

**Project Plan IPRO 309**  
**Education and Technical Support of Prosthetics and**  
**Orthotics Education in Latin America**

Illinois Institute of Technology

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**Instructor**

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## **Objectives**

### *Primary Objective*

The primary objective of this IPRO is to support the development of the first International Society of Prosthetics and Orthotics (ISPO) accredited Category 3 program in Latin America.

### *Secondary Objectives*

The secondary objectives are necessary for accomplishing the primary objective. To ensure that the program will be accredited, many guidelines must be followed; these guidelines have set the secondary objectives as follows:

- Develop several educational modules concerning common diseases and their orthotic treatments
- Develop several low-cost demonstrations and hand-outs to compliment the educational modules
- Carefully follow ISPO requirements to ensure accreditation
- Translate all material to Spanish for use in Latin America
- Develop a three day short course to be presented at a Prosthetics and Orthotics conference at Bogotá, Colombia in May 2007
- Work with educators in Colombia to develop a program similar to IPRO 309

## **Background**

There is a strong need for prosthetics and orthotics in Latin America; there are approximately 2.5 million people in Latin America who need of this type of care. Presently, only one ISPO accredited program exists in Latin America along with two unaccredited programs. Throughout the entire region there are only fifty certified, and 1500, uncertified practitioners. Several organizations have joined in the concern to provide education and care to those in need; these organizations are listed below:

- Universidad de los Andes; Bogotá, Colombia
- La Escuela Colombiana de Rehabilitación; Bogotá, Colombia
- Centro Don Bosco, Bogotá; Colombia
- Laboratorio Gilete, Bogotá; Colombia
- Bioconcepts, Inc.; Burr Ridge, IL
- Dynamic Orthotics and Prosthetics; Houston, TX
- Children's Memorial Hospital; Chicago, IL
- Joliet Junior College Tech Prep Program; Joliet, IL
- Northwestern University Prosthetics and Orthotics Center; Chicago, IL
- Illinois Institute of Technology, Chicago, IL

In October of 2004 Centro Don Bosco (Bogotá), Don Bosco University (El Salvador), and the Laboratorio Gilete (Bogotá) signed an agreement to establish the first O and P education program in Colombia. Since then, Centro Don Bosco has allotted 3500 square feet of space to the program; this along with their faculty and vocational workspace allows for the classroom and manufacturing training required for a Category 3 program. Now that the program has been started there is a need to accredit the program by ISPO standards.

Accrediting the program will allow the students to further their careers. After a student has received a Category 3 certificate from an accredited institution with enough experience the student can also receive a Category 2 certificate. A Category 3 practitioner does not see patients; therefore, by receiving the Category 2 certificate the practitioner will then be able to work directly with the patients and more patients can be helped in a shorter amount of time. This impact can be made sooner with the help of the IPRO by creating educational modules necessary for the program to receive ISPO accreditation.

Most importantly Centro Don Bosco has students who are interested in the program. The first class began in February 2005 with seventeen students. The impact these students have will be irreplaceable; in one year collectively the students will produce over 200 orthotic/prosthetic devices. Over their entire career the first graduating class will affect a total of over 100,000 patients.

Although the accreditation of the program in Colombia is the main effort the IPRO team's work will serve multiple purposes. The educational modules will also be provided to the Joliet Junior College (JJC) who is also establishing an O and P program. Many of the students at JJC speak Spanish which further emphasizes the need to translate all educational materials to Spanish. The equivalent to ISPO in the United States is called the American Board of Certification in Orthotics and Prosthetics (ABC), therefore the ABC standards will also need to be taken into account. In addition to its use at both schools, the IPRO team will have the opportunity to see their research in action. In May an Orthotics and Prosthetics conference will be held in Bogotá; the IPRO students have been invited to give their presentations at this conference. Any student wishing to attend the conference will pay for their trip and will present the modules to students, faculty and other members of the O and P community. This will give a first hand evaluation of the modules and the efforts of the IPRO team.

### **Methodology/Brainstorming/Work Breakdown Structure**

Currently the Category 3 program in Bogotá is not accredited. This poses a problem; because without the accreditation there is no opportunity for career advancement. Having an accredited program ensures that the practitioners know everything they should so they can help as many patients as possible.

To assist in the accreditation process IPRO 309 students will be creating educational modules to be used for the classroom portion of the educational program at Centro Don Bosco. Previous IPRO groups have focused on biomechanics, common O and P devices, and pathologies. This semester the focus has been turned to common medical conditions and the orthotic devices used to treat them. Educational modules will be created regarding Diabetes, Stroke, Cerebral Palsy, Club Foot, and Osteoporosis; and their non-surgical treatments. These educational modules will be in both English and Spanish so they can be directly useful to the faculty and students at Centro Don Bosco. These modules will be reviewed by practitioners in the industry to provide feedback and advice to ensure their usefulness to the program.

Three subgroups have been created to research and compile the educational modules. Each group will be creating computer presentations as well

as pamphlets to effectively convey their research in a way that will be easily incorporated into the lesson plans of teachers at Centro Don Bosco. Each individual group delegated their tasks and created a work breakdown structure that would allow the effective completion of the educational modules.

#### *Diabetes and Club Foot Work Breakdown Structure*

As our responsibility is to present a concise and relevant summary of diabetes research we have delegated our individual responsibilities as such:

- Vinit Prabhu: Mechanical Engineering
  - Causes and traits, manifestations of Diabetes Type I and Type II
- Peter Maksimowicz: Mechanical Engineering
  - Orthotic treatments for the Diabetic foot
- Carolanne Rife: Psychology
  - Orthotic treatments for Diabetic foot
- Michael Morley: Biomedical Engineering
  - Diabetes statistics and slide show English-Spanish Translator.

By organizing our research into these subcategories, we will report upon the very basics of diabetes biochemistry, differentiating between the various types; the causes and manifestations of each; the orthotic treatments for specific pathologies; and diabetic statistics worldwide and specific to Colombia. As individuals we will prepare elementary slide shows of our research; these will then be incorporated into an overall subgroup presentation and an equivalent presentation in Spanish. Then we will submit our product to a professional in the field to receive feedback on our report. After completing the diabetes research we will evaluate an efficient method for researching the orthotic treatment of club foot and will complete a slideshow presentation on the topic

#### *Osteoporosis Work Breakdown Structure*

Our portion of the project is to create an educational module about osteoporosis and its treatments; to accomplish this, the individual tasks have been assigned as follows:

- David Gracia: Mechanical Engineering
  - General background information
- Karen Sedacki: Biomedical Engineering; Specialization in cell and tissue
  - Orthotic correction of spinal fracture
- Allison Bagby: Mechanical Engineering
  - Pelvic and wrist fractures

By dividing the research in such a way, we will be able to effectively create an educational slideshow along with pamphlets that will compliment the slideshow. There will be a focus on spinal trauma once the initial research and slide show has been created.

### *Stroke and Cerebral Palsy Work Breakdown Structure*

Our task is to create effective educational modules regarding Stroke, Cerebral Palsy, and their treatments. We have delegated individual tasks as follows:

- Chris Pellico: Aerospace Engineering
  - Economic costs of Stroke and risk factors
- Elise French: Aerospace Engineering
  - Demographic statistics of Stroke
- Nil Valls: Aerospace Engineering; Physics
  - Background information on Stroke

The research has been divided in this way for the initial educational module regarding basic Stroke information. As research continues further modules will be completed focusing on orthotic treatment of Stroke, basic Cerebral Palsy information, and orthotic treatment of Cerebral Palsy. For each module all group members will be assigned specific information to research, similar to the way the research was divided for the initial module. To go along with each module a pamphlet will be constructed over viewing the researched information.

In addition to research assignments each group member has been assigned an administrative task. The administrative tasks ensure timely deliveries, proper planning and adequate information media. The administrative tasks are as follows:

- Chris: Project Manager
- Elise: Content Project Manager; Colombia Trip Coordinator
- Vinit: Administrative Project Manager; IPRO Day Coordinator
- Nil: Webmaster
- Peter: Webmaster
- Allison: Colombia Trip Coordinator
- Carolanne: IPRO Colombia and IPRO JJC Developer
- Michael: Sponsor Collaborator; Minute Recorder
- Karen: Sponsor Collaborator
- David: ISPO and ABC Expert

### Designation of Roles

*Project Manager:* The project manager oversees all of the operations as well as announces daily meeting agendas.

*Content Project Manager:* The content project manager oversees the production of the educational materials as well as instructs subgroups on what is expected of them for each deliverable.

*Administrative Project Manager:* The administrative project manager ensures all administrative tasks are being taken care of as well as informs team members of deliverable deadlines.

*Colombia Trip Coordinator:* The Colombia trip coordinators will be making arrangements for all students traveling to Colombia at the end of the semester.

*IPRO Day Coordinator:* The IPRO Day coordinator will assign team members booth times and ensure that all IPRO Day requirements are met.

*IPRO Colombia and IPRO JJC Developer:* The IPRO developer will work with faculty at Centro Don Bosco and JJC to begin IPRO programs at their facilities to assist in the accreditation process.

*Sponsor Collaborator:* The sponsor collaborators will maintain contact with sponsors and supporting organizations to provide feedback and possibly provide orthotic devices for demonstration purposes.

*ISPO and ABC Expert:* The ISPO and ABC expert will review all modules and determine if the ISPO and ABC accreditation standards have been met.

*Minute Recorder:* The minute recorder will record all group discussions at the meetings as well as post any deadlines that have been decided upon on iGroups.

To further ensure timely completion of all IPRO deliverables the subgroups will report the information requested by the Content Project Manager approximately one week before the deliverable is due. At this time the Content Project Manager will compile the report and allow the Administrative Project Manager and Project Manager to review the document. Upon completion of the review the document will be promptly uploaded to the iGroups and iKnow websites.

### **Expected Results**

The primary result of the team's efforts will be the production of five educational modules and corresponding pamphlets. The five modules will consist of the researched materials regarding Diabetes, Club Foot, Osteoporosis, Cerebral Palsy, and Stroke; and their orthotic treatment methods. Although these five modules will not completely satisfy the needs of the program in Colombia they are another step towards completion. The work of previous IPRO teams as well as the intended work of future IPRO teams along with this semester's work will eventually allow the classroom portion of the program in Colombia to have sufficient learning materials to become accredited. It is also intended to set up corresponding IPRO programs at Centro Don Bosco and JJC. With these programs in place the projected results will triple by next semester allowing for much faster results regarding the ultimate goal of accreditation.

### **Project Budget**

As it is seen currently there will be no project expenses for this program. The products of the project are solely based on the research labor done by the team members. It is currently expected that any orthotic devices used for demonstrations will be donated by hospitals in the area. Any money not used for the production of the modules will be used towards the trip to Colombia to present the modules at the orthotics and prosthetics conference. The budget is subject to change to account for any unforeseen expenses or the purchase of any orthotics that are unable to be donated.

## Schedule of Tasks

To ensure timely completion of the IPRO deliverables the team has set the following deadlines:

Due Date	Item	Req. Time
Feb. 11	All subgroup project plans uploaded	2 hrs/subgroup
Feb. 15	Project Plan available for review	15 hrs
Feb. 16	Project Plan reviewed and uploaded	2 hrs
Mar. 11	All subgroup midterm report uploaded	2 hrs/subgroup
Mar. 22	Midterm Report available for review	15 hrs
Mar. 23	Midterm Report reviewed and uploaded	2 hrs
Apr. 6	Meeting minutes recorded and uploaded	1hr 15min/meeting
Apr. 15	All project materials due	Ongoing
Apr. 17	IPRO Day presentation completed	15 hrs
Apr. 17	IPRO Poster completed	15 hrs
Apr. 19	Abstract available for review	5 hrs
Apr. 20	Abstract reviewed and uploaded	2 hrs
Apr. 20	All deliverables uploaded	Ongoing
Apr. 25	IPRO Presentation submitted to IPRO office	30 min

On the days subgroup material is to be uploaded each subgroup is to have completed the necessary summaries of their work for each document. The review items are to be made available by Content Project Manager for the Administrative Project Manager and Project Manager to review and edit as necessary so they may be uploaded the next day as indicated in the table above. The IPRO team has decided to complete the poster and presentation early to allow for review by the team and sufficient practice time for the presentation. All other deadlines have been stipulated by the IPRO office and may be completed before the specified date; the specified date is the latest expectable date for completion.

In addition to the above dates each subgroup has set dates for apt completion of the educational modules.

### *Diabetes and Club Foot Schedule*

Due Date	Item	Req. Time
Feb 11	Rough draft of individual diabetes slide shows	3 hrs/ person
Feb 13	Subgroup presentation completed	2.5 hrs
Feb 20	Revised presentation finalized after correspondent feedback	5 hrs
Feb 15-Feb 29	Club foot research	6 hrs/ person
Mar 8	Club foot finalized presentation	2.5 hrs
Mar 8-Apr 15	Pamphlet/presentation work	3 hrs

The subgroup members will each create their portion of the diabetes slide show by February 11<sup>th</sup>; these individual slide shows will be compiled into one slide show about diabetes by February 13<sup>th</sup>. The slide show will be presented to the IPRO team as well as a professional and their feedback will be used to modify the presentation if necessary. The same procedure will be followed when researching Club Foot. After the presentations

have been completed the weeks following March 8<sup>th</sup> will be spent finalizing all presentations, creating the required pamphlets, and translating the module to Spanish; all of this work will be completed by April 15<sup>th</sup> in accordance with the overall schedule.

*Osteoporosis Schedule*

<b>Due Date</b>	<b>Item</b>	<b>Req. Time</b>
February 13	Individual Research Updates, Initial Presentation	4 hrs/ person
February 27	Continuation of Research, Update Presentation	3 hrs/ person
March 8	Spinal Trauma Addendum	5 hrs
March 27	Finalize Project Presentation, Create Brochures	6 hrs
April 15	Finalize Project Presentation, Finalize Deliverables, Submit information for Project Poster	2 hrs

The initial presentation will be completed by February 13<sup>th</sup>; by February 27<sup>th</sup> the presentation will be updated with any new information and changes will be made regarding feedback from the team. On March 8<sup>th</sup> a spinal trauma addendum will be added to the presentation. By March 27<sup>th</sup> the project presentation will be finalized and all brochures will be created. In agreement with the overall schedule all materials will be finalized, translated to Spanish, and uploaded to iGroups for the use of the team.

*Stroke and Cerebral Palsy Schedule*

<b>Due Date</b>	<b>Item</b>	<b>Req. Time</b>
Feb 12	All individual slide show material submitted	5 hrs/ person
Feb 13	Background of stroke slide show completed	6 hrs
Feb 26	All individual slide show material submitted	5 hrs/ person
Feb 27	Orthotic treatment of stroke slide show completed	6 hrs
Mar 7	All individual slide show material submitted	5 hrs/ person
Mar 8	Background of cerebral palsy slide show completed	6 hrs
Mar 26	All individual slide show material submitted	5 hrs/ person
Mar 27	Orthotic treatment of CP slide show completed	6 hrs
Apr 15	All material available in Spanish	15 hrs
Apr 15	All presentations revised as needed	20 hrs

On the dates individual slide show material is due each team member will submit their slides to the designated team member to compile the slide show into on final show. On the day the final slide shows are completed corresponding brochures will also be completed. From March 27<sup>th</sup> to April 15<sup>th</sup> all material will be translated to Spanish and each slide show will be reviewed and changes will be made is necessary.

Each subgroup realizes it must meet its deadlines as well as the group deadlines. It is understood that as materials are completed they must be uploaded to iGroups for use by the webmasters to ensure the website is completed by April 20th, the day all deliverables are to be submitted. Including a twenty hour allowance it is expected that three hundred and sixty hours are needed to complete the project.