

International Program Double Degree Master of Sciences
in
“Production Engineering and Management”

Department of Engineering and Architecture
University of Trieste (UNITS)

Department of Production and Economics
University of Applied Sciences
Hochschule Ostwestfalen-Lippe (HS-OWL)

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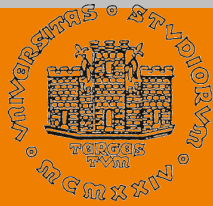
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Learning outcomes, expressed by the descriptors of the European qualification

- knowledge and understanding**
- applying knowledge and understanding**
- making judgement**
- communication skills**
- learning skills**



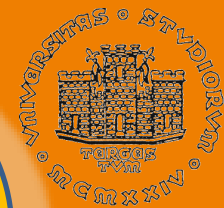
The graduates taking part in the MSc degree course programs will:

- Have a sound knowledge of the theoretical and scientific aspects of mathematics and other basic sciences and be able to use this knowledge to interpret and describe the complex problems of engineering that require an interdisciplinary approach;**
- Have a sound knowledge of the theoretical and scientific aspects of engineering, both generally and specifically, in relation to those of management engineering, in which they are able to identify, formulate and solve complex problems in innovative ways or in ways that require an interdisciplinary approach;**
- Be able to conceptualise, plan, design and manage complex and / or innovative systems, processes and services;**
- Be able to design and manage highly complex experiments;**
- Have knowledge of context and cross-discipline capacity;**
- Have knowledge in business organisation (corporate culture) and professional ethics;**
- Be fluent in both written and oral forms of at least one European language other than Italian, with particular reference to vocabulary.**



The main career opportunities provided by the Master of Science programs are: innovation and development of production, advanced design, planning and scheduling, management of complex systems, both in professional services firms and in manufacturing, process or service, public administration

Graduates may find employment in manufacturing companies, service companies and public administration for procurement and materials management, organization and production, organization and automation of production systems, logistics, project management and management control, analysis of industry sectors, evaluating investments and industrial marketing



Admission to the class of the degree course requires possession of curricular requirements proving adequate sound knowledge of general scientific principles and methods in basic science and engineering disciplines that are preparatory to those that characterise this class of degree.

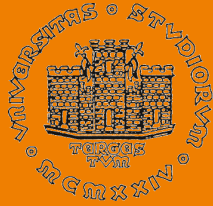
Admission to Double Degree Master in **Production Engineering and Management is subject to the possession of one of the following degrees of University of Trieste:**

- Bachelor of Sciences degree in Industrial Engineering L-09**
- Bachelor of Sciences degree in Information Engineering L-08**
- Bachelor Degree of Civil and Environmental Engineering L-07**
- For graduates with different first level degrees, or for those coming from other universities, entry requirements will be evaluated by a Commission (as stated by the Academic Regulations) with respect to the curriculum set out in the course regulations.**



For ACCESS is also necessary to have at least completed the following skills credits (ECTS) in relevant scientific sectors:

MATHEMATICS.....	15
PHISICS.....	5
CHEMISTRY.....	5
INFORMATICS	5
MECHANICAL TECHNOLOGY AND PROCESSING SYSTEMS.....	5
ENGINEERING, ECONOMICS AND MANAGEMENT.....	5
ENGLISH LANGUAGE.....	Level B2



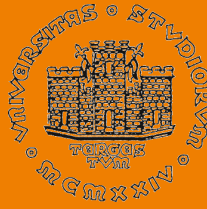
- The number of available seats is limited to **20 (twenty)**
- Admission is annually regulated by a call
- Who wish apply for admission, in addition to the constraints as above, must show a BSc degree mark greater than or equal to **85/110**, Italian mark, and **B2 level** (CEFR) of English language knowledge.
- List of candidates will be published after the evaluation of the curriculum and an English language interview arranged by a committee of teachers appointed by the Academic Council.
- A merit evaluation shall be taken for foreign graduates.



The agreement with University of Applied Sciences-Lippe (Germany) states the possibility to hold both the Italian and the German MSc degree (Double Degree MSc) .

In particular Students enrolled in Germany will attend the second (summer) semester in Italy and, on the other side, Students enrolled in Italy will attend the third (winter) semester in Germany.

The fourth semester with Internship and thesis work can be carried out in one of the two Universities (*ordinarily at Home University; at Host University only with the permission of Host University*). In any case the thesis work, for Students enrolled in Italy, will be discussed at University of Trieste.



CHARACTERISING ACTIVITIES (B): 59 ECTS

- **ING-IND/16 Technologies and processing systems 22 ECTS**
- **ING-IND/17 Industrial mechanical plants 27 ECTS**
- **ING-IND/35 Engineering economics and management 10 ECTS**
- **ING-INF/04 Automatics**

INTERGRATIVE ACTIVITIES (C): 29 CFU

- **MAT/08 – Numerical analysis 10 ECTS**
- **ING-IND/09 - Systems for energy and the environment 9 ECTS**
- **ING-IND/10 – Thermal physics**
- **ING-IND/22 - Science and Technology of Materials 10 ECTS**



OTHERS: 32 CFU

- Free choice (D) : 8 ECTS
- Internship (F): 6 ECTS
- Thesis (E) : 18 ECTS
- **TOTAL: 120 ECTS**

DIRECTOR OF THE DEPARTMENT

INGEGNERIA E ARCHITETTURA - UNITS
APPOINTS

DEAN OF THE FACULTY

PRODUCTION ENG. AND ECONOMICS - HS-OWL
APPOINTS

FOR THE **ACADEMIC COUNCIL**
ALL PROFESSORS WHO CARRY OUT TEACHING ACTIVITIES IN THE PROGRAM

ACADEMIC COUNCIL

(TEACHING COORDINATION)
APPOINTS
PRESIDENT
VICE PRESIDENT
(IN ROTATION UNITS – HS-OWL)

SUBMIT TO

- WORK OUT TIMETABLE OF DIDACTIC ACTIVITIES
- ANY EVENTUAL CHANGES DURING THE YEAR
- WILL VALUE ALL DIDACTIC ACTIVITIES SUBMITTED BY STUDENTS

THEY (President and VicePresident) APPOINT THE

TEACHING COMMISSION

- PRESIDENT
 - VICE PRESIDENT
- } IN ROTATION
UNITS – HS-OWL
- 1 UNITS PROFESSOR
 - 1 HS-OWL PROFESSOR
 - 2 UNITS STUDENTS
 - 2 HS-OWL STUDENTS

1st semester Trieste (Italy)					
Cogeneration and industrial Energy Management 9 ECTS		Industrial Plants 9 ECTS		Applied Mathematics 10 ECTS	
2nd semester Trieste (Italy)					
Engineering Planning and Control 12 ECTS		Furniture Technology 12 ECTS		Operations Management 6 ECTS	
<i>Product Design and Engineering</i>		<i>Special Machineries and Processes</i>			
<i>Production Planning and Control</i>		<i>Materials and Technologies</i>			
3rd semester Lemgo (Germany) <i>Choose 2 x 5 ECTS out of 4</i>					
Management and Information Techniques of SME (resp. Hartweg) - 10 ECTS		Specialised Manufacturing Technologies (resp. Frühwald) - 10 ECTS		Product and Process Development (resp. Riegel) - 10 ECTS	
<i>Strategic Management - 5 ECTS</i>		<i>Non Destructive Material Testing - 5 ECTS</i>		<i>Advanced Wood Based Materials - 5 ECTS</i>	
<i>Data Structure for Production Technology - 5 ECTS</i>		<i>Industrial Bonding Technologies - 5 ECTS</i>		<i>Advanced Surface Technologies - 5 ECTS</i>	
<i>IT-Systems in Production Management - 5 ECTS</i>		<i>Rapid Technologies - 5 ECTS</i>		<i>Advanced Production Technologies and Optimisation - 5 ECTS</i>	
<i>Industrial Costing - 5 ECTS</i>		<i>Automated Complex Installations - 5 ECTS</i>		<i>Innovation Management - 5 ECTS</i>	
4th semester Lemgo or Trieste					
Lemgo			Trieste		
Seminar	8 ECTS			Free choice	8 ECTS
Internship	6 ECTS		Internship 6 ECTS	<i>Organisational Behaviour and Design</i>	<i>Industrial Organisation</i>
Thesis	18 ECTS		Thesis 18 ECTS	<i>Industrial Plants II</i>	<i>Design of Fluid Machinery</i>

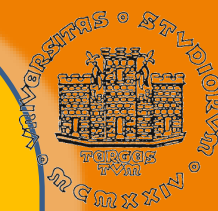


RECOMMENDED PLAN

COURSE	SSD	ECTS
1st year (1st and 2nd semester – UNITS. Common for both curriculum)		
Applied mathematics (C)	MAT/08	10
Cogeneration and industrial energy management (C)	ING-IND/09	9
Industrial Plants (B)	ING-IND/17	9
Engineering Planning and Control (B)	ING-IND/16	12
Furniture technology (B)	ING-IND/17	12
Operations management (B)	ING-IND/17	6
		58

RECOMMENDED PLAN

COURSE	SSD	ECTS
2nd year (3rd semester – HS-OWL)		
Management and information techniques of SME (B)	ING-IND/35	10
<i>Choose two over four proposed teachings for both Curriculum</i>		
Specialised Manufacturing Technologies (C)	ING-IND/22	10
<i>Curriculum: Industrial Management for Production: Choose «Rapid Technologies» and «Automated Complex Installations»</i>		
Product and process development (B)	ING-IND/16	10
<i>Curriculum: Industrial Management for Production: Choose «Advanced Production Technologies and Optimisation» and «Innovation Management»</i>		
Free choice (D)		8
Internship (F)		6
Master thesis (E)		18
		62



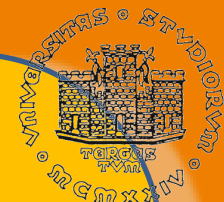


RECOMMENDED PLAN

- The free choice course, according to DM 270/04, the choice is free, but must be consistent with the training project
- The consistency will be assessed case by case by the Teaching Commission

e.g.: consistencies are:

- Organisational behaviour and design - (Dept. of Economy at Trieste) SECS-P/10 (8 ECTS)
- Industrial organisation - (Dept. of Economy at Trieste 9) SECS-P/06 (8 ECTS)
- Mechanical Industrial plants II – ING-IND/17 (8 ECTS)



MASTER THESIS : 18 ECTS

The final exam consists in a discussion with a Commission, following the academic regulations agreed between the Partner Universities, of a thesis that will demonstrate the attainment of the skills set out by the educational objectives.

The thesis that is proposed for the final test should to be linked to a meaningful experience reflecting the student's interest as follows:

- Investigation on a technical topic based on primary bibliographic material, or report on the internship activity, which produced some results applicable in the context;
- Study of an actual problem or project, e.g. proposed in the internship, with critical application of existing methods and effective results in the application context;
- Study of an actual problem or project, e.g. proposed in the internship, with the development of an original method or approach that produces effective results in the application context.

The topic will be relevant to the internship, it will be carried out under the guidance of a supervisor professor and of an external tutor if the thesis work is carried out in collaboration with companies or public organisations.



Italian Marks	German Marks
30 cum laude	1
30	1
29	1.25
28	1.5
27	1.75
26	2
25	2.25
24	2.5
23	2.75
22	3
21	3.25
20	3.5
19	3.75
18	4
17,....	5



The internship is excluded from this calculation.

Sum of credits from all exams:	96
Credits for internship:	6
Credits for thesis:	18
Total credits for the Program:	120

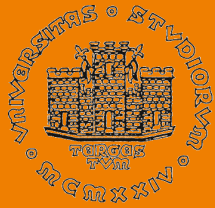
The final degree (L) is calculated according to the formula
$$L = \frac{108 \cdot X}{30} + P$$

The value of L is rounded to the integer. In any case the final mark is: **$\min(L, 110)$** .

X is the weighted average marks according to the ten exams credits,

P = mark of the thesis examination given by the Board of Examiners, whose value can be up to **4** on the following basis:

- Time to Master thesis examination (**1** at the end of the 2nd academic year, **0** otherwise)
- Plus **1** up **3** extra points accordingly to the quality of the work.



All Teaching Programmes at:

<http://www.cspn.units.it/en/menu-didattica/11-ddmsc-program>

Info:

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