Appendix 1

Section A1 – Curricula of the involved Master's Programmes

Next, an overview of the subjects taught at KU Leuven (KUL) and in FH Dortmund (FHDO) is provided as a reference. The curricula are included into the appendix for reference, the legally binding information is contained in the curricula published on the university web pages. If the curricula are changing, the double degree agreement is not affected.

The master programme in Electromechanical Engineering Technology (KUL) at the different campuses is based on a modular structure, containing
- a core programme (12-13 ECTS)
- an elective option package (12-13 ECTS)
- an elective focus package (12 ECTS)
- a compulsory polyvalent/transferable skills course (3-4 ECTS)
- a master thesis (20 ECTS)

The tables below only mention the option and focus packages which are relevant for the double degree agreement. For other focus and option packages insufficient credit transfer is possible.

Table 1: Subjects taught in the **Master of Electromechanical Engineering Technology (KUL)** at **Campus Group T**:

Semester	SUBJECT	ECTS	TYPE
1/2	Engineer as a Professional	4	Compulsory
	Core programme		
	Drive Systems	5	Compulsory
	Dynamic Aspects of Machine Design	4	Compulsory
	Machine Learning	3	Compulsory
	Option Mechatronics		
	Total Quality Management	6	Compulsory
	Robotics	3	Compulsory
	Vision Systems	3	Compulsory
	Focus Advanced Robotics		
	Modelling of Dynamic systems	3	Compulsory
	Control Systems and Applications	6	Compulsory
	Mobile Robotics	3	Compulsory
	Master Thesis	20	Compulsory

Table 2: Subjects taught in the **Master of Electromechanical Engineering Technology (KUL)** at **Campus Brugge:**

Semester	SUBJECT	ECTS	TYPE
1/2	Engineering and beyond	3	Compulsory
	Core programme		
	Electrical Drives	4	Compulsory
	Structural Dynamics	5	Compulsory
	Reliability and AI	3	Compulsory
	Option Design and Mechatronics		
	Energy systems	3	Compulsory
	Project planning and management	3	Compulsory
	Mechatronic design	7	Compulsory
	Focus Mechatronic Systems		
	Power Electronics	3	Compulsory
	Machine Vision	3	Compulsory
	Industrial Robotics	3	Compulsory
	Renewable Energy	3	Compulsory
	Master Thesis	20	Compulsory

Table 3: Subjects taught in the **Master of Electromechanical Engineering Technology (KUL)** at **Campus Gent**:

Semester	SUBJECT	ECTS	TYPE
1/2	Engineering and beyond	4	Compulsory
	Core programme		
	Hydraulic Systems	3	Compulsory
	Dynamic Behavior of Mechanical Systems	3	Compulsory
	Reliability and AI	3	Compulsory
	Servomotors	3	Compulsory
	Option Mechatronics		
	Servo Drive Systems	3	Compulsory
	Digital Control	6	Compulsory
	Webtechnology and Security Infrastructure	3	Compulsory
	Focus Robotics in Logistics		
	Robotics	6	Compulsory
	Intelligent Machines	3	Compulsory
	Technology Valorization	3	Compulsory
	Master Thesis	20	Compulsory

Table 4: Subjects taught in the **Master of Electromechanical Engineering Technology (KUL)** at **Campus De Nayer**:

Semester	SUBJECT	ECTS	TYPE
1/2	Management of Total Quality	3	Compulsory
	Core programme		
	Electrical Drives	5	Compulsory
	Dynamic Behavior of Machines	4	Compulsory
	Artificial Intelligent Applications	4	Compulsory
	Option Automotive Engineering		
	Vehicle Propulsion Systems	6	Compulsory
	Design for Safety and Reliability	3	Compulsory
	(Race) Car Aerodynamics	3	Compulsory
	Focus Automotive Engineering		
	Automotive Electronics	3	Compulsory
	Vehicle Dynamics	3	Compulsory
	Automotive Bodies of the Future	6	Compulsory
	Master Thesis	20	Compulsory

Table 5: Subjects taught in the **Master of Electromechanical Engineering Technology (KUL)** at **Campus Geel**:

Semester	SUBJECT	ECTS	TYPE
1/2	Innovation and Entrepreneurship	4	Compulsory
	Core programme		
	Drive Systems	5	Compulsory
	Dynamical Behavior of Mechanical Systems	4	Compulsory
	Machine Learning	3	Compulsory
	Option Design and Mechatronics		
	Environmental Technology	3	Compulsory
	Robotics	3	Compulsory
	Production and Materials Technology	6	Compulsory
	Focus Agro-Automation		
	Control Techniques	3	Compulsory
	Process Automation	4	Compulsory
	Agro Technology	5	Compulsory
	Master Thesis	20	Compulsory

Table 6: Subjects taught in the **Master of Electronics and ICT Engineering Technology (KUL)** at **Campus Group T**:

Semester	SUBJECT	ECTS	TYPE
1/2	Machine Learning	5	Compulsory
	R&D Experience	9	Compulsory
	Extended reality	6	Compulsory
	Engineer as a professional (select 1)		
	Engineer as a Professional: Global Engineer	4	Compulsory
	Engineer as a Prof.: Customer Oriented Engineer	4	Compulsory
	Engineer as Prof.: Interpersonal Competences	4	Compulsory
	Focus Advanced Electronics		
	Power Electronics	5	Option 1
	Hardware Design	5	Option 1
	Focus Software Systems		
	Advanced programming techniques	5	Option 2
	Distributed Systems	5	Option 2
	Electives (choose 6 ECTS)		
	Internship Electronics and ICT Engineering	6	Elective
	Total quality management	3	Elective
	Capita selecta research topics electronics-ICT	3	Elective
	International Experience or Elective	3	Elective
	Master Thesis	20	Compulsory

The first semester lists 2 specialisations (called "Focuses") where one has to be chosen (10 ECTS). The "Focus Advanced Electronics" is the one fitting to the FHDO Embedded Systems Engineering Programme. The "Focus Software Systems" is the one fitting to the FHDO Digital Transformation Programme. The second semester lists a project-based module "R&D Experience" where 9 ECTS have to be chosen in order to achieve the 60 ECTS of the full programme.

Table 7: Subjects taught in the **Master of Electronics and ICT Engineering Technology (KUL)** at **Campus Brugge**:

Semester	SUBJECT	ECTS	TYPE
1/2	Engineering and beyond	3	Compulsory
	Computer architectures, memory management and interfacing	4	Compulsory
	Industrial internet of things	3	Compulsory
	Dependable mechatronic systems	6	Compulsory
	Digital Signal Processing	6	Compulsory
	Power Electronics	3	Compulsory
	Data Communication	3	Compulsory
	Machine Learning	3	Compulsory
	Project laboratory electronics-ICT	3	Compulsory
	Elective Courses (choose 6 ECTS)	6	
	Capita selecta research topics electronics-ICT	3	Elective
	Research project electronics-ICT extension	3	Elective
	Optical fiber communication	3	Elective
	Internship electronics and ICT engineering	6	Elective
	IMMAII "International module master of engineering technology"	3	Elective
	Master Thesis	20	Compulsory

Table 8: Subjects taught in the **Master of Electronics and ICT Engineering Technology (KUL)** at **Campus Gent**:

Semester	SUBJECT	ECTS	TYPE
1/2	Engineer & World	3	Compulsory
	Advanced computer architecture	4	Compulsory
	Wireless communication	3	Compulsory
	Option electronics for cyberphysical systems		
	Capita selecta analog design	3	Compulsory
	Electromagnetic waves and antennas	5	Compulsory
	IoT Systems	6	Compulsory
	Capita Selecta Telecommunication	4	Compulsory
	Optical fiber communication	3	Compulsory
	Advanced digital signal processing	3	Compulsory
	Option software engineering		
	Algorithms for decision support	3	Compulsory
	Distributed systems	6	Compulsory
	Artificial intelligence	3	Compulsory
	Optimisation techniques	6	Compulsory
	Secure software and hacking	6	Compulsory
	Elective Courses (choose 6 ECTS)		
	Digital Image Processing	3	Elective
	Distributed systems partim	3	Elective
	Advanced artificial intelligence	3	Elective
	Software simulation	3	Elective
	Interdisciplinary assessment project	4	Elective
	Academic Writing: Theory	3	Elective
	Intrapreneurship works!	6	Elective
	Management skills	3	Elective
	Student participation	3	Elective
	Business French	3	Elective
	Capita selecta research topics electronics-ICT	3	Elective
	Internship electronics-ICTengineering	6	Elective
	Creative Makers (1)	6	Elective
	Creative Makers (2)	6	Elective
	IMMAII "International module master of eng. tech."	3	Elective
	Master Thesis	20	Compulsory

Table 9: Subjects taught in the **Master of Electronics and ICT Engineering Technology (KUL)** at **Campus De Nayer**:

Semester	SUBJECT	ECTS	TYPE
1/2	Companies & Business	5	Compulsory
	Application architectures	4	Compulsory
	Digital Information (Security & Compression)	4	Compulsory
	Computer Vision	4	Compulsory
	Web AI	3	Compulsory
	Computational imaging and visualization	3	Compulsory
	Symbolic artificial intelligence	4	Compulsory
	Embedded Algorithms	3	Compulsory
	Embedded Hardware	4	Compulsory
	Elective Courses (choose 6 ECTS)	6	
	Capita selecta research topics electronics-ICT	3	Elective
	Product certification	3	Elective
	Audio and speech processing	3	Elective
	Automotive electronics	3	Elective
	Industrial networks	4	Elective
	Internship electronics and ICT engineering	6	Elective

Semester	SUBJECT	ECTS	TYPE
	IMMAII "International module master of engineering technology"	3	Elective
	Master Thesis	20	Compulsory

Table 10: Subjects taught in the **Master of Electronics and ICT Engineering Technology** at **Campus Geel**:

Semester	SUBJECT	ECTS	TYPE
	Innovation and entrepreneurship	3	Compulsory
	DSP (Digital Signal Processing)	5	Compulsory
	Introduction to artificial intelligence	4	Compulsory
	Embedded Systems	5	Compulsory
	Image Sensors and Processing	4	Compulsory
	Digital Chip Design	4	Compulsory
	Focus Electronics		
	Analog and Mixed Signal Design	5	Compulsory
	RF and PLL Design	4	Compulsory
	Focus ICT		
	AI and Tensors	5	Compulsory
	Big Data	4	Compulsory
	Elective Courses (choose 6 ECTS)		
1/2	AI and Tensors	5	Elective
	Power electronics	3	Elective
	Project: Radiation to Electronics	4	Elective
	Artificial intelligence	4	Elective
	Capita selecta research topics electronics-ICT	3	Elective
	Cloud computing & applications	6	Elective
	Intelligent Systems for Robotics	4	Elective
	User-centered design	4	Elective
	Human AI interaction	4	Elective
	E-Health	4	Elective
	Internship electronics-ICT engineering	6	Elective
	IMMAII "International module master of engineering technology"	3	Elective
	Master Thesis	20	Compulsory

Please note that ONLY the programmes in Campus Group T (Table 1 and 6) are in English, while all other programmes (Table 2-5 and Table 7-10) are at least partly taught in Dutch, requiring fluent Dutch.

Next, the subjects taught in **FH Dortmund** are listed:

Table 11: Subjects taught in **Master Embedded Systems Engineering (FHDO)** are the following:

Semester	SUBJECT	ECTS	TYPE
	Mathematics for Signals & Controls	6	Compulsory
	Distributed and Parallel Systems	6	Compulsory
1	Embedded Software Engineering	6	Compulsory
	Requirements Engineering	6	Compulsory
	Scientific & Transversal Skills	6	Compulsory
	Mechatronic Systems Engineering	6	Compulsory
	Microelectronics & HW/SW Codesign	6	Compulsory
2	R&D Project Management	6	Compulsory
	Signals and Control Systems 1	6	Compulsory
	Elective 1	6	Optional
	Elective 2	6	Optional
3	Elective 3	6	Optional
	Project Thesis	18	Compulsory
4	Master Thesis	30	Compulsary

Electives 1, 2, 3	ECTS	
Signals and Control Systems 2	6	
System on Chip Design	6	
Hardware Project	6	
Research Seminar	6	
Model Based Systems Engineering	6	
Software for Robots	6	
Automotive Systems	6	
Robot Vision	6	
SW Architectures for Embedded and Mechatronic Systems	6	
Signals and Systems for Automated Driving	6	
IoT & Edge Computing	6	
Radar Systems	6	
Machine Learning	6	

Table 12: Subjects taught in **Master Digital Transformation (FHDO)** are the following:

Semester	SUBJECT	ECTS	TYPE
1	Innovation Driven SE	6	Compulsory
	Software Architectures	6	Compulsory
	Digital Systems 1	6	Compulsory
	R&D Project Management	6	Compulsory
	Scientific & Transversal Skills 1	6	Compulsory
2	Usability Engineering	6	Compulsory
	Software-intensive Solutions	6	Compulsory
	Digital Systems 2	6	Compulsory
	Scientific & Transversal Skills 2	6	Compulsory
	Elective 1	6	Optional
3	Elective 2	6	Optional
	Elective 3	6	Optional
	Project Thesis	18	Compulsory
4	Master Thesis	30	Compulsary

Electives 1, 2, 3	ECTS	
Requirements Engineering	6	
Human Centered Digitalization	6	
Trends in Digital Transformation	6	
Information Processing and Data Analytics	6	
Trends of Artificial Intelligence in Business Informatics	6	
Software Engineering Project	6	
Research Seminar	6	
Managing Digital Change	6	
IoT & Edge Computing	6	
Machine Learning	6	
Digital Business Ecosystems	6	
Trends in IT Project Management	6	

Section A2 – Having introduced both curricula, the **mapping for recognition** of ECTS from KUL at FHDO is as follows:

Table 13: Credit transfer between the Compulsory Subjects of the **Master of Electromechanical Engineering Technology (KUL) at Campus Group T** (see table 1) and the **Master Embedded Systems Engineering (FHDO)** (table 11):

SUBJECT IN KUL	ECTS	SUBJECT IN FHDO	ECTS
Engineer as a Professional	4	Scientific & Transversal Skills	6
Drive Systems	5		
Dynamic Aspects of Machine Design	4	Mechatronic Systems Engineering	6
Option Mechatronics			
Total Quality Management	6	R&D Project Management	6
Focus Advanced Robotics			
Modelling of Dynamic systems	3	Mathematics for Signals and Controls	6
Control Systems and Applications	6	Signals and Control Systems 1	6
Master Thesis	20	Research Project Thesis	18

Table 14: Credit transfer between the Compulsory Subjects of the **Master of Electromechanical Engineering Technology (KUL) at Campus Brugge** (see table 2) and the **Master Embedded Systems Engineering (FHDO)** (table 11):

SUBJECT IN KUL	ECTS	SUBJECT IN FHDO	ECTS
Engineering and beyond	3	Scientific & Transversal Skills	6
Core programme			
Structural Dynamics	5	Mechatronic Systems Engineering	6
Option Design and Mechatronics			
Project planning and management	3	R&D Project Management	6
Mechatronic design	7	Mathematics for Signals and Controls	6
Focus Mechatronic Systems			
Power Electronics	3	Signals and Control Systems 1	6
Master Thesis	20	Research Project Thesis	18

Table 15: Credit transfer between the Compulsory Subjects of the **Master of Electromechanical Engineering Technology (KUL) at Campus Gent** (see table 3) and the **Master Embedded Systems Engineering (FHDO)** (table 11):

SUBJECT IN KUL	ECTS	SUBJECT IN FHDO	ECTS
Engineering and beyond	4	Scientific & Transversal Skills	6
Core programme			
Dynamic Behavior of Mechanical Systems	3	Mechatronic Systems Engineering	6
Option Mechatronics			
Servo Drive Systems	3	Mathematics for Signals and Controls	6
Digital Control	6	Signals and Control Systems 1	6
Focus Robotics in Logistics			
Technology Valorization	3	R&D Project Management	6
Master Thesis	20	Research Project Thesis	18

Table 16: Credit transfer between the Compulsory Subjects of the **Master of Electromechanical Engineering Technology (KUL) at Campus De Nayer** (see table 4) and the **Master Embedded Systems Engineering (FHDO)** (table 11):

SUBJECT IN KUL	ECTS	SUBJECT IN FHDO	ECTS
Management of Total Quality	3	R&D Project Management	6
Core programme			
Dynamical Behavior of Machines	4	Mechatronic Systems Engineering	6
Artificial Intelligence Applications	4	Mathematics for Signals and Controls	6
Option Automotive Engineering			
Design for Safety and Reliability	3	Mathematics for Signals and Controls	6
Focus Automotive Engineering			
Automotive Electronics	3	Signals and Control Systems 1	6
Vehicle Dynamics	3	Mathematics for Signals and Controls	6
Master Thesis	20	Research Project Thesis	18

Table 17: Credit transfer between the Compulsory Subjects of the **Master of Electromechanical Engineering Technology (KUL) at Campus Geel** (see table 5) and the **Master Embedded Systems Engineering (FHDO)** (table 11):

SUBJECT IN KUL	ECTS	SUBJECT IN FHDO	ECTS
Innovation and Entrepreneurship	4	R&D Project Management	6
Core programme			
Dynamical Behavior of Mechanical Systems	4	Mechatronic Systems Engineering	6
Option Design and Mechatronics			
Robotics	3	Signals and Control Systems 1	6
Focus Agro-Automation			
Control Techniques	3	Signals and Control Systems 1	6
Process Automation	4	Mathematics for Signals and Controls	6
Agro Technology	5		
Master Thesis	20	Research Project Thesis	18

Students from the Master of Electromechanical Engineering Technology (KUL, all campuses, table 1-5) have to take

at KUL
- the complete 60 ECTS KUL-programme : core programme, one of the focus and option packages mentioned in tables 1-5, the compulsory polyvalent/transferable skills course and a master thesis

After completion, they will be awarded the Master of Electromechanical Engineering Technology degree of KUL.

at FHDO the following modules from Master Embedded Systems Engineering (ESE, FHDO, see table 11):
- Distributed and Parallel Systems (6 ECTS)
- Embedded Software Engineering (6 ECTS)
- Requirements Engineering (6 ECTS)
- Scientific & Transversal Skills (6 ECTS, includes German course and catch-up courses for SW programming and modelling)
- Microelectronics & HS/SW Codesign (6 ECTS)
- Furthermore, a 30 ECTS Master Thesis has to be conducted at FHDO. This can be combined with an internship in industry.

After completion, they will be awarded the Master Embedded Systems Engineering degree of FHDO.

Students from the Master Embedded Systems Engineering (FHDO) have to take:

at FHDO
- Distributed and Parallel Systems (6 ECTS)
- Embedded Software Engineering (6 ECTS)
- Requirements Engineering (6 ECTS)
- Scientific & Transversal Skills (6 ECTS), in order to have sufficient background for the Electromechanical Engineering Technology programme at KUL, this module can, depending on the student's background be replaced with a module on Electric Machines, Thermo-Mechanical Machines and/or Finite Element Based Design
- Microelectronics & HS/SW Codesign (6 ECTS)
- Master Thesis (30 ECTS, see table 3)

at KUL:
- All modules of the Master of Electromechanical Engineering Technology at Campus Group T as defined in the curriculum (60 ECTS, including Master Thesis (20 ECTS) see table 1)

After completion, they will be awarded the Master Electromechanical Engineering Technology degree of KUL.

The Master Thesis at KUL is recognized as Research Project Thesis (18 ECTS) at FHDO. If agreed in the learning agreement, up to 6 mandatory modules (30 ECTS) according to tables 13-17 can be recognized, too. The other modules, attended at KUL will be considered equivalent to the elective subjects offered at FHDO. As such, they will (after completion) be awarded the Master Embedded Systems Engineering degree of FHDO.

Table 18: For credit transfer between the **Master of Electronics and ICT Engineering Technology (KUL) at Campus Group T** (see table 6) and the **Master Embedded Systems Engineering (FHDO)**, table 11:

SUBJECT IN KUL	ECTS	SUBJECT IN FHDO	ECTS
Engineer as a Professional	4	R&D Project Management	6
Extended Reality	6	Elective (VR/AR)	
Machine Learning	5	Elective (Machine Learning)	6
Focus Advanced Electronics			
Power Electronics	5	Elective	6
Hardware Design	5	Microelectronics & HW/SW Codesign	6
Focus Software Systems			
Advanced Programming Techniques	5	Embedded Software Engineering	6
Distributed Systems	5	Distributed & Parallel Systems	6
R&D Experience			
Embedded Systems	9	Microelectronics & HW/SW Codesign	6
Signal Processing Algorithms & Applications	9	Signals and Control Systems 1	6
Master Thesis	20	Research Project Thesis	18

Students from the Master of Electronics and ICT Engineering Technology (KUL, Campus Group T, table 6) have to take (in addition to the complete 60 ECTS KUL degree) during their stay in FHDO the following modules from the Master Embedded Systems Engineering (ESE, FHDO, see table 11):
- Mathematics for Signals & Controls (6 ECTS), can be replaced by Signals and Control Systems 2
- Requirements Engineering (6 ECTS)

- Scientific & Transversal Skills (6 ECTS, includes German course and catch-up courses for SW programming and modelling)
- Mechatronic Systems Engineering (6 ECTS)

Depending on the topic selected for Focus (either Advanced Electronics or Software Systems):
- Embedded Software Engineering (6 ECTS), and/or
- Distributed & Parallel Systems (6 ECTS)

Depending on the topic selected for R&D Experience (see table 6)
- Microelectronics & HS/SW Codesign (6 ECTS), and/or
- Signals and Control Systems 1 (6 ECTS)

Furthermore, a 30 ECTS Master Thesis has to be conducted at FHDO. This can be combined with an internship in industry. They will be awarded the Master Embedded Systems Engineering degree of FHDO.

Students from the Master Embedded Systems Engineering (FHDO) have to take at FHDO:

- All mandatory modules of semester 1 and 2 as defined in the curriculum (54 ECTS, Master Embedded Systems Engineering, FHDO, see table 11)
- Master Thesis (30 ECTS, see table 11)

And during their stay in KUL:
- All modules of the Master of Electronics and ICT Engineering Technology as defined in the curriculum (60 ECTS, including Master Thesis (20 ECTS) see table 6)

The Master Thesis at KUL is recognized as Research Project Thesis (18 ECTS) at FHDO and 18 ECTS are recognized as elective (see table 18). If agreed in the learning agreement, up to 3 mandatory modules (18 ECTS) according to table 18 can be recognized, too.

Table 19: For credit transfer between the **Master of Electronics and ICT Engineering Technology (KUL) at Campus Group T** (see table 6) and the **Master Digital Transformation (FHDO)**, table 12:

SUBJECT IN KUL	ECTS	SUBJECT IN FHDO	ECTS
Engineer as a Professional	4	R&D Project Management	6
Extended Reality	6	Elective (VR/AR)	6
Machine Learning	5	Elective (Machine Learning)	6
Focus Advanced Electronics			
Power Electronics	5	Elective	6
Hardware Design	5	Software-intensive Solutions	6
Focus Software System			
Advanced Programming Techniques	5	Innovation Driven Software Engineering	6
Distributed Systems	5	Digital Systems 1	
R&D Experience			
UX-Driven Web Development	9	Usability Engineering	6
Games & Tangibles	9	Elective	6
Master Thesis	20	Research Project Thesis	18

Students from the Master of Electronics and ICT Engineering Technology (KUL, Campus Group T, table 6) have to take (in addition to the complete 60 ECTS KUL degree) during their stay in FHDO the following modules from the Master Digital Transformation (MDT, FHDO, see table 12):
- Software Architectures (6 ECTS)
- Digital Systems 2 (6 ECTS)

- Scientific & Transversal Skills 1 (6 ECTS, includes German course and catch-up courses for SW programming and modelling)
- Scientific & Transversal Skills 2 (6 ECTS)

Depending on the topic selected for Focus (either Advanced Electronics or Software Systems):
- Innovation Driven Software Engineering (6 ECTS), and/or
- Digital Systems 1 (6 ECTS), or
- Software-intensive Solutions (6 ECTS)

Depending on the topic selected for R&D Experience (see table 6), either
- Usability Engineering (6 ECTS), or
- Elective (choose from table 12, 6 ECTS)

Furthermore, a 30 ECTS Master Thesis has to be conducted at FHDO. This can be combined with an internship in industry. They will be awarded the Master Digital Transformation degree of FHDO.

Students from the Master Digital Transformation (FHDO) have to take at FHDO:

- All mandatory modules of semester 1 and 2 as defined in the curriculum (54 ECTS, Master Digital Transformation, FHDO, see table 12)
- Master Thesis (30 ECTS, see table 12)

And during their stay in KUL:
- All modules of the Master of Electronics and ICT Engineering Technology as defined in the curriculum (60 ECTS, including Master Thesis (20 ECTS) see table 6)

The Master Thesis at KUL is recognized as Research Project Thesis (18 ECTS) at FHDO and up to 18 ECTS are recognized as elective (see table 19). If agreed in the learning agreement, up to 4 mandatory modules (24 ECTS) according to table 19 can be recognized, too.

Table 20: For credit transfer between the **Master of Electronics and ICT Engineering Technology (KUL) at Campus Brugge** (see table 7) and the **Master Embedded Systems Engineering (FHDO)**, table 11:

SUBJECT IN KUL	ECTS	SUBJECT IN FHDO	ECTS
Engineering & beyond + Projectlab	3+3	R&D Project Management	6
Computer architectures, memory management and interfacing	4	Distributed & Parallel Systems	6
Digital Signal Processing	6	Signals and Control Systems 1	6
Dependable Mechatronic Systems	6	Mechatronics Systems Engineering	6
Industrial Internet of Things + Data Communication	3+3	Elective (IoT & Edge Computing)	6
Machine Learning	3	Elective (Machine Learning)	6
Master Thesis	20	Research Project Thesis	18

Students from the Master of Electronics and ICT Engineering Technology (KUL, Campus Brugge, table 7) have to take (in addition to the complete 60 ECTS KUL degree) during their stay in FHDO the following modules from the Master Embedded Systems Engineering (ESE, FHDO, see table 11):
- Mathematics for Signals & Controls (6 ECTS), can be replaced by Signals and Control Systems 2
- Embedded Software Engineering (6 ECTS)
- Requirements Engineering (6 ECTS)
- Distributed & Parallel Systems (6 ECTS)

- Scientific & Transversal Skills (6 ECTS, includes German course and catch-up courses for SW programming and modelling)
- Microelectronics & HS/SW Codesign (6 ECTS)

Furthermore, a 30 ECTS Master Thesis has to be conducted at FHDO. This can be combined with an internship in industry. They will be awarded the Master Embedded Systems Engineering degree of FHDO.

Students from the Master Embedded Systems Engineering (FHDO) have to take at FHDO:

- All mandatory modules of semester 1 and 2 as defined in the curriculum (54 ECTS, Master Embedded Systems Engineering, FHDO, see table 11)
- Master Thesis (30 ECTS, see table 11)

And during their stay in KUL:
- Proof of sufficient language skills in **Dutch** (B2/C1 level)
- All modules of the Master of Electronics and ICT Engineering Technology as defined in the curriculum (60 ECTS, including Master Thesis (20 ECTS) see table 7)

The Master Thesis at KUL is recognized as Research Project Thesis (18 ECTS) at FHDO and 18 ECTS are recognized as elective (see table 20). If agreed in the learning agreement, up to 3 mandatory modules (18 ECTS) according to table 20 can be recognized, too.

Table 21: For credit transfer between the **Master of Electronics and ICT Engineering Technology (KUL) at Campus Gent** (see table 8) and the **Master Embedded Systems Engineering (FHDO)**, table 11:

SUBJECT IN KUL	ECTS	SUBJECT IN FHDO	ECTS
Engineer & World	3	R&D Project Management	6
Advanced Computer Architecture	4	Elective	6
Option Electronics for CPS			
IoT Systems	6	Distributed & Parallel Systems	6
Advanced Digital Signal Processing & Capita Selecta Telecommunication	3+4	Signals and Control Systems 1	6
Electromagn. Waves + Antennas	5	Elective	6
Option Software Engineering			
Secure Software and Hacking	6	Embedded Software Engineering	6
Distributed Systems	6	Distributed & Parallel Systems	6
Optimisation Techniques	6	Elective	6
Electives			
Electives	6	Elective	6
Master Thesis	20	Research Project Thesis	18

Students from the Master of Electronics and ICT Engineering Technology (KUL, Campus Gent, table 8) have to take (in addition to the complete 60 ECTS KUL degree) during their stay in FHDO the following modules from the Master Embedded Systems Engineering (ESE, FHDO, see table 11):
- Mathematics for Signals & Controls (6 ECTS), can be replaced by Signals and Control Systems 2
- Requirements Engineering (6 ECTS)
- Scientific & Transversal Skills (6 ECTS, includes German course and catch-up courses for SW programming and modelling)
- Mechatronics Systems Engineering (6 ECTS)
- Microelectronics & HS/SW Codesign (6 ECTS)
Depending on the selected option (Electronics for CPS or Software Engineering)

- Embedded Software Engineering (6 ECTS) => for Option Electronics for CPS
- Signals and Control Systems 1 (6 ECTS) => for Option Software Engineering

Furthermore, a 30 ECTS Master Thesis has to be conducted at FHDO. This can be combined with an internship in industry. They will be awarded the Master Embedded Systems Engineering degree of FHDO.

Students from the Master Embedded Systems Engineering (FHDO) have to take at FHDO:

- All mandatory modules of semester 1 and 2 as defined in the curriculum (54 ECTS, Master Embedded Systems Engineering, FHDO, see table 11)
- Master Thesis (30 ECTS, see table 11)

And during their stay in KUL:
- Proof of sufficient language skills in **Dutch** (B2/C1 level)
- All modules of the Master of Electronics and ICT Engineering Technology as defined in the curriculum (60 ECTS, including Master Thesis (20 ECTS) see table 8)

The Master Thesis at KUL is recognized as Research Project Thesis (18 ECTS) at FHDO and 18 ECTS are recognized as elective (see table 21). If agreed in the learning agreement, up to 3 mandatory modules (18 ECTS) according to table 21 can be recognized, too.

Table 22: For credit transfer between the **Master of Electronics and ICT Engineering Technology (KUL) at Campus Gent** (see table 8) and the **Master Digital Transformation (FHDO)**, table 12:

SUBJECT IN KUL	ECTS	SUBJECT IN FHDO	ECTS
Engineer & World	3	R&D Project Management	6
Advanced Computer Architecture	4	Elective	6
Option Software Engineering			
Secure Software and Hacking	6	Software Architectures	6
Distributed Systems	6	Digital Systems 2	6
Optimisation Techniques	6	Elective	6
Elective	6	Elective	6
Master Thesis	20	Research Project Thesis	18

Students from the Master of Electronics and ICT Engineering Technology (KUL, Campus Gent, table 8) have to take (in addition to the complete 60 ECTS KUL degree) during their stay in FHDO the following modules from the Master Digital Transformation (MDT, FHDO, see table 12):
- Innovation Driven Software Engineering (6 ECTS)
- Digital Systems 1 (6 ECTS)
- Software-intensive Solutions (6 ECTS)
- Usability Engineering (6 ECTS)
- Scientific & Transversal Skills 1 (6 ECTS, includes German course and catch-up courses for SW programming and modelling)
- Scientific & Transversal Skills 2 (6 ECTS)

Furthermore, a 30 ECTS Master Thesis has to be conducted at FHDO. This can be combined with an internship in industry. They will be awarded the Master Digital Transformation degree of FHDO.

Students from the Master Digital Transformation (FHDO) have to take at FHDO:

- All mandatory modules of semester 1 and 2 as defined in the curriculum (54 ECTS, Master Digital Transformation, FHDO, see table 12)
- Master Thesis (30 ECTS, see table 12)

And during their stay in KUL:
- Proof of sufficient language skills in **Dutch** (B2/C1 level)
- All modules of the Master of Electronics and ICT Engineering Technology as defined in the curriculum (60 ECTS, including Master Thesis (20 ECTS) see table 8)

The Master Thesis at KUL is recognized as Research Project Thesis (18 ECTS) at FHDO and 18 ECTS are recognized as elective (see table 22). If agreed in the learning agreement, up to 3 mandatory modules (18 ECTS) according to table 22 can be recognized, too.

Table 23: For credit transfer between the **Master of Electronics and ICT Engineering Technology (KUL) at Campus De Nayer** (see table 9) and the **Master Embedded Systems Engineering (FHDO)**, table 11:

SUBJECT IN KUL	ECTS	SUBJECT IN FHDO	ECTS
Companies & Business	5	R&D Project Management	6
Embedded Algorithms + Application Architectures	3 + 4	Embedded Software Engineering	6
Embedded Hardware	4	Microelectronics & HS/SW Codesign	6
Digital Information + Computational imaging and visualization	4 + 3	Signals and Control Systems 1	6
Computer Vision	4	Elective (Robot Vision)	6
Web AI + Symbolic Artificial Intelligence	3 + 4	Elective (Machine Learning)	6
Electives	6	Elective	6
Master Thesis	20	Research Project Thesis	18

Students from the Master of Electronics and ICT Engineering Technology (KUL, Campus De Nayer, table 9) have to take (in addition to the complete 60 ECTS KUL degree) during their stay in FHDO the following modules from the Master Embedded Systems Engineering (ESE, FHDO, see table 11):
- Mathematics for Signals & Controls (6 ECTS), can be replaced by Signals and Control Systems 2
- Requirements Engineering (6 ECTS)
- Distributed & Parallel Systems (6 ECTS)
- Scientific & Transversal Skills (6 ECTS, includes German course and catch-up courses for SW programming and modelling)
- Mechatronics Systems Engineering (6 ECTS)

Furthermore, a 30 ECTS Master Thesis has to be conducted at FHDO. This can be combined with an internship in industry. They will be awarded the Master Embedded Systems Engineering degree of FHDO.

Students from Master Embedded Systems Engineering (FHDO) have to take at FHDO:

- All mandatory modules of semester 1 and 2 as defined in the curriculum (54 ECTS, Master Embedded Systems Engineering, FHDO, see table 11)
- Master Thesis (30 ECTS, see table 11)

And during their stay in KUL:
- Proof of sufficient language skills in **Dutch** (B2/C1 level)
- All modules of the Master of Electronics and ICT Engineering Technology as defined in the curriculum (60 ECTS, including Master Thesis (20 ECTS) see table 9)

The Master Thesis at KUL is recognized as Research Project Thesis (18 ECTS) at FHDO and 18 ECTS are recognized as elective (see table 23). If agreed in the learning agreement, up to 3 mandatory modules (18 ECTS) according to table 23 can be recognized, too.

Table 24: For credit transfer between the **Master of Electronics and ICT Engineering Technology (KUL) at Campus De Nayer** (see table 9) and the **Master Digital Transformation (FHDO)**, table 12:

SUBJECT IN KUL	ECTS	SUBJECT IN FHDO	ECTS
Companies & Business	5	R&D Project Management	6
Embedded Algorithms + Application Architectures	3 + 4	Scientific & Transversal Skills 2	6
Digital Information (Security & Compression)	4	Digital Systems 2	6
Web AI + Symbolic Artificial Intelligence	3 + 4	Elective (Machine Learning)	6
Electives	6	Elective	6
Electives	6	Elective	6
Master Thesis	20	Research Project Thesis	18

Students from the Master of Electronics and ICT Engineering Technology (KUL, Campus De Nayer, table 9) have to take (in addition to the complete 60 ECTS KUL degree) during their stay in FHDO the following modules from the Master Digital Transformation (MDT, FHDO, see table 12):
- Innovation Driven Software Engineering (6 ECTS)
- Digital Systems 1 (6 ECTS)
- Software Architectures (6 ECTS)
- Software-intensive Solutions (6 ECTS)
- Usability Engineering (6 ECTS)
- Scientific & Transversal Skills 1 (6 ECTS, includes German course and catch-up courses for SW programming and modelling)

Furthermore, a 30 ECTS Master Thesis has to be conducted at FHDO. This can be combined with an internship in industry. They will be awarded the Master Digital Transformation degree of FHDO.

Students from the Master Digital Transformation (FHDO) have to take at FHDO:

- All mandatory modules of semester 1 and 2 as defined in the curriculum (54 ECTS, Master Digital Transformation, FHDO, see table 12)
- Master Thesis (30 ECTS, see table 12)

And during their stay in KUL:
- Proof of sufficient language skills in **Dutch** (B2/C1 level)
- All modules of the Master of Electronics and ICT Engineering Technology as defined in the curriculum (60 ECTS, including Master Thesis (20 ECTS) see table 9)

The Master Thesis at KUL is recognized as Research Project Thesis (18 ECTS) at FHDO and 18 ECTS are recognized as elective (see table 24). If agreed in the learning agreement, up to 3 mandatory modules (18 ECTS) according to table 24 can be recognized, too.

Table 25: For credit transfer between the **Master of Electronics and ICT Engineering Technology (KUL) at Campus Geel** (see table 10) and the **Master Embedded Systems Engineering (FHDO)**, table 11:

SUBJECT IN KUL	ECTS	SUBJECT IN FHDO	ECTS
Innovation and Entrepreneurship	3	R&D Project Management	6
DSP (Digital Signal Processing)	5	Signals and Control Systems 1	6
Introduction to Artificial Intelligence	4	Elective (AI in Business Informatics)	6

Digital Chip Design + Embedded Systems	4 + 5	Microelectronics & HW/SW Codesign	6
Focus Electronics			
Analog & Mixed Signal Design	5	Elective	6
RF & PL Design	4	Elective	6
Focus ICT			
AI and Tensors	5	Elective	6
Big Data	4	Elective	6
Master Thesis	20	Research Project Thesis	18

Students from the Master of Electronics and ICT Engineering Technology (KUL, Campus Geel, table 10) have to take (in addition to the complete 60 ECTS KUL degree) during their stay in FHDO the following modules from the Master Embedded Systems Engineering (ESE, FHDO, see table 11):

- Mathematics for Signals & Controls (6 ECTS), can be replaced by Signals and Control Systems 2
- Requirements Engineering (6 ECTS)
- Embedded Software Engineering (6 ECTS)
- Distributed & Parallel Systems (6 ECTS)
- Scientific & Transversal Skills (6 ECTS, includes German course and catch-up courses for SW programming and modelling)
- Mechatronic Systems Engineering (6 ECTS)

Furthermore, a 30 ECTS Master Thesis has to be conducted at FHDO. This can be combined with an internship in industry. They will be awarded the Master Embedded Systems Engineering degree of FHDO.

Students from the Master Embedded Systems Engineering (FHDO) have to take at FHDO:

- All mandatory modules of semester 1 and 2 as defined in the curriculum (54 ECTS, Master Embedded Systems Engineering, FHDO, see table 11)
- Master Thesis (30 ECTS, see table 11)

And during their stay in KUL:
- Proof of sufficient language skills in **Dutch** (B2/C1 level)
- All modules of the Master of Electronics and ICT Engineering Technology as defined in the curriculum (60 ECTS, including Master Thesis (20 ECTS) see table 10)

The Master Thesis at KUL is recognized as Research Project Thesis (18 ECTS) at FHDO and 18 ECTS are recognized as elective (see table 25). If agreed in the learning agreement, up to 3 mandatory modules (18 ECTS) according to table 25 can be recognized, too.

Table 26: For credit transfer between the **Master of Electronics and ICT Engineering Technology (KUL) at Campus Geel** (see table 10) and the **Master Digital Transformation (FHDO)**, table 12:

SUBJECT IN KUL	ECTS	SUBJECT IN FHDO	ECTS
Innovation and Entrepreneurship	3	R&D Project Management	6
DSP (Digital Signal Processing)	5	Elective	6
Introduction to Artificial Intelligence	4	Elective (AI in Business Informatics)	6
Elective: Cloud Computing & Applications	6	Digital Systems 2	6
Elective: User-Centred Design	4	Usability Engineering	6
Other electives or mandatory subjects	6	Elective	6
Master Thesis	20	Research Project Thesis	18

Students from the Master of Electronics and ICT Engineering Technology (KUL, Campus Geel, table 10) have to take (in addition to the complete 60 ECTS KUL degree) during their stay in FHDO the following modules from the Master Digital Transformation (MDT, FHDO, see table 12):

- Innovation Driven Software Engineering (6 ECTS)
- Software Architectures (6 ECTS)
- Software-intensive Solutions (6 ECTS)
- Digital Systems 1 (6 ECTS)
- Scientific & Transversal Skills 1 (6 ECTS, includes German course and catch-up courses for SW programming and modelling)
- Scientific & Transversal Skills 2 (6 ECTS)

Furthermore, a 30 ECTS Master Thesis has to be conducted at FHDO. This can be combined with an internship in industry. They will be awarded the Master Digital Transformation degree of FHDO.

Students from the Master Digital Transformation (FHDO) have to take at FHDO:

- All mandatory modules of semester 1 and 2 as defined in the curriculum (54 ECTS, Master Digital Transformation, FHDO, see table 12)
- Master Thesis (30 ECTS, see table 12)

And during their stay in KUL:
- Proof of sufficient language skills in **Dutch** (B2/C1 level)
- All modules of the Master of Electronics and ICT Engineering Technology as defined in the curriculum (60 ECTS, including Master Thesis (20 ECTS) see table 10)

The Master Thesis at KUL is recognized as Research Project Thesis (18 ECTS) at FHDO and 18 ECTS are recognized as elective (see table 26). If agreed in the learning agreement, up to 3 mandatory modules (18 ECTS) according to table 26 can be recognized, too.

Section A3 – Requirements and Procedures, flow from KUL to FHDO
This section describes the requirements and procedures to get a Double Degree for KUL students, who want to study as a degree seeking student at FHDO. These requirements are based on the examination regulations for the Master Embedded Systems Engineering and the Master Digital Transformation which are the legally binding documents. The following statements are explanatory remarks.

KUL students need to:

- Have finished a recognized Bachelor's degree with at least 180 ECTS in a subject related to the Master's programmes (will be checked and confirmed by the Supervising Commission – Section 7) with a grade at least equivalent to 2.5 in the German grading system.
- Prove English language competence at least on a level equivalent to IELTS 6.5 (will be checked and confirmed by the Supervising Commission – Section 7).
- Apply latest 15th of July (Semester start in October) or 15th of January (Semester start in April) via the FHDO application portal
- Enrol as a degree seeking student at FHDO until the defence of the Master Thesis.
- Study and pass the modules at FHDO as defined in section A2.
- Have to have successfully defended a Master's Thesis at KUL which is then submitted as a Research Project Thesis at FHDO, the grade is transferred from KUL, no additional defence is required.

Section A4 – Requirements and Procedures, flow from FHDO to KUL
This section describes the requirements and procedures to get a Double Degree for FHDO students, who want to study as a degree seeking student at KUL. These requirements are

based on the KU Leuven criteria on www.kuleuven.be/admissions . The following statements are explanatory remarks.

FHDO students need to:

- Have finished the first year with 60 ECTS of their FHDO Master's programme.
- Have finished a recognized Bachelor's degree (will be checked and confirmed by the Supervising Commission – Section 7).Prove English language competence at least on a level equivalent to the KU Leuven language requirements for the relevant study programmes:
  - TOEFL: internet-based test (iBT) 85 (min. subscores 20)
  - IELTS Academic certificate: 6.5 (min. subscores 6)
  - Cambridge English: Advanced (CAE) or Cambridge English: Proficiency (CPE) exam: 176 (min. subscores 169)
- Apply latest 15th of July (Semester start in September)
- Enrol as a degree seeking student at KUL and stay enrolled at FHDO until the defence of the Master's thesis at FHDO and KUL
- Study the complete degree programme at KUL according to the requirements of KUL.
- Provide the transcript of records to FHDO.

After the stay at KUL, the students need to submit a Master Thesis to FHDO (30 ECTS), see Section A5.

Section A5 – Master Thesis

Students have to register, conduct, submit and defend 2 Master Theses, one at each Partner KUL and FHDO. The Master Theses are following the regulations of the respective Partner. The Master Thesis at KUL can be recognized as the Research Project Thesis at FHDO. As an alternative, the Master Thesis at KUL can be extended and submitted as Master Thesis at FHDO. The Master Theses can be co-supervised by KUL and FHDO.