

UNIVERSIDAD DE LA REPÚBLICA
Núcleo de Ingeniería Biomédica de las Facultades de Medicina e Ingeniería

INTERNSHIP FOR STUDENTS FROM TWENTE UNIVERSITY 2013-2014

- A. Medical device selection for a new hospital
- B. Teaching material for electrical safety in hospitals

NIB

The Biomedical Engineering Department, called “Núcleo de Ingeniería Biomédica de las Facultades de Medicina e Ingeniería” (**NIB**) is located in the University Hospital of Montevideo. NIB develops new biomedical equipment, novel computer programs and original methods for clinical use. Research coexists with teaching undergraduate and graduate courses as well as with academic outreach activities working with both industry and community organizations.

Professors in charge of intern students

- Prof. Franco Simini, Professor of Biomedical Engineering and **NIB** Coordinator
- MsC Elisa Martínez Luaces, Director of the Peluffo Giguens Foundation Telemedicine Centre.

Goals of the Internship

Graduate and Undergraduate Internship at **NIB** is an opportunity to let students acquire “hands on” experience in the field of Biomedical Engineering by performing real world tasks needed in the community. The Internship is a full time occupation in close interaction with academic staff and fellow students of NIB and specific contacts with the end user of the job performed, such as a Hospital or a clinical group.

Requirements for intern candidates

Internship candidate, to be considered for admission, must have a general background in Biomedical Engineering with basic notions of physiology, electrical safety, either computer programs for medicine or electronics for medical equipment and reading their third year of University or higher. English proficiency is a must and Spanish understanding an optional asset for candidates, in the understanding that all academic staff and students in Uruguay can communicate in English, but not so for health workers, hospital staff, administrative clerks and society in general. Accordingly, the Dutch students will be supported by an English-speaking Uruguayan student or member of staff, when necessary.

Academic Opportunities for Intern Students from abroad

During the internship, students are welcome to take **NIB** courses as students at no cost. Biomedical Engineering courses are nevertheless taught in Spanish, which may be both a barrier but also a challenge to further acquire language abilities in case the basics are strong enough. Courses of the first Semester start in March and second Semester starts early August, which is why internship is to begin in either late Summer (March) or late Winter (August).

During the internship, students may be asked to present their work, either previous or at NIB, during a Seminar. Additionally, intern students have the opportunity to be acquainted with a research setting in Latin America in their own area of interest, Biomedical Engineering.

Description of Internship A.

Medical device selection for a New Hospital 2013/2014

NIB is part of an interdisciplinary project of ASSE (State run Hospitals of Uruguay) to plan, design and build a new Hospital in Montevideo. A list of biomedical equipment must be set in place according to needs specified by the hospital design team. All equipment must have three

alternatives with pricing and technical characteristics. Installation requirements are to be defined for the projected locations in the future Hospital (dimensions, floors, air, gases, communications, power, etc.). There will hopefully be a first iteration of the process after consideration by the hospital design team. The end product of the internship is a substantial contribution to a commented list of equipment and part of the specification of building requirements for the said equipment.

Description of Internship B.

Teaching material for electrical safety in hospitals 2013/2014

NIB is developing a computer game called **JUSEGU** to teach the basics of electrical safety in hospitals and dealing with biomedical equipment. The intern is expected to go through safety standards and electrical safety textbooks and articles to be able to produce a list of “risk situations” describing the possible harm derived from the situation (either accident or bad practice). Each situation must be described in such a way as to be the raw material for the game designer. The **JUSEGU** game will materialize the 20 or so risky situations described by the intern student in interactive scenes with rewarding points or penalties (such as the death of the nurse, e.g.).

Memorandum of Understanding and Academic Agreement

To start the internship, a memorandum of understanding must be signed by a Professor of Twente University along with the receiving Institution, referring to the present document, accepting its conditions and naming the student with his/her preferred topic. CV of students must be attached. Both Institutions will work towards a framework Agreement to be signed by the respective Rectors.

Supervision

Supervision is by academic staff of **NIB** under the direct and daily guidance of Prof. Franco Simini. The Internship supervision is based on a diary written by the student and a report due one week prior to final evaluation. Internship students will be awarded a Certificate of Internship.

Living in Montevideo

Living at the home of a local family or similar will be arranged prior to the arrival of each student, and the cost will be paid by the student internship. Accommodation is usually found within walking distance from the University Hospital.

Travel and insurance expenses

Travel and insurance will have to be arranged and paid by the student with either personal funds or scholarships he /she may apply to. For the application to scholarships, the present description may be useful for any direct contact the Financing Body may like to establish with **NIB**.

Support and setting for the internship

Direct support, both material and human, is given by NIB staff. Interns are given a place to work within NIB premises at the 15th floor of the University Hospital with standard elements such as a desk, a computer with internet, local phone calls, working materials. There is a cafeteria at the ground floor of the Hospital and a little supermarket across the street.

Timing of internship

Three months is the recommended time of internship, starting either in August or March. Arrangements must start at least one month ahead, to allow appropriate preparation (as well as cheaper air fares ...). Two weeks of free time will be granted for personal rest or tourism in Uruguay within the three months internship schedule, which can be arranged at any time.

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