

Appendice 1 – Anexo 1 - Annex 1

Accordo di Cooperazione Accademica tra UNISI and UC3M

Acuerdo de Cooperación Cooperación Académica

Academic Cooperation Agreement between UNISI and UC3M

The “Master in Telecommunications Engineering” at UC3M
(http://www.uc3m.es/portal/page/portal/postgrado_mast_doct/masters/Master_Ingenieria_Telecomunicacion)
is based on 90 ECTS.

The “Master in Electronics and Communications Engineering” at UNISI
(<http://msc.ing.unisi.it/>)
is based on 120 ECTS,

In order to respect the Italian Law both the UC3M and UNISI students should gain 120 ECTS. Following is the summary of both tracks that the students from each university must follow achieving 60 credits in the university of origin and 60 during the second year.

Maximum 5 students from each University may enter the exchange programme in the first year of agreement (academic year 2014/2015).

Number of eligible students will be reviewed yearly and reported with a written formal communication addressed to the Rectors and to the persons in charge of implementation (art. 2 and art. 5 of the Academic Cooperation Agreement)

DELIVERY OF THE ACADEMIC DEGREES

Each institution grants the student credit transfer from the other institution according to the applicable rules, laws and regulations of that institution. Students successfully completing their studies of the Double Degree programme obtain two degrees, one issued by the home institution and one issued by the host institution.

A Committee consisting of representatives of both parties is to analyse the merits of the students who have not met the requirements for the Double Degree at the end of the two semesters at the host institution.

Depending on the case, the Committee will propose to those students who have accumulated 40 or more ECTS credits but not 60 ECTS credits of those included in the Learning Agreement to either:

- study for an extra semester at the host institution in order to accomplish the Double Degree programme, or
- resign from the Double Degree programme and only be awarded the degree of the home institution, when completed.

If the student has gained less than 40 ECTS credits of those included in the Learning Agreement, she/he will be excluded from the Double Degree programme.

PROGRAMME STRUCTURE AND FINAL THESIS

The final degree project (hereinafter denoted MSc Thesis) shall be performed according to the rules and regulations of both institutions. The subject of the MSc Thesis must always receive an advance approval in writing from a faculty member of the host as well as the home institution. The MSc Thesis results in a report written in English.

The MSc Thesis will be discussed - under the supervision of at least a professor of the Dipartimento di Ingegneria dell'Informazione e Scienze Matematiche (UNISI) or the Departamento de Teoría de la Señal y Comunicaciones (UC3M) – in one of the two partner institutions; the MSc Thesis Committee will be composed by at least 5 members, among which at least one of UNISI and one of UC3M. For the MSc Thesis, in order to successfully complete the Double Degree programme, each student will be awarded 18 ECTS.

Track of UC3M student (first year at UC3M, second year at UNISI)

UC3M student first year at UC3M

The student should follow the standard UC3M study plan achieving 60 ECTS according with the next table

| # | Name of the course in UC3M | Year ¹ | Sem. | Type ² | Area ES ³ | Equivalent SSD IT ⁴ | IT cat. ⁵ | ECTS |
|----|--|-------------------|------|-------------------|----------------------|--------------------------------|----------------------|------|
| 1 | Design and operation of Communication Networks | 1 | I | C | TE | ING-INF/03 | Car | 6 |
| 2 | Advanced Multimedia Services | 1 | I | C | TE | ING-INF/05 | Aff | 6 |
| 3 | Design of Electronic Circuits for Communications | 1 | I | C | EL | ING-INF/01 | Aff | 6 |
| 4 | Radiofrequency Systems and Antennas | 1 | I | C | STC | ING-INF/02 | Car | 6 |
| 5 | Data Processing | 1 | I | C | STC | ING-INF/03 | Car | 6 |
| 6 | Design of Telematics Applications | 1 | II | C | TE | ING-INF/03 | Car | 6 |
| 7 | Electronic and Optoelectronic Instrumentation | 1 | II | C | EL | ING-INF/01 | Aff | 6 |
| 8 | Design and Simulation of Communication Systems | 1 | II | C | STC | ING-INF/03 | Car | 6 |
| 9 | Advanced Signal Processing and Communications | 1 | II | C | STC | ING-INF/03 | Car | 6 |
| 10 | Project Management and TLC Regulations | 1 | II | C | STC | ING-IND/35 | Aff | 6 |

At the end of the first year each student has achieved **36 ECTS** "Caratterizzanti" and **24 ECTS** "Affini" (Italian categorization) , total **60 ECTS**.

UC3M student second year UNISI

The student should follow the UNISI study plan achieving:

- 3ECTS of English language (either exam held in UNISI or presentation of recognized level B2 certification)
- 9ECTS of internship
- 18ECTS for the MSc Thesis

... plus further **30 ECTS** chosen according with the next table

| # | Name of the course in UNISI | Year | Sem. | Type | Area ES | Equivalent SSD IT | IT cat. | ECTS |
|------------------------------|------------------------------------|------|------|------|---------|-------------------|---------|------|
| Both the following two exams | | | | | | | | |
| 11 | Sensors and microsystems | 2 | II | C | EL | ING-INF/07 | Aff | 6 |
| 12 | Design of application and services | 2 | I | C | TE | ING-INF/05 | Aff | 6 |

... and further 18 ECTS chosen according one of the following two options

| OPTION 1) | | | | | | | | |
|-------------------------------------|-----------------------------------|------|------|------|---------|-------------------|---------|------|
| # | Name of the course | Year | Sem. | Type | Area ES | Equivalent SSD IT | IT cat. | ECTS |
| Only one of the following two exams | | | | | | | | |
| 13a | Microwave and optical engineering | 1 | I | E | EL | ING-INF/02 | Car | 9 |
| 13b | Antennas and propagation | 1 | II | E | STC | ING-INF/02 | Car | 9 |
| Only one of the following two exams | | | | | | | | |
| 14a | Advanced digital image processing | 1 | I | E | TE | ING-INF/03 | Car | 9 |
| 14b | Digital communication | 2 | I | E | TE | ING-INF/03 | Car | 9 |

| OPTION 2) | | | | | | | | |
|--|---------------------------------------|------|------|------|---------|-------------------|---------|------|
| # | Name of the course | Year | Sem. | Type | Area ES | Equivalent SSD IT | IT cat. | ECTS |
| Only three of the following four exams | | | | | | | | |
| 13 | RFID Technologies | 2 | I | E | STC | ING-INF/02 | Car | 6 |
| 14 | Communication technologies for energy | 2 | II | E | STC | ING-INF/03 | Car | 6 |
| 15 | Mobile Communications and security | 2 | II | E | TE | ING-INF/03 | Car | 6 |
| 16 | Multimedia security | 2 | II | E | TE | ING-INF/03 | Car | 6 |

At the end of the second year each student has achieved a maximum total of **54 (36+18) ECTS** "Caratterizzanti" and a maximum total of **36 (24+12) ECTS** "Affini" (Italian categorization).

¹ Year:

It is referred to the present collocation of the exam in the 2-Year course

² Type:

C- Compulsory course

E- Elective course

³ Areas (ES classification):

STC: Signal Theory and Communications

TE: Telematics Engineering

EL: Electronics

⁴ Equivalent SSD (Scientific Disciplinary Sector) in Italy

ING-INF/01 Electronics

ING-INF/02 Electromagnetic Fields

ING-INF/03 Telecommunications

ING-INF/05 Computer Science

ING-INF/07 Electric and Electronic Measurements

ING-IND/31 Electro-technics

⁵ IT cat. (Italian categorization):

Car: Caratterizzanti

Aff: Affini

Track of UNISI student (first year at UNISI, second year at UC3M)

UNISI student first year at UNISI

The student should follow the following study plan achieving **48 ECTS** according with the next table

| # | Name of the course in UNISI | Year | Sem. | Type | Area ES | Equivalent SSD IT | IT cat. | ECTS |
|--|--|------|------|------|---------|-------------------|---------|------|
| All the six following exams, total 33 ECTS | | | | | | | | |
| 1 | Microwave and optical engineering | 1 | I | C | STC | ING-INF/02 | Car | 9 |
| 2 | Analog circuit design | 1 | I | C | EL | ING-INF/01 | Aff | 6 |
| 3 | Statistical signal processing | 1 | II | C | STC | ING-INF/03 | Car | 6 |
| 4 | Mathematical methods for engineering A | 1 | II | C | | MAT/05 | Aff | 6 |
| 5 | Networking | 1 | II | C | STC | ING-INF/03 | Car | 6 |
| 6 | Reliability and Design for Safety | 1 | II | C | EL | ING-INF/07 | Aff | 6 |
| Only one of the following three exams | | | | | | | | |
| 7a | Advanced digital image processing | 1 | I | E | STC | ING-INF/03 | Car | 9 |
| 7b | Digital Communication | 2 | I | E | TE | ING-INF/03 | Car | 9 |
| 7c | Antennas and propagation | 1 | I | E | STC | ING-INF/02 | Car | 9 |

... plus further

- 3ECTS of English language (either exam held in UNISI or presentation of recognized level B2 certification)
- 9ECTS of internship

At the end of the first year each student has achieved **30 ECTS** “Caratterizzanti”⁶, **18 ECTS** “Affini”⁷ (Italian categorization), **9 ECTS** of internship and **3 ECTS** of English, total **60 ECTS**.

UNISI student second year at UC3M

The student should follow a study plan achieving **42 ECTS** (according with the next table) and complete the MSc Thesis.

| # | Name of the course in UC3M | Year | Sem | Type | Area ES | Equivalent SSD IT | IT cat. | ECTS |
|---|---|------|-----|------|---------|-------------------|---------|------|
| 1 | Multidisciplinary Applications of the Information Technologies and Communications | 2 | I | C | STC | ING-INF/03 | Car | 6 |
| 2 | Advanced Multimedia Services | 1 | I | C | TE | ING-INF/05 | Aff | 6 |
| 3 | Radiofrequency Systems and Antennas | 1 | I | C | STC | ING-INF/02 | Car | 6 |
| 4 | Design of Telematics Applications | 1 | II | C | TE | ING-INF/03 | Car | 6 |
| 5 | Electronic and Optoelectronic Instrumentation | 1 | II | C | EL | ING-INF/01 | Aff | 6 |
| 6 | Design and Simulation of Communication Systems | 1 | II | C | STC | ING-INF/03 | Car | 6 |
| 7 | Advanced Signal Processing and Communications | 1 | II | C | STC | ING-INF/03 | Car | 6 |

At the end of the second year each student has achieved **60 (30+30) ECTS** “Caratterizzanti” and **30 (18+12) ECTS** “Affini” (Italian categorization)

⁶ 21 or 12 ECTS ing-inf/03; 09 or 18 ECTS ing-inf/02

⁷ 06 ECTS ING-INF/01; 06 ECTS ING-INF/07; 06 ECTS MAT/05