Project Plan IPRO 309
Education and Technical Support of Prosthetics and Orthotics Education in Latin America
Illinois Institute of Technology
Chicago, IL
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Instructor
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Team Members
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Peter Maksimowicz
Michael Morley
Christopher Pellico
Vinit Prabhu
Carolanne Rife
Karen Sedacki
Nil Valls
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 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 complement 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:

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

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**

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

The subgroup members will each create their portion of the diabetes slide show by February 11th; these individual slide shows will be compiled into one slide show about diabetes by February 13th. 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 8th 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 15th in accordance with the overall schedule.

Osteoporosis Schedule

<table>
<thead>
<tr>
<th>Due Date</th>
<th>Item</th>
<th>Req. Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 13</td>
<td>Individual Research Updates, Initial Presentation</td>
<td>4 hrs/ person</td>
</tr>
<tr>
<td>February 27</td>
<td>Continuation of Research, Update Presentation</td>
<td>3 hrs/ person</td>
</tr>
<tr>
<td>March 8</td>
<td>Spinal Trauma Addendum</td>
<td>5 hrs</td>
</tr>
<tr>
<td>March 27</td>
<td>Finalize Project Presentation, Create Brochures</td>
<td>6 hrs</td>
</tr>
<tr>
<td>April 15</td>
<td>Finalize Project Presentation, Finalize Deliverables,</td>
<td>2 hrs</td>
</tr>
</tbody>
</table>

The initial presentation will be completed by February 13th; by February 27th the
presentation will be updated with any new information and changes will be made
regarding feedback from the team. On March 8th a spinal trauma addendum will be added
to the presentation. By March 27th 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

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

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 27th to April 15th 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.