

**Tabel 3. Specialisatievakken**

Code	Vaknaam	Thema	Sp
<b>High-tech systems and robotics</b>			
Ter bespreking met mentor		1	
4CM00	Control engineering	2	5
5LMB0	Model predictive control	2	5
5LWC0	Advanced actuator design	2	5
5AUA0	Advanced sensing using deep learning	3	5
2DMN00	Design and analysis of experiments	3	5
5SMB0	System identification	3	5
4AI000	Machine learning for multi-physics modeling and design	4	5
5LSL0	Machine learning for signal processing systems	4	5
5SC28	Machine learning for systems and control	4	5
2IX30	Responsible data science	4	5
<b>Mobility</b>			
Ter bespreking met mentor		1	
4AT080	Vehicle control	2	5
1CM110	Decision making in transport and logistics	2	5
4AT030	Advanced full-electric and hybrid powertrain design	2	5
4DM70	Analysis and design of networked dynamical systems	2	5
5LSH0	Computer vision and 3D image processing	3	5
5AUA0	Advanced sensing using deep learning	3	5
0HM310	Automotive human factors	4	5
1JM40	Behavioral operations management	4	5
4AI000	Machine learning for multi-physics modeling and design	4	5
5SC28	Machine learning for systems and control	4	5
<b>Health care</b>			
Ter bespreking met mentor		1	
5LSCO	Biomedical sensing technology	2	5

**Table 3. Specialization courses**

Code	Course name	Theme	Credits
<b>High-tech systems and robotics</b>			
For discussion with mentor		1	
4CM00	Control engineering	2	5
5LMB0	Model predictive control	2	5
5LWC0	Advanced actuator design	2	5
5AUA0	Advanced sensing using deep learning	3	5
2DMN00	Design and analysis of experiments	3	5
5SMB0	System identification	3	5
4AI000	Machine learning for multi-physics modeling and design	4	5
5LSL0	Machine learning for signal processing systems	4	5
5SC28	Machine learning for systems and control	4	5
2IX30	Responsible data science	4	5
<b>Mobility</b>			
For discussion with mentor		1	
4AT080	Vehicle control	2	5
1CM110	Decision making in transport and logistics	2	5
4AT030	Advanced full-electric and hybrid powertrain design	2	5
4DM70	Analysis and design of networked dynamical systems	2	5
5LSH0	Computer vision and 3D image processing	3	5
5AUA0	Advanced sensing using deep learning	3	5
0HM310	Automotive human factors	4	5
1JM40	Behavioral operations management	4	5
4AI000	Machine learning for multi-physics modeling and design	4	5
5SC28	Machine learning for systems and control	4	5
<b>Health care</b>			
For discussion with mentor		1	
5LSCO	Biomedical sensing technology	2	5

5LSB0	Monitoring of respiration and circulation	2	5
8VM60	Ultrasound in biomedical engineering	2	5
8TM10	Orthopaedic soft tissues: biomechanics	2	5
5LSH0	Computer vision and 3D image processing	3	5
8DC00	Medical image analysis	3	5
8DM20	Capita selecta in medical image analysis	3	5
5LSJ0	Image analysis for health-care technologies	3	5
5LIV0	Video health monitoring	3	5
8DM50	Machine learning in medical imaging and biology	4	5
5LSM0	Convolutional neural networks for computer vision	4	5
1JM40	Behavioral operations management	4	5
<b>Smart cities</b>			
7LY5M0	Intelligent buildings	1	5
1CM110	Decision making in transport and logistics	1	5
7ZW5M0	Smart healthy urban environments	1	5
7LY3M0	Building performance and energy systems simulation	1	5
7KT4M0	Digital design & manufacturing	2	5
5LSH0	Computer vision and 3D image processing	2	5
5LSM0	Convolutional neural networks for computer vision	2	5
0HM150	Advanced cognitive engineering	2	5
7M900	Fundamentals of building information modeling	3	5
2IMA20	Algorithms for geographic data	3	5
5XSK0	Data fusion & semantic interpretation	4	5
5AUA0	Advanced sensing using deep learning	4	5
<b>AI Foundations and science applications</b>			
Ter bespreking met mentor		1	
4CS000	Optimal control and dynamic programming	2	5
3MT120	Advanced computational fluids and plasma dynamics	2	5
3FMX0	Physics modelling and simulations	2	5
3MS010	Advanced fluid dynamics	2	5
3MS020	Soft matter physics	2	5
5LMA0	Model reduction	3	5
2DI66	Advanced simulation	3	5
4AI000	Machine learning for multi-physics modeling and design	4	5

5LSB0	Monitoring of respiration and circulation	2	5
8VM60	Ultrasound in biomedical engineering	2	5
8TM10	Orthopaedic soft tissues: biomechanics	2	5
5LSH0	Computer vision and 3D image processing	3	5
8DC00	Medical image analysis	3	5
8DM20	Capita selecta in medical image analysis	3	5
5LSJ0	Image analysis for health-care technologies	3	5
5LIV0	Video health monitoring	3	5
8DM50	Machine learning in medical imaging and biology	4	5
5LSM0	Convolutional neural networks for computer vision	4	5
1JM40	Behavioral operations management	4	5
<b>Smart cities</b>			
7LY5M0	Intelligent buildings	1	5
1CM110	Decision making in transport and logistics	1	5
7ZW5M0	Smart healthy urban environments	1	5
7LY3M0	Building performance and energy systems simulation	1	5
7KT4M0	Digital design & manufacturing	2	5
5LSH0	Computer vision and 3D image processing	2	5
5LSM0	Convolutional neural networks for computer vision	2	5
0HM150	Advanced cognitive engineering	2	5
7M900	Fundamentals of building information modeling	3	5
2IMA20	Algorithms for geographic data	3	5
5XSK0	Data fusion & semantic interpretation	4	5
5AUA0	Advanced sensing using deep learning	4	5
<b>AI Foundations and science applications</b>			
For discussion with mentor		1	
4CS000	Optimal control and dynamic programming	2	5
3MT120	Advanced computational fluids and plasma dynamics	2	5
3FMX0	Physics modelling and simulations	2	5
3MS010	Advanced fluid dynamics	2	5
3MS020	Soft matter physics	2	5
5LMA0	Model reduction	3	5
2DI66	Advanced simulation	3	5
4AI000	Machine learning for multi-physics modeling and design	4	5

2AMM20	Research topics in data mining	4	5
<b>Manufacturing systems</b>			
1CM160	Manufacturing technology	1	5
ICM10	Modeling and analysis of manufacturing systems	2	5
4DM40	Modelling and control of manufacturing networks	2	5
4CM70	Integrated system design	2	5
4CM30	Supervisory control	2	5
1CM100	Multi-echelon inventory management	2	5
1CM120	Advanced maintenance and service logistics	2	5
2DI66	Advanced simulation	3	5
1BM110	Data driven artificial intelligence	3	5
4CS000	Optimal control and dynamic programming	4	5
0HM280	Human robot interaction	4	5
1JM40	Behavioral operations management	4	5

2AMM20	Research topics in data mining	4	5
<b>Manufacturing systems</b>			
1CM160	Manufacturing technology	1	5
ICM10	Modeling and analysis of manufacturing systems	2	5
4DM40	Modelling and control of manufacturing networks	2	5
4CM70	Integrated system design	2	5
4CM30	Supervisory control	2	5
1CM100	Multi-echelon inventory management	2	5
1CM120	Advanced maintenance and service logistics	2	5
2DI66	Advanced simulation	3	5
1BM110	Data driven artificial intelligence	3	5
4CS000	Optimal control and dynamic programming	4	5
0HM280	Human robot interaction	4	5
1JM40	Behavioral operations management	4	5