

The Master on Navigation and Related Applications is a joint initiative of Politecnico di Torino (IT Faculty, School of Information Technologies) and Istituto Superiore Mario Boella (ISMB) with the collaboration of Istituto Elettrotecnico Nazionale Galileo Ferraris (IEN) and the United Nations Office for Outer Space Affairs (UN-OOSA).

This brochure provides information on the Master Program and on the United Nations/Italy Long-term Fellowship Programme hosted by Istituto Superiore Mario Boella (ISMB) and Politecnico di Torino.

Motivation and Overview

Innovative, added-value services and applications strictly related to user positioning information are acquiring more and more importance due to the potential benefits for the world-wide community.

Nowadays, civil users are able to fix their position on the basis of ranging signals broadcast by GPS satellites, but the problem is that GPS remains a military system and this fact limits the diffusion of potential services (with particular reference to critical and safety-of-life applications).

For this reason, the Galileo system which represents the European initiative in the field of GNSS (Global Navigation Satellite Systems) will be a real boost for the introduction of navigation and positioning applications in the worldwide wireless mass-market. Galileo, fully deployed by 2008, is acquiring a large sharing in fact countries like China, India and Latin America are expressing a strong interest in participating to Galileo definition, deployment and test.

In addition, it has to be remarked that terrestrial locating systems based on wireless communication networks and the integration of GNSS signals with communication signals (e.g., WLAN and Galileo) will represent a natural way for the diffusion of navigation-related services.

In the next future a substantial amount of skilled personnel will be engaged in production and management of innovative navigation-oriented applications (Location Based Services - LBS). At the same time, short time-to-market is becoming a must for companies engaged in the development of navigation hardware, services and applications, which require advanced technical skills as well as a broad vision of the navigation/locationalization technologies at large.

The Master in Navigation and Related Applications is an effective answer to the work market demands in terms of high level technicians endowed with a broad vision of the navigation/locationalization world but also with specific skills.

Admission Requirements

The Master program is addressed to graduate students having completed a Master Degree (typically a 5 years curriculum after the high-school) or an equivalent title in Electrical Engineering, Aerospace Engineering, Environmental Engineering, Communication Engineering, Information Technology or related subjects. Other degrees in different technological fields could be taken into account by the Master Commission.

Written and spoken English is required (English is the official language of the Master); together with basic notions in communication theory and electronics.

Cultural Prerequisites

To profitably follow the Master program, candidates should have some background in the areas:

- Principles of digital communications and signal processing
- Basics of electromagnetic wave propagation
- Basics of software tools (e.g. Matlab) and programming languages (e.g. C)

No basic knowledge in navigation is required.

Course Schedule and Syllabus

The duration of the Master program is 12 months including a period ranging from 4 to 6 months for pilot projects (internships). It provides an extensive background in navigation/locationalization systems as well as a detailed analysis on NAVCOM integration and environmental monitoring applications or a specific training on timing.

The program includes 60 Educational European Credits (ECTS), 50 corresponding to courses, 30 to an internship in a lab or a company operating in the field of navigation (or in the production of navigation-related applications) and/or in the technical laboratories of ISMB and IEN.

It should be remarked that students could prepare the pilot (final) project in a technical lab in their own home country under the supervision of a local tutor and the coordination of a member of the scientific committee of the Master.

Courses are divided in 5 main modules:

Module No.	Topic	Period	Number of credits
0	basics of common carrier systems and digital signal processing	Winter	8
1	Satellite navigation systems fundamentals and introduction to GNSS and Galileo	Winter/Spring	16
2	Receiver technologies and applications of satellite navigation	Spring	14
3	GNSS applications areas • 3A Navigation/communication integration and GNSS networks for environmental monitoring • 3B Timing	Summer	12
4	Pilot project	Fall	30

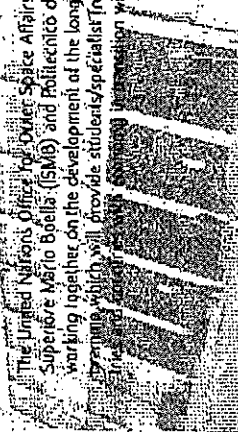
The teaching staff includes many internationally known researchers from Politecnico di Torino, ISMB, IEN and from European Universities, but also experts operating in companies involved in navigation programs.

Course Fee and Financial Support

The tuition fee is € 8000. For a limited number of students, financial support will be given as grants, fully covering tuition fee and possibly providing partial support for other expenses.

The UN/Italy Long-term Fellowship Programme on GNSS and Related Applications

The United Nations Office for Outer Space Affairs (UN-OOSA), Istituto Superiore Mario Boella (ISMB) and Politecnico di Torino are currently working together on the development of the long-term fellowship programme which will provide students/specialists from developing countries and countries with low income countries with an opportunity to



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Information on the Master Program and on the United Nations/Italy Long Term Fellowship Program Hosted by ISMB and Politecnico di Torino.

For Information, Please Contact:

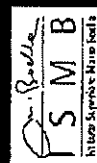
Master Logistic Coordinator
Master office

Professor of Torino - Institute Dicalita
Phone: +39 011 564 29 29
e-mail: master.coord@polito.it

Web Sites

Visit our web sites for more information:
<http://dialita.polito.it/masterlogit> and
<http://www.unfpa.org>

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Corso Duca degli Abruzzi, 24
10129 Torino - Italia
www.polito.it

receive a Master degree in Navigation and Related Applications.

Participants selected by UN/OOSA will receive a financial support for the tuition fee and for other expenses during their study.

Full details on the fellowship programme and application procedures will be available shortly both on OOSA web site (<http://www.oosa.univie.ac.at>) and on the web site of Politecnico di Torino (<http://www.dialita.polito.it/master/II/>).

Internships

Students will acquire 30 ECTS doing a pilot project in a lab or a company operating in the field of navigation, that is duration goes from a minimum of 4 months to a maximum of 6 months, depending on specific agreements with the hosting company.

How to Apply

For details please consult the web site or call the contact people listed below.

