



## - Digital Manufacturing for Innovative Ecosystems

### - previous “Platforms for Digitalized Value Network”

### - Study plans –

This document presents the general syllabi of all the MSc double degrees available within the EIT Manufacturing “Digital Manufacturing for Innovative Ecosystems” previous title “Platforms for Digitalized Value Networks” programme. Please note these are the basic versions of the study plans, in order to provide a better understanding of the programme and the differences among the several available combinations within the programme. Considering universities continuously develop their education offer, some of the courses could result to be updated, changed or replaced along the years. Once enrolled, the student will be supported by a local programme coordinator to define the final study plan accordingly to the general structure of the EIT Manufacturing Master programmes.

#### *General structure of the EIT Manufacturing Master Programmes*

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

Please scroll down this document to find the different syllabi of the following available combinations.

#### *Available entry and exit combinations from November 2023 on*

ENTRY university	EXIT university
UCD (Ireland)	ECN (France)
UCD (Ireland)	SUPSI (Switzerland)
UCD (Ireland)	INP Grenoble (France)
SUPSI (Switzerland)	ECN (France)
ECN (France)	SUPSI (Switzerland)
SUPSI (Switzerland)	INP Grenoble (France)
INP Grenoble (France)	SUPSI (Switzerland)



## Digital Manufacturing for Innovative Ecosystems

### previous “Platforms for Digitalized Value Network”

### UCD-ECN Study plan –

*Entry university UCD – exit university ECN*

#### 1<sup>st</sup> year UCD

*Local up-to-date webpages for entry/exit university courses:*

[ME Manufacturing Engineering with Digital Manufacturing for Innovative Ecosystems - Programme Details \(ucd.ie\)](#)

#### Draft plan:

Type of modules	UCD courses	ECTS	Semester	Total credits
TC	<a href="#">Systems Analysis &amp; Improvement (core)</a>	5	1	35
	<a href="#">Engineering Project Mgt (core)</a>	5	1	
	<a href="#">Manufacturing Engineering II (core)</a>	5	1	
	<a href="#">Eng. Decision Support Systems</a>	5	2	
	Eng. Decision Support Systems Projects	2.5	2	
	<a href="#">Operations Management</a>	5	2	
SC	<a href="#">Supply Chain Design &amp; Analysis (core)</a>	5	1	5
	Technical Comms (Online) OR Innovation Leadership OR Research Skills and Techniques	5	1	
	<a href="#">Marketing Management (core)</a>	7.5	2	
	<a href="#">Professional Engineering (Management) (option)</a>	5	2	
	<a href="#">Professional Engineering (Finance) (option)</a>	5	2	

\*Alternatively “Innovation engineering” could be selected

I&E	Centrally organized summer school	5	2	5 (sem 2)
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## 2<sup>nd</sup> year ECN

Local up-to-date webpages for entry/exit university courses:  
[Please check more details here.](#)

Type of modules	ECN courses	ECTS	Semester	Total credits
TC	Multicriteria decision making and decision support	4	1	12
	Model-based system engineering for product service systems	4	1	
	Artificial Intelligence for decision-making in industrial engineering (AI4IE)	4	1	
SC	Advanced IS within PLM approach	4	1	8
	Integrated Design and Implementation of CPPS	4	1	
I&E	Knowledge-based systems	5	1	10
	Project	5	1	
MT	Master thesis: focus on Platforms for digitalized value network	30	2	30
Other	Mandatory language course	2	1	2

### Recap

Type of modules	ECTS in S1	ECTS in S2	ECTS in S3	ECTS in S4	Total credits
TC	20	12.5	10		<b>42.5</b>
SC	5	0	10		<b>15</b>
I&E	5	12.5+5	10		<b>32.5</b>
MT	0	0		30	<b>30</b>
Other	0	0	2		<b>2</b>

### Generic objectives of the program

Platforms for digitalized value Networks is a combination of studying manufacturing science including the usage and adoption of advanced digital solutions and platforms.

### Specificities of this combination

This study path enables students to focus on operations management, through competencies of modeling and simulation approaches. They will also develop skills for enterprise management and project management in a digitalized context.



## Digital Manufacturing for Innovative Ecosystems

### previous “Platforms for Digitalized Value Network”

- Study plan -

### UCD - SUPSI collaboration

*Entry university UCD – exit university SUPSI*

#### 1<sup>st</sup> year UCD

*Local up-to-date webpages for entry/exit university courses:*

[ME Manufacturing Engineering with Digital Manufacturing for Innovative Ecosystems programme - Programme Details \(ucd.ie\)](#)

#### Draft plan:

Type of modules	UCD courses	ECTS	Semester	Total credits
TC	<a href="#">Systems Analysis &amp; Improvement</a>	5	1	30 (15 sem 1, 15 sem 2)
	Data Analytics for Engineers	5	1	
	<a href="#">Engineering Project Mgt</a>	5	1	
	<a href="#">Quant. Methods for Engineers</a>	5	1	
	<a href="#">Business Information Systems Management</a>	7.5	2	
SC	<a href="#">Supply Chain Design &amp; Analysis</a>	5	1	10 (5 sem1, 5 sem 2)
	<a href="#">Operations Management</a>	5	2	
I&E	Technical Comms (Online) OR Innovation Leadership OR Research Skills and Techniques	5	1	15 (10 sem 1, 5 sem 2)
	<a href="#">Marketing Management</a>	7.5	2	
	<a href="#">Professional Engineering (Management)</a> (option)	5	2	
	<a href="#">Professional Engineering (Finance)</a> (option)	5	2	
I&E	Centrally organized summer school	5	2	5 (sem 2)



## 2<sup>nd</sup> year SUPSI

Local up-to-date webpages for entry/exit university courses:

[Master of Science in Engineering - Business science - SUPSI](#)

Type of modules	SUPSI courses	ECTS	Semester	Total credits
TC	<a href="#">TSM FactPlan: Factory Planning</a>	3	1	15 (12 sem 1 3 sem 2)
	<a href="#">TSM BusAn: Business Analytics (ZH, Tue morning)</a>	3	1	
	<a href="#">TSM MarkFor: Market Analysis and Forecasting (ZH, Tue afternoon)</a>	3	1	
	<a href="#">FTP ModSim Modelling Simulation and Optimisation</a>	3	2	
	<a href="#">CM IntSust: Integrated Sustainable Management of Production Systems</a>	3	1	
SC	PSM Platforms for digitalized value networks: focus on platform environment	5	1	5 (5 sem 1)
I&E	<a href="#">CM InnChang: Innovation and Change Management (ZH, Wed evening)</a>	3	1	10 (10 sem 1)
	<a href="#">CM InnoLEAN: Innovation and Lean</a>	3	1	
	PSM Platforms for digitalized value networks: focus on business models	4	1	
MT	Master thesis: focus on Platforms for digitalized value network	30	2	30

### Recap

Type of modules	ECTS in S1	ECTS in S2	ECTS in S3	ECTS in S4	Total credits
TC	20	7.5	12	3	<b>42.5</b>
SC	5	5	5		<b>15</b>
I&E	5	12.5+5	10		<b>32.5</b>
MT				30	<b>30</b>
<b>Tot</b>	30	30	27	33	<b>120</b>



## Digital Manufacturing for Innovative Ecosystems previous “Platforms for Digitalized Value Network”

- Study plan –

UCD – INP GRENOBLE collaboration

*Entry university UCD – exit university GRENOBLE*

### 1<sup>st</sup> year UCD

*Local up-to-date webpages for entry/exit university courses:*

[ME Manufacturing Engineering with Digital Manufacturing for Innovative Ecosystems - Programme Details \(ucd.ie\)](#)

Type of modules	UCD courses	ECTS	Semester	Total credits
TC	<a href="#">Systems Analysis &amp; Improvement</a>	5	1	30 (15 sem 1, 15 sem 2)
	Data Analytics for Engineers	5	1	
	<a href="#">Engineering Project Mgt</a>	5	1	
	<a href="#">Quant. Methods for Engineers</a>	5	1	
	<a href="#">Business Information Systems Management</a>	7.5	2	
	<a href="#">Operations Management</a>	5	2	
SC	<a href="#">Supply Chain Design &amp; Analysis</a>	5	1	10 (5 sem1, 5 sem 2)
I&E	Technical Comms (Online) OR Innovation Leadership OR Research Skills and Techniques	5	1	15 (10 sem 1, 5 sem 2)
	<a href="#">Marketing Management</a>	7.5	2	
	<a href="#">Professional Engineering (Management)</a> (option)	5	2	
	<a href="#">Professional Engineering (Finance)</a> (option)	5	2	
I&E	Centrally organized summer school	5	2	5 (sem 2)



## 2<sup>nd</sup> year GRENOBLE

Local up-to-date webpages for entry/exit university courses:

[Platforms for digitalised value networks Master's Program - Grenoble INP - Génie industriel, UGA \(grenoble-inp.fr\)](http://platforms-for-digitalised-value-networks-master-s-program-grenoble-inp-genie-industriel-uga-grenoble-inp.fr)

Type of modules	GRENOBLE courses	Semester	ECTS	Total credits
TC	Smart Analytics for Big Data - 5GUC3500	S3	5	10
	Virtual Reality for Industry 4.0 - 5GUC3319	S3	5	
SC	Multi-criteria Decision Aiding and Artificial Intelligence - 5GUC4202	S3	5	10
	Tactical and Operational Supply Chain Management - 5GUC2004	S3	5	
I&E	OPTION: Operational Excellence in R&D - 5GUC3700	S3	5	10
	OR iDesigner : Tackling Complexity by Integration - 5GUC0904			
	Innovation challenge	S3	5	
MT	Master thesis	S4	30	30
<b>TOTAL</b>			<b>60</b>	<b>60</b>

### Recap

Type of modules	ECTS in S1	ECTS in S2	ECTS in S3	ECTS in S4	Total credits
TC	20	12.5	10	0	<b>42.5</b>
SC	5	0	10	0	<b>15</b>
I&E	5	12.5+5	10	0	<b>32.5</b>
MT			0	30	<b>30</b>
<b>Tot</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>120</b>



## Digital Manufacturing for Innovative Ecosystem

Previous: “Platforms for Digitalized Value Networks programme”

- Study plan -

### SUPSI – ECN collaboration

Entry university SUPSI – exit university ECN

#### 1<sup>st</sup> year SUPSI

Local up-to-date webpages for entry/exit university courses:

[Master of Science in Engineering - Business science - SUPSI](#)

I&E: 20

TC: 40 (7 SC)

I&E: 20

TC: 40 (7 SC)

#### Draft plan:

Type of modules	SUPSI courses	ECTS	Semester	Total credits
TC	<a href="#">TSM FactPlan: Factory Planning</a>	3	1	33 (18 sem 1 15 sem 2)
	<a href="#">TSM BusAn: Business Analytics (ZH, Tue morning)</a>	3	1	
	<a href="#">TSM MarkFor: Market Analysis and Forecasting (ZH, Tue afternoon)</a>	3	1	
	<a href="#">FTP ModSim Modelling Simulation and Optimisation</a>	3	2	
	PSM Manufacturing Processes Courses*	9	1	
	<a href="#">TSM IndContr: Industrial control</a>	3	2	
	<a href="#">FTP AppStat Applied Statistics and Data Analysis</a>	3	2	
	<a href="#">FTP MultiASys: Multi-agent systems</a>	3	2	
SC	PSM Course Platforms for digitalized value networks*	7 (5+2)	1,2	7 (5 sem 1 2 sem 2)
I&E	<a href="#">CM InnChang: Innovation and Change Management (ZH, Wed evening)</a>	3	1	15 (6 sem 1 9 sem 2)
	<a href="#">CM InnoLEAN: Innovation and Lean</a>	3	1	





	PSM Project Work: Design and configuration of automated production systems using Virtual Environment**	9	2	
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\*PMS module: this is an example of possible individual project to be included in this curriculum. Similar topics could be identified depending on the students' interest and opportunities in the university labs or companies collaborating with the university.

\*\* Lab offered in Lugano for a class of students with group assignments

I&E	Centrally organized summer school	5	2	5 (sem 2)
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## 2<sup>nd</sup> year ECN

Local up-to-date webpages for entry/exit university courses:

[Please check more details here](#)

Type of modules	ECN courses	ECTS	Semester	Total credits
TC	Multicriteria decision making and decision support	4	1	12
	Integrated design and implementation of CPPS	4	1	
	Integrated design engineering of PSS	4	1	
SC	Design of enterprise information systems	4	1	8
	Collaborative information systems in enterprise	4	1	
I&E	Enterprise of the Future	4	1	10
	R&D Project(2)	5		
	R&D Project(1)	1	1	
MT	Master thesis: focus on Platforms for digitalized value network	30	2	30
Other	Mandatory language course*	4	1	4

\*On top of the mandatory 120 ECTS

## Recap

Type of modules	ECTS in S1	ECTS in S2	ECTS in S3	ECTS in S4	Total credits
TC	18	15	12		<b>45</b>
SC	5	2	8		<b>15</b>
I&E	6	14	10		<b>30</b>



MT				30	<b>30</b>
Other			4		<b>4</b>
<b>TOT</b>	29	31	34	30	<b>124</b>

### Specificities of this combination

This study path enables students to gain deeper competencies in modeling and simulation approaches. They will also develop skills for enterprise management based on process performance assessment and information systems design and management for smart and connected enterprises.



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## ECN – SUPSI collaboration

*Entry university ECN – exit university SUPSI*

### 1<sup>st</sup> year ECN

*Local up-to-date webpages for entry/exit university courses:*

[Please check more details here.](#)

I&E: 21

TC: 39 (6 SP)

### Draft plan:

Type of modules	ECN courses	ECTS	Semester	Total credits
TC	Modelling of Complex Systems (I)	4	1	33 (20 sem 1, 13 sem 2)
	Introduction to Optimization Methods	5	1	
	Production Management	5	1	
	Discrete-event Simulation	4	1	
	Basics of Computer Science and Mathematics	2	1	
	Statistics and Data Analysis	5	2	
	Stochastic and Multi-Agent Simulation	4	2	
	Systems Engineering	4	2	
SC	Management Systems and Socio-Organizational Aspects for Ind. Eng. conference	4	2	6 (6 sem 2)
		2	2	
I&E	Innovation engineering	4	2	16 (8 sem 1, 8 sem 2)
	Enterprise Modelling 1	4	1	
	Financial and Economic Aspects for Ind. Engineering	4	1	
	Enterprise Management*	4	2	
Other	Mandatory language course*	4	1	8 (4sem1, 4 sem2)
	Mandatory language course*	4	2	



\* On top of the mandatory 120 ECTS of the programme

I&E	Centrally organized summer school	5	2	5 (sem 2)
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## 2<sup>nd</sup> year SUPSI

I&E: 9

TC: 21 (9 SP)

MT: 30

Type of modules	SUPSI courses	ECTS	Semester	Total credits
TC	<a href="#">TSM FactPlan: Factory Planning</a>	3	1	12 (9 sem 1 3 sem 2)
	<a href="#">TSM BusAn: Business Analytics (ZH, Tue morning)</a>	3	1	
	<a href="#">TSM MarkFor: Market Analysis and Forecasting (ZH, Tue afternoon)</a>	3	1	
	<a href="#">TSM IndContr: Industrial control</a>	3	2	
SC	PSM Platforms for digitalized value networks*	9	1	9 (9 sem 1)
I&E	<a href="#">CM InnChang: Innovation and Change Management (ZH, Wed evening)</a>	3	1	9 (6 sem 1 3 sem 2)
	<a href="#">CM QRM: Quality and Risks management</a>	3	2	
	<a href="#">CM InnoLEAN: Innovation and Lean</a>	3	1	
MT	Master thesis: focus on Platforms for digitalized value network	30	1,2	30 (15 sem1, 15 sem2)

## Recap

Type of modules	ECTS in S1	ECTS in S2	ECTS in S3	ECTS in S4	Total credits
TC	20	13	9	3	<b>45</b>
SC	0	6	9	0	<b>15</b>
I&E	8	13	6	3	<b>30</b>
MT	0		0	30	<b>30</b>
Other	4	4			<b>8</b>
<b>Tot</b>	<b>32</b>	<b>36</b>	<b>24</b>	<b>36</b>	<b>128</b>

## Specificities of this combination

This study path enables students to focus on industrial engineering, through competencies of modeling and simulation approaches. They will also develop data analytics competencies for industrial and market analysis.



## Digital Manufacturing for Innovative Ecosystems programme

- Study plan -

### SUPSI - GRENOBLE collaboration

Entry university SUPSI – exit university GRENOBLE

#### 1<sup>st</sup> year SUPSI

Local up-to-date webpages for entry/exit university courses:

[Master of Science in Engineering - Business science - SUPSI](#)

I&E: 20

TC: 40 (10 SC)

Type of modules	SUPSI courses	ECTS	Semester	Total credits
TC	<a href="#">TSM FactPlan: Factory Planning</a>	3	S1	30 (15 S1, 15 S2)
	<a href="#">TSM MarkFor: Market Analysis and Forecasting (ZH, Tue afternoon)</a>	3	S1	
	<a href="#">TSM IndContr: Industrial control</a>	3	S2	
	PSM Manufacturing Processes Courses*	9	S1	
	<a href="#">FTP AppStat Applied Statistics and Data Analysis</a>	3	S2	
	<a href="#">FTP ModSim Modelling Simulation and Optimisation</a>	3	S2	
	<a href="#">FTP MultiASys: Multi-agent systems</a>	3	S2	
	<a href="#">CM QRM: Quality and Risks management</a>	3	S2	
SC	PSM Course Platforms for digitalized value networks*	7 (5+2)	S1,2	10 (8 S1 2 S2)
	<a href="#">TSM BusAn: Business Analytics (ZH, Tue morning)</a>	3	S1	
I&E	<a href="#">CM InnChang: Innovation and Change Management (ZH, Wed evening)</a>	3	S1	20 (6 S1 14 S2)
	<a href="#">CM InnoLEAN: Innovation and Lean</a>	3	S1	



	PSM Project Work: Design and configuration of automated production systems using Virtual Environment**	9	S2	
	<b>Centrally organized summer school</b>	5	S2	

\*PMS module: this is an example of possible individual project to be included in this curriculum. Similar topics could be identified depending on the students' interest and opportunities in the university labs or companies collaborating with the university.

\*\* Lab offered in Lugano for a class of students with group assignments

## 2<sup>nd</sup> year GRENOBLE

Local up-to-date webpages for entry/exit university courses:

[Platforms for digitalised value networks Master's Program - Grenoble INP - Génie industriel, UGA \(grenoble-inp.fr\)](https://grenoble-inp.fr)

I&E: 10

TC: 20 (5 SC)

MT: 30 ECTS

Type of modules	GRENOBLE courses	ECTS	Semester	Total credits
TC	Smart Analytics for Big Data - 5GUC3500	5	S3	10
	Virtual Reality for Industry 4.0 - 5GUC3319	5	S3	
SC	Multi-criteria Decision Aiding and Artificial Intelligence - 5GUC4202	5	S3	10
	Tactical and Operational Supply Chain Management - 5GUC2004	5	S3	
I&E	OPTION: Operational Excellence in R&D - 5GUC3700	5	S3	10
	OR iDesigner : Tackling Complexity by Integration - 5GUC0904			
	Innovation challenge			
MT	Master thesis	30	S4	30
<b>TOTAL</b>		<b>60</b>		<b>60</b>

## Recap

Type of modules	ECTS in S1	ECTS in S2	ECTS in S3	ECTS in S4	Total credits
TC	15	15	10		<b>40</b>
SC	8	2	10		<b>20</b>
I&E	6	14	10		<b>30</b>
MT				30	<b>30</b>
<b>Tot</b>	<b>29</b>	<b>31</b>	<b>30</b>	<b>30</b>	<b>120</b>



- Digital Manufacturing for Innovative Ecosystems
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### GRENOBLE - SUPSI collaboration

#### 1<sup>st</sup> year Grenoble

Local up-to-date webpages for entry/exit university courses:

[Platforms for digitalised value networks Master's Program - Grenoble INP - Génie industriel, UGA \(grenoble-inp.fr\)](http://grenoble-inp.fr)

I&E: 21

TC: 39 (9 SC)

Type of modules	Grenoble courses	ECTS	Semester	Total credits
TC	Sustainability in Industrial Engineering - WGUS1074	3	S1	30 (21 S1, 9 S2)
	Basic Economics for Sustainable Industrial Engineering - WGUS1014	3	S1	
	Information Systems Management - WGUS2044	3	S1	
	Data analytics for industrial engineering - WGUS2092	3	S1	
	Quality and Process Development - WGUS2054	3	S1	
	Challenges of the production transition (GS)- WGUS7102	3	S1	
	Inventive problem solving, bio inspired innovation - WGUS2071	3	S2	
	UE Sustainable work and organization - WGUS2082	3	S1	
	Production and Operations Management - WGUS1044	3	S2	
	Industrial Economics for Sustainable industrial Engineering - WGMS7028	3	S2	
SC	Performance Evaluation of Production Systems - WGUS1065	3	S1	9
	Project on Data Analytics for Manufacturing - WGUS3022	3	S2	(3 S1, 6 S2)
	Research Project - 4GUC00E5	3	S2	
I&E	French and Intercultural communication (S7) – (WGMS7011 and WGMS7021)	3	S1	21 (6 S1, 15 S2)
	Product Development Project 1 - 4GMP1611	3	S1	
	<b>Centrally organized summer school</b>	5	S2	
	Production and Operations Management - WGUS1044	5	S2	
	Product Development Project 2 - 4GUP1901	5	S2	



## 2<sup>nd</sup> year SUPSI

Local up-to-date webpages for entry/exit university courses:

[Master of Science in Engineering - Business science - SUPSI](#)

I&E: 9

TC: 21 (6 SP)

MT: 30

Type of modules	SUPSI courses	ECTS	Semester	Total credits
TC	<a href="#">TSM FactPlan: Factory Planning</a>	3	S3	15 (9 S3 6 S4)
	<a href="#">TSM BusAn: Business Analytics (ZH, Tue morning)</a>	3	S3	
	<a href="#">TSM MarkFor: Market Analysis and Forecasting (ZH, Tue afternoon)</a>	3	S3	
	<a href="#">TSM IndContr: Industrial control</a>	3	S4	
	<a href="#">FTP ModSim Modelling Simulation and Optimisation</a>	3	S4	
SC	PSM Platforms for digitalized value networks*	6	S3	6 (6 S3)
I&E	<a href="#">CM InnChang: Innovation and Change Management (ZH, Wed evening)</a>	3	S3	9 (S3)
	<a href="#">CM IntSust: Integrated Sustainable Management of Production Systems</a>	3	S3	
	<a href="#">CM InnoLEAN: Innovation and Lean</a>	3	S3	
MT	Master thesis: focus on Platforms for digitalized value network	30	S4	30 (S4)

### Recap

Type of modules	ECTS in S1	ECTS in S2	ECTS in S3	ECTS in S4	Total credits
TC	21	9	9	6	<b>45</b>
SC	3	6	6	0	<b>15</b>
I&E	6	15	9	0	<b>30</b>
MT	0	0	0	30	<b>30</b>
<b>Tot</b>	<b>30</b>	<b>30</b>	<b>24</b>	<b>36</b>	<b>120</b>