ANNEX I
SPECIFIC ACADEMIC AGREEMENT FOR ESTABLISHING ULYSSEUS DOUBLE MASTER OF SCIENCE DEGREES

EM3ES PROGRAMME

This Annex I to the Specific Academic Agreement for establishing Double Master's Degrees in Ulysseus defines the pre-requisites, the study programmes and other detailed information about the Double Degree Program in line with the following indicators:

A) UNIGE and MCI higher education systems are based on the ECTS.

B) The courses involved in this Double Degree are the following:

- UNIGE – Laurea Magistrale in Energy Engineering
- MCI – Master in Environmental-, Process- & Energy Engineering

C) The requirements that students must meet at their Home Institution in order to qualify for Double Degree programme will include:

- Minimum ECTS to enter the double degree are 50 for both UNIGE and MCI students.

D) Admission to the Double Degree program will require approval from both Universities.

3.1. The current minimum requirements for application include a certified Bachelor's degree and at least 22 ECTS of the first semester at the Home Institution. Eligible students can apply by submitting the required documents to the Home Institution.

3.2. The International Office of the Home Institution will communicate the list of the selected students to the International Office of the Host Institution by mid-April. The selected students will receive a letter of acceptance from the Host Institution by mid May.

3.3. The enrolment documents to the DD Program have to include the following:

- an official transcript of records
- a copy of the student's ID document
- a document accrediting the student's competence in English.

E) During the mobility period of one academic year (2 semesters), students must acquire at least 54 ECTS at the Host Institution. The students will complete their Double Degree program with a jointly supervised Master Thesis. The Thesis project, which includes Master presentation and Master seminar, is awarded 30 ECTS for MCI students and 20 ECTS for UNIGE students. The final examination including the presentation of the Master Thesis will be held at the Home Institution in front of a committee comprising members of each Institution.

F) Contents

The **UNIGE En2** MSc course is organized according to the following teaching modules, as also described in the Energy Engineering web site (https://corsi.unige.it/corsi/11917).

UNIGE/En2 semester 1	
Course Title	***ECTS***
Heat Transfer (66382)	6
Mathematical Modelling for Energy Systems (86630)	5
Chemical Processes and Technologies (86631)	5
Industrial Fluid-dynamics (86641)	6
Combustion Process and Emissions (80054)	6
UNIGE/En2 semester 2	
Industrial Plants for Energy (86644)	5
Power Systems Modelling and Control (65887)	6
Power Systems Management (86638)	6
Power Plants for Energy Conversion (80053)	6
UNIGE/En2 semester 3	
Models and Methods for Energy Engineering (86662)	5
Energy and Buildings (86655)	6
Fuel Cells and Distributed Generation Systems (86660)	6
Solar and Geothermal Energy (80043)	6
Elective courses (86667)	5
Other activites (Academic Writing/Soft Skills/Italiano)	3
UNIGE/En2 semester 4	
Hydro, Wind and Micro-gas Turbines (86661)	6
Energy Laboratory (80081)	6
Elective courses (student choice, 2 out of 4 courses here below)	5-10
Technologies and Fuels for Propulsion systems Decarbonization (86665)	6
Master Thesis (86663)	15
Elective Courses	
Power Systems Simulation and Optimization (86667) (semester 3)	5
Remote Sensing (80048) (semester 4)	5
Project Management for Energy Production (86666) (semester 4)	5
Chemical and Biochemical Processes and Plants for Energy (72562) (semester 4)	5

The MCI Master's program is organized according to the following teaching modules, as also described in the MCI web site (https://www.mci.edu/en/study/master/environmental-process-energy-engineering).

MCI semester 1	
Course Title	***ECTS***
Process Control	2
Reaction Engineering	3
Heat and Mass Transfer	4
Matlab in Engineering	1
Revision Course in Process Technology	10
Regulations and Standards in Process Engineering	1
Legal Aspects of Engineering	1
Business Economics	3
Elective Energy Engineering	
Energy Storage	1.25
Electrochemical Energy Storage and Conversion	1.25
Elective Plant Design and Operations	
Strength of materials	2.5
Elective Environmental Engineering	
Waste Engineering	1.25
Noise Control	1.25
Elective Chemical Engineering	
Polymer Chemistry	2.5
MCI semester 2	
Academic Writing	1
Design of Experiments	2
Ethics	1
Literature Seminar	1
Conceptual Process Design & Simulation	4
Plantwide Control	3
Apparatus Engineering	3
Solid Process Engineering – Particle Technology	3
Advanced Thermal Process Technology	2
Elective Energy Engineering	
Power and Smart Grids	2.5
Energy Conversion Technologies and Synthetic Bio-Fuels	2.5
Elective Plant Design and Operations	
Process Integration	1
Plant Automation	3
Materials Handling and Logistics	1
Elective Environmental Engineering	

Groundwater, Advanced Water Engineering and Reuse	4
Life Cycle Assesment	1
Elective Chemical Engineering	
Advanced Industrial Chemistry	2.5
Advanced Catalysis	2.5
MCI semester 3	
Plant Safety	2
Plant Engineering	3
Computational Fluid Dynamics – Theory	2
Computational Fluid Dynamics – Simulation	3
Interdisciplinary Project	10
Elective Energy Engineering	
Renewable Energy Systems	2.5
Heating and Cooling Technology	2.5
Elective Plant Design and Operations	
Plant Design Project	5
Elective Environmental Engineering	
Membrana Technology	2.5
Flow and Transport in Environmental Engineering	2.5
Elective Chemical Engineering	
Chemical Technology Seminar	1
Chemical Product Design and Development	1
Industrial Scale-Up	2
Field Trip	1
MCI semester 4	
Master Seminar	5
Master Thesis	25

COURSE SYLLABI, PROFESSOR IN CHARGE AND OTHER INFORMATION RELATED SPECIFIC COURSES

The course syllabus, professor, exam organization, references, are information available at UNIGE and MCI web sites:

https://corsi.unige.it/corsi/11917

https://www.mci.edu/en/study/master/environmental-process-energy-engineering

ROAD MAP FOR THE DOUBLE DEGREE PROGRAM

(List of courses taken at Home Institution and Host Institution)

Road map of courses taken by students registered at UNIGE

Semester 1 for UNIGE students (at Unige)	
Course Title	***ECTS***
Heat Transfer (66382)	6
Mathematical Modelling for Energy Systems (86630)	5
Chemical Processes and Technologies (86631)	5
Industrial Fluid-dynamics (86641)	6
Combustion Processes and Emissions (80054)	6
Semester 2 for UNIGE students (at Unige)	
Industrial Plants for Energy (86644)	5
Power Systems Modelling and Control (65887)	6
Power Systems Management (86638)	6
Power Plants for Energy Conversion (80053)	6
Semester 3 for UNIGE students (at MCI)	
Plant Safety	2
Plant Engineering	3
Computational Fluid Dynamics – Theory	2
Computational Fluid Dynamics – Simulation	3
Interdisciplinary Project	10
Energy Engineering Branch (at MCI)	
Renewable Energy Systems	2.5
Heating and Cooling Technology	2.5
Environmental Engineering Branch (at MCI)	
Membrane Technology	2.5
Flow and Transport in Environmental Engineering	2.5
Semester 4 for UNIGE students (at MCI)	
Academic Writing	1
Design of Experiments	2
Ethics	1
Literature Seminar	1
Conceptual Process Design & Simulation	4
Plantwide Control	3
Apparatus Engineering	3
Solid Process Engineering – Particle Technology	3
Advanced Thermal Process Technology	2
Energy Engineering Branch at MCI (from Elective courses)	
Power and Smart Grids	2.5
Energy Conversion Technologies and Synthetic Bio-Fuels	2.5
Environmental Engineering Branch at MCI (from elective courses)	
Groundwater, Advanced Water Engineering and Reuse	4
Life Cycle Assessment	1

Semester 5 for UNIGE students	
Master Seminar	5
Jointly supervised Master Thesis (86663)	15
TOTAL	**131**

Road map of courses taken by students registered at MCI

Semester 1 for MCI students (at MCI)	
Course Title	***ECTS***
Process Control	2
Reaction Engineering	3
Heat and Mass Transfer	4
Matlab in Engineering	1
Revision Course in Process Technology	10
Regulations and Standards in Process Engineering	1
Legal Aspects of Engineering	1
Business Economics	3
5 credits from elective courses from two branches at MCI (List below)	5
Elective Energy Engineering Branch	
Energy Storage	1.25
Elective Electrochemical Energy Storage and Conversion	1.25
Plant Design and Operations Branch	
Strength of materials	2.5
Elective Environmental Engineering Branch	
Waste Engineering	1.25
Noise Control	1.25
Elective Chemical Engineering Branch	
Polymer Chemistry	2.5
Semester 2 for MCI students (at MCI)	
Academic Writing	1
Design of Experiments	2
Ethics	1
Literature Seminar	1
Conceptual Process Design	4
Plantwide Control	3
Apparatus Engineering	3
Solid Process Engineering – Particle Technology	3
Fluid and Thermal Process Technology	2
10 credits from elective courses from two branches at MCI (List below)	10
Elective Energy Engineering Branch	
Power and Smart Grids	2.5
Energy Conversion Technologies and Synthetic Bio-Fuels	2.5

Elective Plant Design and Operations Branch	
Process Integration	1
Plant Automation	3
Materials Handling and Logistics	1
Elective Environmental Engineering Branch	
Groundwater, Advanced Water Engineering and Reuse	4
Life Cycle Assessment	1
Elective Chemical Engineering Branch	
Advanced Industrial Chemistry	2.5
Advanced Catalysis	2.5
Semester 3 for MCI students (at Unige)	
Models and Methods for Energy Engineering (86662)	5
Energy and Buildings (86655)	6
Fuel Cells and Distributed Generation Systems (86660)	6
Solar and Geothermal Energy (80043)	6
Other activites (Academic Writing/Soft Skills/Italiano)	3
(Elective course at semester 3) Power Systems Simulation and Optimization (86667) (semester 3)	5
Semester 4 for MCI students (at Unige)	
Hydro, Wind and Micro-gas Turbines (86661)	6
Energy Laboratory (80081)	6
Technologies and Fuels for Propulsion systems Decarbonization (86665)	6
1 elective course among those available at Unige below	5
Semester 5 for MCI students	
Master Seminar	5
Jointly supervised Master Thesis	25
TOTAL	**144**

Elective Courses at Unige	
Remote Sensing (80048) (semester 4)	5
Project Management for Energy Production (86666) (semester 4)	5
Chemical and Biochemical Processes and Plants for Energy (72562) (semester 4)	5
Power Systems Simulation and Optimization (86667) (semester 3)	5

All students need to complete the course “Master Seminar“ (5 ECTS) at MCI. For Double Degree students this course takes place online and in semester 5 (for regular students this course takes place in semester 4 with attendance requirement).

For each academic year, the study program can also be approved through a Learning Agreement according to the academic offer, if necessary.

The final examination including the presentation of the Master Thesis will be held at the Home Institution in front of a committee comprising members of each Institution.

Dates to hand in the master thesis at UNIGE (4 attempts):
First attempt = End of March
Second attempt = End of July
Third attempt = End of October
Fourth attempt = End of December

Dates to hand in the Master Thesis at MCI (3 attempts):
First attempt = End of January (Defense day = Beginning or Mid of March)
Second attempt = End of May (Defense day = Mid of July)
Third attempt = End of July (Defense day = Mid or End of September)

G) Credit System and Grade Conversion
Each semester consists of teaching modules corresponding to overall 30 ECTS credits on average.
ECTS credits correspond to a total student work, including lectures (frontal lessons), assisted learning (tutorials), laboratory activities and homework. One ECTS corresponds to about 25-30 hours of student workload including classroom teaching (lectures, tutorials practical work) and independent work.
Each module is validated during the exam (written, oral or both) according to the local regulations and according to each institution local grading system.

Examinations undertaken during the exchange semesters shall be graded using the respective grading system of the Host Institution. The UNIGE and MCI grading systems and their conversion are presented in the Table below.

GRADING CONVERSION SCHEME	
MCI Grade (Assessment)	**UNIGE Grade**
1 (excellent / Sehr gut - 100% - 90%)	29-30cum Laude
2 (good / Gut - 90% – 80%)	26-28
3 (satisfactory / Befriedigend - 80% - 70%)	21-25
4 (sufficient / Genügend - 70% – 60%)	18-20
5 (failed / Nicht genügend - minimum pass mark = 60%)	< 18
sc (successfully completed / mit Erfolg teilgenommen)	superato (successfully completed)
ac (accredited / angerechnet)	-