

**INTERNATIONAL MASTERS IN COMMUNICATION  
NETWORKS ENGINEERING” (IMCNE) – Academic Years 2012/2014**

**CALL FOR APPLICATIONS**

**Art. 1**

**Activation of the Masters**

In accordance with Art. 3 of the School Charter, Scuola Superiore Sant’Anna in Pisa, Italy, is offering for the academic years 2012/13 and 2013/14 the University Master – 1<sup>st</sup> level degree<sup>1</sup> “International Masters on Communication Networks Engineering”, with 2-year duration. The Masters takes place at Institute of Communication, Information and Perception Technologies (from now on “TeCIP”)– of Scuola Superiore Sant’Anna, Pisa, starting on **September 2012** and ending on **September 30<sup>th</sup>, 2014**. It will be on a full-time basis and the language of instruction will be English. It envisions a maximum of 12 positions.

**Art. 2**

**University Credits**

The Masters envisions the attendance of courses that confer university credits, according to what is stated by the plan of study of the Masters. Acquisition of credits occurs after the proficiency verification of each exam (intermediate and final) is passed and is subject to the respect of the minimum attendance requirements. In order to pursue the Masters degree, it is necessary to acquire at least **120 University Credits (ECTS)**.

**Art. 3**

**Goals**

The main objective of the Masters consists in developing the technical and cultural background as well as to develop the competence of a high-level professional profile in the area of Information Technology, highly competitive at the international level. The graduated will have capacity to manage and control advanced technologies in ICT, Software Engineering and Telecommunication Engineering, in particular the design and management of nodes and their interconnection in heterogeneous configuration.

**Art. 4**

**Teaching Methods and Programme Phases**

The Masters has a two-year duration and is organized over two periods with distinct training objectives, one propaedeutic with respect to the other.

The first period, related to the teaching part, is divided in three consecutive semesters for a total amount of 990 hours of class lectures and lab training. Classes will be shared with the students of the MAster on Photonic NETworks Engineering (MAPNET, <http://mapnet.sssup.it>). The objective of the first period is the transmission of competence through front teaching, lab training, stand-alone review of material and specialized seminars of universities and companies representative researchers as well.

---

<sup>1</sup> Further information on the Italian Higher Education System at <http://www.study-in-italy.it>.

The first period envisions a total of 99 credits on the basis of common courses, in full in the first and second semester, partially in the third semester. The table that follows reports the entire training program of the Masters for the first three semesters.

<b>COURSES</b>	<b>Univ. credits</b>
<b>FIRST SEMESTER</b>	<b>29</b>
Object Oriented Software Design	5
Communication Theory and Digital Transmission	4
Communication Networks	4
Stochastic Processes and Queuing Theory	6
Electromagnetic fields and propagation I part	2
Real-Time Systems	5
Network Management Systems	3
<b>SECOND SEMESTER</b>	<b>31</b>
Fundamentals of Applied Optics	4
Electromagnetic Fields and Propagation II part	2
Fundamentals of Optical Communications	3
Wireless Communication Networks	2
Design of Access, Metro and Core Networks	4
Network Optimization	3
Sensor Networks	3
Advanced Topics in Networks	1
Lab of Network Software	3
Lab of Traffic Engineering	3
Photonic Technologies	3
<b>THIRD SEMESTER – General Courses</b>	<b>21</b>
Photonic Integrated Circuits	3
Design of Optical Communication Systems	3
Optical Amplification and Fibre-Optic sensing	3
Performance Evaluation of Communication Systems	6
Networked Virtual Environments	3
Lab. of Virtual Environments	3
<b>THIRD SEMESTER / Free-choice exams</b>	<b>at least 9</b>
Lab of Photonic Switching – First Part	4
Lab of Photonic Switching – Second Part	2
Lab of Photonic Systems – First Part	3
Lab of Photonic Systems – Second Part	3
Lab of Photonic Amplification and Components – First Part	4
Lab of Photonic Amplification and Components – Second Part	2

The second period corresponding to the fourth (last) semester, envisions the original development and relevant preparation of a written dissertation (Master thesis) developed in the laboratories of the TeCIP Institute Labs.

This period has the scope to complement the in-class training with an operative direct experience, in which the competence acquired during the first period can be efficiently spent. Master thesis developed in laboratories of partner companies or institutions shall be authorised, as an exception, from the Master coordinators.

The Masters thesis with an overall duration of 750 hours, allows to gain 30 University Credits.

The rights and duties of the students of the Masters Programme, as well as the relations between the students and the School's facilities, are regulated by the General Rules and Regulations for

University Master – 1<sup>st</sup> level degree and University Master – 2<sup>nd</sup> level degree of the Scuola Superiore Sant’Anna and by the Rules and Regulations of the “International Masters on Communication Networks Engineering”.

#### **Art. 5**

##### **Masters Thesis**

At the end of the Masters Programme, the students shall produce a written dissertation (Masters thesis) about the activity carried out during the last semester, which will be publicly discussed and assessed by a Committee appointed by the Scuola Superiore Sant’Anna.

#### **Art. 6**

##### **Admission Requirements**

Applicants for the Masters Programme shall have a degree from a university course of at least three years or an equivalent qualification issued by a university or university-level school, in disciplines of Information Science or Physics (Bachelor in Telecommunications or Electronic Engineering or in Computer Science or in Physics, etc.). Students who are enrolled in a three-year university program and expect to gain such qualifications within June 30<sup>th</sup>, 2012 are also eligible.

The candidates shall have a good knowledge of the English language, proved by a proficiency certificate (TOEFL, IELTS, Cambridge, Medium of Instruction or other forms of statement).

All requisites shall be possessed by the perspective students within the submission deadline as stated in following Art. 7.

#### **Art. 7**

##### **Application Procedure**

Applicants shall enter their application exclusively on-line, at <http://imcne.sssup.it> stating the following information:

- a) last name, name, place/country and date of birth, gender, nationality, marital status, disabilities;
- b) permanent address and mail address (if different), where applicants wish to receive paper communications concerning the application;
- c) phone , e-mail and skype contacts;
- d) university career: academic title, degree awarding date, university and final score (if applicable), academic year of beginning of BSc’s studies, standard duration of courses, average score of exams taken. Applicants who expect to graduate within June 30<sup>th</sup>, 2012 shall indicate the provisional graduation date;
- e) level of knowledge of the English language and other foreign languages;
- f) commitment to notify any change of address or e-mail contact to this administration.

Applicants shall include in the application (all materials shall be in Adobe pdf format and must use the file name shown):

- a) Cv\_Surname\_Name.pdf: curriculum vitae covering education programs, cultural and professional experiences and all other information that might help in the evaluation of the candidate;
- b) Certificate\_Surname\_Name.pdf: copy of the degree certificate (if applicable);
- c) Transcripts\_Surname\_Name.pdf: academic transcripts with the full list of courses and grades (in English or French or Italian). This list shall contain information regarding university credits, units (or equivalent) received, the grades received for each class taken, and the date when the final examination (if applicable) was taken, provided by attaching the copy of the University Transcript or completing the template provided by the application form;
- d) English\_Surname\_Name.pdf: a copy of the English Language Certification;

- e) Motivation\_Surname\_Name.pdf: motivation letter;
- f) Passport\_Surname\_Name.pdf: scan of valid passport main page(s) or other international ID;
- g) Reference\_Surname\_Name.pdf: two reference letters or testimonials of experience (i.e. internship certificates, training attestations, supervisor's e-mail testimony in PDF format, etc...) – not mandatory;
- h) Other\_Surname\_Name.pdf: any other useful documentation for the assessment (Graduate Record Examinations GRE etc.) – not mandatory.

Those who expect to gain such qualifications **within June 30<sup>th</sup>, 2012** are required to present a certificate or self-declaration of the attained university degree **within July 15<sup>th</sup>, 2012**.

Applications with missing information will not be considered valid. Requests for the completion of application documents must be fulfilled within two days of the e-mail notification sent by the Masters secretariat.

Forged deeds and false statements shall be punished in accordance with the Criminal Code and any other applicable law; the School shall conduct random checks of the received statements.

The application for admission shall be sent, as above detailed, **no later than May 21<sup>st</sup>, 2012 at 1 pm (GMT)**. The selection Committee is in charge of accepting, case by case, missing or extra documents received within May 25<sup>th</sup> at 1:00 pm (GMT).

## **Art. 8**

### **Selection Process**

The selection envisions the titles assessment and will be realized by a dedicated Committee, which will be appointed by the Scuola Superiore Sant'Anna.

The Committee will select the applicants by awarding up to 100 points to their qualifications (curriculum and titles) according to the following criteria:

- Academic curriculum (average of marks received at exams, mark of the graduation exam if applicable, consistency of the curriculum and dissertation with the contents of the Masters Programme, award of the Graduate Record Examinations GRE): up to 70 points;
- Relevant professional experience in the sector: up to 20 points;
- Language skills: up to 5 points;
- Motivation and reference letters: up to 5 points.

In order to clarify some aspects of the received applications, the judging Committee may require certain applicants to attend an interview (even through telematic means). Applicants who are required to attend an interview will be notified only via e-mail **within June 4<sup>th</sup>, 2012**.

At the end of the selection, **no later than June 15<sup>th</sup>, 2012**, the judging Committee will draw up the list of admitted students which will be published on the website of the Masters Programme.

Those who have been awarded an overall score of at least 70/100 points are eligible to be admitted to attend the Masters Programme.

The selection Committee will contact exclusively via e-mail all the eligible applicants, requiring a confirmation to participate to the Masters Program at the conditions specified in the call for application. Any communication the applicants regarding this call shall be transmitted exclusively via e-mail.

The 12 first-ranked applicants on the list who have confirmed the participation to the course will be admitted to attend the Masters Programme. In case of renunciation of a position, the next eligible applicant who have confirmed the participation to the course will be admitted to the Masters Programme.

**Art. 9**  
**Tuition fees**

Tuition fees are set to Euros 2.500,00 per year (inclusive of lecture attendance, educational materials and tutorship during Masters thesis preparation). The logistics and travel expenses are to be borne by each participant.

The School will provide health and accident insurance for the entire period of the Masters.

For the first academic year the best 3 ranked applicants in the admission list will benefit from a tuition waiver. Applicants ranked between the 4<sup>th</sup> and the 6<sup>th</sup> position will benefit from a tuition fee reduction of 1.500,00 Euro.

For the second academic year, 3 tuition waivers and 3 tuition fee reductions will be assigned according to the academic performance of the participants.

**Art. 10**  
**Lodging Grants**

In order to encourage the participation of deserving applicants, TeCIP Institute makes available 3 lodging grants equivalent to Euro 4.320,00, reserved to the best 3 ranked applicants<sup>2</sup>.

Lodging grants will be assigned according to the final ranking list order to applicants who have obtained a score of at least 90/100, after their regular matriculation at the Masters Degree Course.

For the second academic year, 3 lodging grants will be assigned to the Masters participants with the best academic performance.

**Art. 11**  
**Renunciations and Additional Scholarships**

Tuition fee reductions and lodging grants provided for art. 10 and art. 11 are assigned until the beginning date of the courses. If a student who benefits of tuition fee reduction/lodging grant renounces after the starting date of the courses, it is in the discretion of the Scientific Board to assign the tuition fee reduction/lodging grant to the next eligible student in grade order.

If a student will prematurely terminate the Masters programme, he/she will return the entire amount of the received lodging grant.

Sponsor companies may award additional scholarships, lodging grants or subscription fee coverage to be assigned according to the ranking in the admission list.

**Art. 12**  
**Acceptance – Payment Methods**

The admitted applicants who wish to attend the Masters Programme shall give confirmation of their acceptance. To confirm, they shall send the following documents to Scuola Superiore Sant'Anna via e-mail ([imcne@sssup.it](mailto:imcne@sssup.it)), within 5 days of reception of the admission letter:

- a) Confirmation of attendance of the Masters Programme, signed by the admitted applicant;
- b) Valid copy of passport;
- c) Receipt of payment of an acceptance fee of Euros 100.00, as detailed in the admission letter. The acceptance fee will be refunded after the regular matriculation of the admitted student, or deducted from the tuition fee due for the first A.Y.
- d) Any other documents required in the admission communication.

---

<sup>2</sup> The lodging grant consists in a free housing in a shared room at the Scuola Superiore Sant'Anna premises. It will be available from the beginning of the course.

Students not entitled to any tuition waiver shall provide the Master Secretariat with the receipt of payment of the tuition fees provided for the first A.Y., within 15 days from the confirmation of participation.

Tuition fees payment methods :

By bank transfer to Scuola Superiore Sant'Anna - TeCIP Institute UNICREDIT BANCA DI ROMA Spa, Piazza Garibaldi 1 – 56100 Pisa (Italy) - IBAN Code: IT 33 Y 02008 14006 000401276377- SWIFT code UNCRITM1G12, description of payment: “1<sup>st</sup> year Tuition fee – IMCNE – a.y. 2012/2013, student full name”.

Tuition Fees due for the second A.Y. have to be paid by the beginning of the courses of the A.Y. 2013/14, according to the same modalities of the first A.Y. The description of payment shall be: “2<sup>nd</sup> year Tuition fee – IMCNE – a.y. 2013/2014 - student's full name”.

In the event of any student withdrawing from or dropping out of the Programme, after confirmation of attendance, he/she shall not be paid back any amount. Moreover, he/she shall still be bound to pay any fees payable up to the time of withdrawal.

In addition:

1) **Admitted applicants who are citizens of non-EU member states residing outside Italy** shall also present their application along with the required documents, as per ART. 7, to the Italian Embassy/Consulate in their country of residence (for the addresses please see: <http://www.esteri.it/MAE/EN/Home.htm>), in order to obtain a visa for study purposes and the consular formalization of the documents for the enrolment in the Masters Programme.

The consular formalization of documents for the enrolment in the Masters Programme will imply the following:

- obtaining a “Dichiarazione di Valore in loco (DV)”, with reference to the applicant's foreign study qualification;
- obtaining an official translations into Italian of the foreign study qualification;
- obtaining the consular legalization of the foreign study qualification.

The local Italian Embassy/Consulate will then provide the School with the abovementioned documentation duly formalized within the deadline for the start of the Programme.

2) **Admitted applicants who are EU citizens, or citizens of non-EU member states who reside in Italy**, holding a non-Italian qualification, will be required to provide the School with a self-declaration, drawn up as per D.P.R. 445/2000, stating the equivalence of their qualification to an Italian qualification.

In order to complete the enrolment to the Masters, all admitted students, before teaching activities start, must deliver to the Masters Secretariat a stamp “marca da bollo” for an amount of € 14,62 that will authenticate the application, and must sign all application documents attached to the on-line application.

### **Art. 13 Degree Awarded**

At the end of the Masters Programme, those students who have attended at least 80% of the entire teaching program and have passed all the required examinations will receive from Scuola Superiore Sant'Anna a University Master – 1st level degree, stating the gained University credits, in accordance with art. 3 of D.M. 207/2004

**Art. 14**  
**Personal Data**

In accordance with Italian Legislative Decree no. 196 30/06/2003 (Personal Data Protection Code), please note that the personal details collected by Scuola Superiore Sant'Anna, the holder of such data processing, will be only used for the purposes pertaining to the management of this Masters Programme, in accordance with the applicable regulations. Anyone concerned can assert the rights under art. 7 of the Italian Legislative Decree 196/2003 with the School.

The Scuola Superiore Sant'Anna  
Director

Prof. Maria Chiara Carrozza

**Responsible Operating Unit**

Institute of Communication, Information and Perception Technologies (TeCIP)

e-mail: [imcne@sssup.it](mailto:imcne@sssup.it)

Tel. 050/882105

Fax 050/882194