems	CIEQ6212 [4] Regions, Transport and Networks
Electives	SEN1221 [5] Statistical Analysis of Choice Behaviour	SEN1721 [5] Travel Behaviour Research	AR0168 [5] People, Movement and Public Space
		WM1301TU [3] Ethics of Transportation	
ME44206 [5] Quantitative Methods for Logistics		Electives	
TIL6022 [3] TIL Programming	CIEQ6002 [5] Transport Modelling and Analysis		

Year 2

Q1	Q2	Q3	Q4
SEN171a [5] Advanced Evaluation Methods for Transport Policy Decision-making	Electives	[30] TIL5060 TIL Thesis	
TPM032a [5] Multi Criteria Decision Analysis			
TIL4020-20 [5] TIL Research Project *Research Proposal [4]* *Literature Review [1]* *Preparation [0] Vision & Scope [2]*	TIL5050-20 [10] TIL Design Project *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
IF	Interfaculty Education
AR	MSc Architecture, Urbanism & Building Sciences

2.2　　Specialization TN: Transport Networks

Course		EC
CIEQ6212	Regions, Transport and Networks	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
	Total	*28*

In a chosen specialisation all courses are compulsory

Year 1

Q1	Q2	Q3	Q4
TIL4030-20 [7] TIL Research and Design Methods		ME44312 [3] Machine learning for Transport and Multi-Machine Systems	CIEQ6212 [4] Regions, Transport and Networks
Integrated Design Exercise [4] *Written Exam [1]*	*Scientific Paper [2]*		
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	[30] TIL5060 TIL Thesis	
Electives			
TIL4020-20 [5] TIL Research Project	TIL5050-20 [10] TIL Design Project		
Research Proposal [4] *Literature Review [1]*			
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
	AE	MSc Aerospace Engineering
	AR	MSc Architecture, Urbanism & Building Sciences

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
	Total	*27*

In a chosen specialisation all courses are compulsory

Year 1	Q1	Q2	Q3	Q4
	TIL4030-20 [7] TIL Research and Design Methods *Integrated Design Exercise [4* *Scientific Paper [2]* *Written Exam [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	[30] TIL5060 TIL Thesis	
	Electives			
	TIL4020-20 [5] TIL Research Project *Research Proposal [4]* *Literature Review [1]* *Preparation [0] Vision & Scope [2]*	TIL5050-20 [10] TIL Design Project *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
AE	MSc Aerospace Engineering

2.4   Specialization LS: Logistics Systems

	Course	EC
CIEQ6213	Freight Transport Networks and Systems	4
SEN9720	Logistics and Supply Chain Innovations	5
TPM028a	Decision Making in Multimodal Transport Systems	5
ME44101	Dynamics and Interaction of Material and Equipment	4
ME44300	Multi-Machine Coordination for Logistics	3
ME44311	Advanced Operations and Production Management	5
	Total	*26*

In a chosen specialisation all courses are compulsory

Year 1

Q1	Q2	Q3	Q4
TIL4030-20 [7] TIL Research and Design Methods *Integrated Design Exercise [4] Scientific Paper [2] Written Exam [1]*		ME44312 [3] Machine learning for Transport and Multi-Machine Systems	CIEQ6213 [4] Freight Transport Networks and Systems
Electives	SEN1221 [5] Statistical Analysis of Choice Behaviour	ME44311 [5] Advanced Operations and Production Management	
ME44206 [5] Quantitative Methods for Logistics			ME44300 [3] Multi-Machine Coordination for Logistics
TIL6022 [3] TIL Programming	CIEQ6002 [5] Transport Modelling and Analysis	Electives	

Year 2

Q1	Q2	Q3	Q4
ME44101 [4] Dynamics and Interaction of Material and Equipment	TPM028a [5] Decision Making in Multimodal Transport Systems		[30]
SEN9720 [5] Logistics and Supply Chain Innovations	Electives		TIL5060 TIL Thesis
TIL4020-20 [5] TIL Research Project *Research Proposal [4] Literature Review [1] Preparation [0] Vision & Scope [2]*	TIL5050-20 [10] TIL Design Project *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
AE	MSc Aerospace Engineering
AR	MSc Architecture, Urbanism & Building Sciences

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	*Control & Operations*	Airline Planning and Optimization	4	TIL Scientific Assignment	7
Traffic Modelling and Management	6	Adv. Eval. Methods for Transp. Dec.-mak.	5	Structural Design with FEM	4		Airport and Cargo Operations	4		
Urban and Motorway Traffic Flow Modelling and Control	5	Travel Behaviour Research	5	Integration Project Multi-Machine Systems	5		Air Traffic Management	4		
Transport Modelling: Traffic Assignment	3	Innovations in Transport and Logistics	5	Discrete Element Method (DEM) Simulation	4	*Urbanism*	People, Movement and Public Space	5		
Transitions, Sustainability & Innovation	5	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	3	Transport Safety	4	Multi-Machine Coordination for Logistics	3		Financial Engineering	4		
Regions, Transport and Networks	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	3	Multi-criteria Decision Analysis	5				Shipping Management	5		
Freight Transport Networks and Systems	4	Logistics Systems Engineering	5			*Other TIL fields*	Transport, Routing and Scheduling	3		
Railway Operations and Control	5						Ethics of Transportation	3		

Courses provided by:		
▉ MSc TIL	▉ MSc Civil Engineering	▉ MSc CoSEM ▉ MSc Mechanical Engineering
▉ MSc Aerospace Engineering	▉ MSc Architecture	▉ Interfaculty Education

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	Urban and Motorway Traffic Flow Modelling and Control	5
CIEQ6211	Transport Modelling: Traffic Assignment	3
CIEQ6212	Regions, Transport and Networks	4
CIEQ6223	Intelligent Vehicles for Safe and Efficient Traffic: Design and Assessmer	4
CIEQ6222	Traffic safety	3
CIEM6303	Transitions, Sustainability & Innovation	5
CIEQ6221	Active modes: traffic and transport	3
CIEQ6233	Railway operations and control	5
CIEQ6213	Freight Transport Networks and 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	CIEQ6231 [5] Public Transp. System & Supply Plann. & Op.ns	(LS) CIEQ6213 [4] Freight Transport Networks and Systems
CIEM6303 [5] Transitions, Sustainability & Innovations			(TN) CIEQ6233 [5] Railway Operations and Control	(TN) CIEQ6232 [5] Public Transp. Demand & Netw. Plann & Op.tions
			(TO) CIEQ6223 [4] Intelligent Vehicles for Safe & Efficient Traffic	CIEQ6211 [3] Transport Modelling: Traffic Assignment
			CIEQ6221 [3] Active Modes: Traffic and Transport	(TG -TO) CIEQ6212 [4] Regions, Transport and Networks
				CIEQ6222 [3] Traffic Safety
				CIEQ6224 [5] 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

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
TPM040a　Logistics Systems Engineering	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	TPM040a　[5] Logistics Systems Engineering		
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	(TG) AR0168 [5] People, Movement and Public Space
AR8003TU [5] Legal and Governance	AR0228 [5] Infrastructure and Environment Method Module	MT44070 [5] Shipping Management	AR0228 [5] Infrastructure and Environment Method Module
CME2300 [4] Financial Engineering	AE4321-15 [4] Air Traffic Management		RO47016 [5] Automotive Human Factors
WI4062TU [3] Transport, Routing and Scheduling	(TN - TO) AE4423-20 [4] Airline Planning and Optimisation		
	AE4446 [4] Airport and Cargo Operations		
	ME41106 [5] Intelligent Vehicles 3mE		

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*

TIL6020	TIL Scientific Assignment	7
	Free electives (Require approval)	

Technische
Universiteit …
Delft

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

Courses provided by:

	MSc Transport, Infrastructure and Logistics

Universiteit
Leiden
Leiden

Erasmus
Universiteit …
Rotterdam

Technische
Universiteit …
Eindhoven

Universiteit
Twente
Enschede

Wageningen
University …
Wageningen

Tilburg
University
Tilburg

Universiteit
van Amster…
Amsterdam

Vrije
Universiteit …
Amsterdam

Universiteit
Utrecht
Utrecht

Rijksuniver…
Groningen
Groningen

Radboud
Universiteit
Nijmegen

Maastricht
University
Maastricht

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
Integrated Design Exercise [4] *Scientific Paper* [2]
Written Exam [1]

Fundamentals
Specialisations
Electives

Year 2

Q1	Q2	Q3	Q4

Specialisations
Electives

[30]

TIL4020-20 [5]
TIL Research Project
Research Proposal [4]
Literature Review [1]
Preparation [0] Vision & Scope [2]

TIL5050-20 [10]
TIL
Design
Project
Analysis & Design [8]

TIL5060
TIL
Thesis

Courses and projects provided by:

█ MSc Transport, Infrastructure and Logistics

4.1   Projects

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

Compulsory

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

Projects provided by:

MSc Transport, Infrastructure and Logistics

4.2   Thesis

	Project	*EC*
TIL5060	TIL Thesis	30

Compulsory

Year 2	Q1	Q2	Q3	Q4
	[30]		[30]	
	TIL5060 TIL Thesis		TIL5060 TIL Thesis	
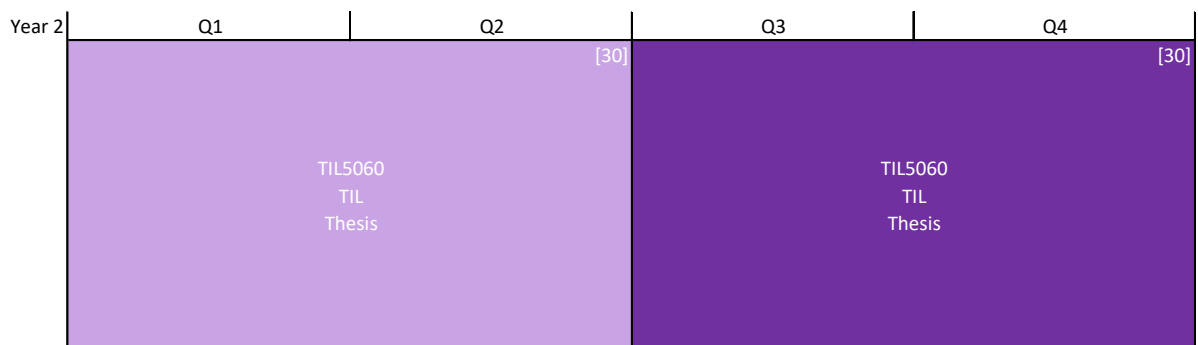
Projects provided by:

MSc Transport, Infrastructure and Logistics

Extras

A   Honours Programme Master
B   Schakelprogramma HBO (Bridging Programme)
C   Convergentieprogramma WO (Convergence Programme)
          C.1   Convergence Programme: Specialisation TG – Transport Governance
          C.2   Convergence Programme: Specialisation TN – Transport Networks
          C.3   Convergence Programme: Specialisation TO – Traffic Operations
          C.4   Convergence Programme: Specialisation LS – Logistics Systems

A. Honours Programme Master

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

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. Schackelprogramma HBO

	Vak	*EC*
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
	Totaal	*30*

Verplicht of te ronden vóór aanvang MSc-opleiding

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

C. Convergentieprogramma WO

	Vak	Onderdeel	EC
		Analyse	
IFEEMCS012100		Calculus for Engineering, deel 1	3
		ingangseis voor CIEQ6002 Transport Modelling	
		Lineaire Algebra	
WI1807TH1-21		Linear Algebra	3
		ingangseis voor CIEQ6002 Transport Modelling	
		Kansrekening en Statistiek	
IFEEMCS010500		Kansrekening en Statistiek	3
		ingangseis voor SEN1221 Statistical Analysis of Choice Behaviour	

Op te nemen als Free Elective in MSc-opleiding

Year 1

Q1	Q2	Q3	Q4
TIL4030-20 [7] TIL Research and Design Methods *Integrated Design Exercise [4] Scientific Paper [2]* *Written Exam [1]*		ME44312 [3] Machine learning for Transport and Multi-Machine Systems	Specialisations Electives
ME44206 [5] Quantitative Methods for Logistics			
IFEEMCS012100 Analyse [3]	CIEQ6002 Transport Modelling and Analysis		
WI1807TH1-21 Linear Algebra [3]			
TIL6022 [3] TIL Programming		IFEEMCS010500 Kansrekening & Statistiek [3]	IFEEMCS010500 Kansrekening & Statistiek [3]

Year 2

Q1	Q2	Q3	Q4
Specialisations Electives	SEN1221 [5] Statistical Analysis of Choice Behaviour	TIL5060 TIL Thesis	[30]
TIL4020-20 [5] TIL Research Project *Research Proposal [4]* *Literature Review [1]* *Preparation [0] Vision & Scope [2]*	TIL5050-20 [10] TIL Design Project *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
	Mathematics options for Convergence Programme

C.1 Convergence Program – Specialization Transport Governance

Year 1

Q1	Q2	Q3	Q4
TIL4030-20 [7] TIL Research and Design Methods — *Integrated Design Exercise [4]* *Scientific Paper [2]* *Written Exam [1]*		ME44312 [3] Machine learning for Transport and Multi-Machine Systems	CIEQ6212 [4] Regions Transport and Networks
ME44206 [5] Quantitative Methods for Logistics		SEN1721 [5] Travel Behaviour Research	AR0168 [5] People, Movement and Public Space
IFEEMCS012100 Analyse [3]	CIEQ6002 [5] Transport Modelling and Analysis	WM1301TU [3] Ethics of Transportation	Electives
WI1807TH1-21 Linear Algebra [3]			
TIL6022 [3] TIL Programming		Kansrek. & Statistiek [3]	IFEEMCS010500 — 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	[30] TIL5060 TIL Thesis	
TPM032a [5] Multi Criteria Decision Analysis	Electives		
TIL4020-20 [5] TIL Research Project — *Research Proposal [4]* *Literature Review [1]* *Preparation [0] Vision & Scope [2]*	TIL5050-20 [10] TIL Design Project — *Analysis & Design [8]*		

C.2 Convergence Program – Specialization Transport Networks

Year 1

Q1	Q2	Q3	Q4
TIL4030-20 [7] TIL Research and Design Methods — *Integrated Design Exercise [4]* *Scientific Paper [2]* *Written Exam [1]*		ME44312 [3] Machine learning for Transport and Multi-Machine Systems	CIEQ6212 [4] Regions, Transport and Networks
ME44206 [5] Quantitative Methods for Logistics		SEN1721 [5] Travel Behaviour Research	CIE6233 [5] Railway Operations and Control
IFEEMCS012100 Analyse [3]	CIEQ6002 [5] Transport Modelling and Analysis	Electives	CIEQ6232 [5] Public Transport Demand and Network Planning and Operations
WI1807TH1-21 Linear Algebra [3]			
TIL6022 [3] TIL Programming		Kansrek. & Statistiek [3]	

Year 2

Q1	Q2	Q3	Q4
CIEM6301 [5] Railway Traffic Management	AE4423-20 [4] Airline Planning and Optimization	[30] TIL5060 TIL Thesis	
	SEN1221 [5] Statistical Analysis of Choice Behaviour		
TIL4020-20 [5] TIL Research Project — *Research Proposal [4]* *Literature Review [1]* *Preparation [0] Vision & Scope [2]*	TIL5050-20 [10] TIL Design Project — *Analysis & Design [8]*		

C.3 Convergence Program – Specialization Traffic Operations

Year 1

Q1	Q2	Q3	Q4
TIL4030-20 [7] TIL Research and Design Methods *Integrated Design Exercise [4]* *Scientific Paper [2]* *Written Exam [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 Analyse [3]	CIEQ6002 [5] Transport Modelling and Analysis	ME44200 - Operations and Maintenance [3]	
WI1807TH1-21 Linear Algebra [3]		CIEQ6003 - Traffic Modelling and Management [6]	Electives
TIL6022 [3] TIL Programming		Kansrek. & Statistiek [3]	IFEEMCS010500 Kansrek. & Statistiek [3]

Year 2

Q1	Q2	Q3	Q4
SEN9110 [5] Simulation Master Class	AE4423-20 [4] Airline Planning and Optimization	[30]	
Electives	SEN1221 [5] Statistical Analysis of Choice Behaviour	TIL5060 TIL Thesis	
TIL4020-20 [5] TIL Research Project *Research Proposal [4]* *Literature Review [1]* Preparation [0] Vision & Scope [2]	TIL5050-20 [10] TIL Design Project *Analysis & Design [8]*		

C.4 Convergence Program – Specialization Logistics Systems

Year 1

Q1	Q2	Q3	Q4
TIL4030-20 [7] TIL Research and Design Methods *Integrated Design Exercise [4]* *Scientific Paper [2]* *Written Exam [1]*		ME44312 [3] Machine learning for Transport and Multi-Machine Systems	CIEQ6213 [4] Freight Transport Networks and Systems
ME44206 [5] Quantitative Methods for Logistics		ME44311 [5] Advanced Operations and Production Management	
IFEEMCS012100 Analyse [3]	CIEQ6002 [5] Transport Modelling and Analysis		ME44300 [3] Multi-Machine Coordination for Logistics
WI1807TH1-21 Linear Algebra [3]	TPM028a [5] Decision Making in Multimodal Transport Systems	Electives	
TIL6022 [3] TIL Programming		Kansrek. & Statistiek [3]	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]	
SEN9720 [5] Logistics and Supply Chain Innovations	Electives	TIL5060 TIL Thesis	
TIL4020-20 [5] TIL Research Project *Research Proposal [4]* *Literature Review [1]* Preparation [0] Vision & Scope [2]	TIL5050-20 [10] TIL Design Project *Analysis & Design [8]*		