

Zero Defect Manufacturing for Circular Economy Programme

- Study plan -

Aalto - Grenoble collaboration

General structure of the EIT-M Master Programme

Type of modules	Total credits for EIT-M Master	Total credits 1 st year	Total credits 2 nd year
Technical courses (TC)	45	40-50	10-20
Specialization courses (SC)	15		
Innovation & entrepreneurship courses (I&E)	30	10-20	10-20
Master thesis (MT)	30	0	30
Tot	120	60	60

Entry university Aalto – exit university Grenoble INP

1st year - Aalto

Type of modules	Course code and name at Aalto	ECTS	Semester	Total credits
TC & SC	<i>Compulsory courses</i>			15 ECTS
	MEC-E1003 Machine Design Project	5	1	
	MEC-E7006 Advanced Manufacturing	5	2	
	MEC-E1090 Quality Management and Metrology	5	1	
	<i>Elective courses (select at least 30 ECTS)</i>			30 ECTS
	MEC-E1080 Production Engineering	5	1	
	MEC-E6002 Welding Technology and Design	5	2	
	MEC-E7001 Production Systems Modeling	5	2	
	MEC-E7002 Manufacturing Methods I	5	2	
	MEC-E7003 Manufacturing Methods II	5	2	
MEC-E7005 Advanced Casting Technology	5	2		

	CS-E4710 Machine Learning: Supervised Methods	5	1	
	CS-E4800 Artificial Intelligence	5	2	
	CS-E4850 Computer Vision	5	1	
	CS-E5340 Introduction to Industrial Internet (TBC)	5	2	
	ELEC-E5710 Sensors and Measurement Methods	5	2	
	ELEC-E8105 Non-linear Filtering and Parameter Estimation	5	2	
	ELEC-E8113 Information Systems in Industry	5	1	
	ELEC-E8125 Reinforcement learning	5	1	
	MS-E2112 Multivariate Statistical Analysis	5	2	
	37E10500 Project Management and Consulting Practice	6	1	
	TU-E2013 Service Operations Management	5	2	
	TU-E2020 Advanced Operations Management	4	1	
	ELEC-E8102 Distributed and Intelligent Automation Systems	5	1	
	ELEC-E8110 Automation Software Synthesis and Analysis	5	2	
	ELEC-E8111 Autonomous Mobile Robots	5	2	
	ELEC-E8115 Micro- and Nano Robotics	5	2	
	ELEC-E8116 Model-Based Control Systems	5	1	
	ELEC-E8126 Robotic manipulation	5	2	
Other	LC-XXXX Compulsory foreign language course	3	any	3 ECTS
I&E	25E50000 Venture Ideation	6	1	15 ECTS
	TU-E4100 Startup Experience	9	1 or 2	

2nd year - Grenoble INP

Type of modules	Grenoble INP courses	ECTS	Semester	Total credits
TC (2 choices out of 3)	AI for production systems	5	3	10
	Smart analytics for big data	5	3	
	Digital chain for industry 4.0, including VR and AR	5	3	
SC (1 choice out of 2)	Sustainable manufacturing	6	3	6
	Advanced LCA for production systems	6	3	
I&E (all 3 mandatory)	Centrally organized summer school	5		14
	Operational excellence in R&D	5	3	
	Innovation challenge	4	3	
MT	Master thesis	30	4	30

Recap

Type of modules	ECTS in S1	ECTS in S2	ECTS in S3	ECTS in S4	Total credits
TC	15	20	10		45
SC	5	5	6		15
I&E	9	9	14		32
MT				30	30
Total	29	34	30	30	122