FY 2007 Technology Fee Proposal

Submitting Organization: Georgia State University
   Major Unit: College of Health and Human Sciences
   Department: Physical Therapy

Contact Person: Anthony Roberts / Leslie Taylor
   E-Mail: aroberts@gsu.edu / ltaylor@gsu.edu
   Telephone: 404-651-1580 / 404-651-3075

1. Project Short Title

   5-8 Word Project Title
   Physical Therapy Enhanced Student Learning Labs

2. Total Requested

   Fiscal Year 2007
   $43,758

3. Executive Summary

   Project Description (three or four sentences)
   The enhanced learning laboratories will provide the physical therapy student a
   virtual clinical-learning experience. Each of the five laboratories will integrate
   commonly-used clinical equipment with a computer-based data acquisition
   and control system such that the student receives instantaneous and
   quantitative visual feedback as to the effect of clinical equipment on the
   patient. The intent is for the student to better understand: 1) how clinical
   equipment and their settings affect the patient and 2) for a given patient, which
   combination of settings is most appropriate.

4. Project Description

   This proposal is for the purchase of equipment to establish five enhanced learning
   laboratories to improve the clinical education of both the Doctor and Masters of
   Physical Therapy students at GSU. Currently, physical therapy students receive
   instruction (72 lab credit hours) on the use of numerous pieces of clinical equipment
   that they encounter in the PT clinic both before and after graduation. When using
   this equipment, the effect on the patient is usually not directly observable or
   quantifiable. This is because the equipment’s effect is deep within the body and/or
   because the equipment deposits invisible electromagnetic or thermal energy in the
   body. The objective of the enhanced learning labs is to provide the student with
instantaneous and quantitative visual feedback as to the effect of the clinical equipment on the patient. This will be done by integrating the clinical equipment with technologically-sophisticated equipment normally found only in a research laboratory. This integration is made possible by the use of a computer-based data acquisition and control system. Such a system is capable of controlling the clinical equipment while at the same time receiving sensor input from on or within the patient’s body (e.g., muscle electrical activity and force production, tissue temperature, body and joint movement in a two-dimensional space). Use of the computer-based data acquisition and control system also allows the use of less sophisticated clinical equipment at a cost savings to the department. This is because the data acquisition and control system can substitute, performing many functions that are normally performed only by top-of-the-line clinical equipment. The intent of this proposal is to establish the enhanced learning labs in room 712 of Kell Hall, the principal clinical laboratory for the Department of Physical Therapy. Establishing five enhanced learning labs will result in 5-7 students working at a given lab.

5. Record the review numbers assigned by IS&T and Facilities. Their assessments must be included in Sections 16 and 17.

<table>
<thead>
<tr>
<th>IS&amp;T: IST07-086</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilities: 14375-06</td>
</tr>
</tbody>
</table>

6. Relevance to Regents Guidelines

This request is made under Regents guidelines 1, 3, and 4.

• #1: Technology fee revenues should be used primarily for the direct benefit of students to assist them in meeting the educational objectives of their academic programs.
• #3: Technology fee revenues should be used for hardware and Network related expenditures that include support of general purpose or special purpose laboratories used by students for body productivity and more discipline related activities.
• #4: Technology fee revenues may be used for training of students and, to a lesser extent, staff and faculty.

7. Relevance to Strategic Plan(s)

The proposed project addresses the University’s strategic plan by:

• Providing students a learning-centered academic environment that emphasizes lifelong learning.
• It addresses the University’s goal of developing information technology skills.
• Provides easy access to computerized electronic resources in a variety of clinical setting.
• It will provide the students the opportunity to utilize technological tools to
engage in problem-based learning and improve the quality of the educational experience.

- It will emphasize the use of data to improve processes and outcomes.

The College of Health and Human Sciences’ strategic plan is incorporated by:

- Fostering use innovative technologies in teaching.
- Provide students with courses that assure their competence and leadership in core areas.

8. Impact on Students Served

Physical therapy clinical laboratory courses comprise 72 credits of a 137 credit-hour Doctor of Physical Therapy degree. Students utilize the department’s clinical equipment between 24 and 40 hours per week. The technology in this proposal will enhance instruction on the department’s clinical equipment and will serve 120 physical therapy graduate students each academic year. It will be utilized in all three years of the program’s curriculum for instruction, student assignments, and student research. The enhanced learning labs will serve the faculty by providing a tool to better train the students on the use of clinical equipment that they will encounter during their clinical internships. The enhanced learning labs will be accessible to the students 24 hours a day, 7 days a week.
9. Justification of Funding Requirements for Fiscal Year 2007

With two exceptions, the items listed below are those needed to establish five identical enhanced learning labs. Only two motion analysis hardware and software systems and two muscle electrical activity analysis systems are budgeted for. These two systems will be shared amongst the five labs.

<table>
<thead>
<tr>
<th>Object of Expense</th>
<th>Itemized Descriptions</th>
<th>Quantity</th>
<th>Per unit price</th>
<th>Extended Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supplies</strong></td>
<td>Windows/Intel processor workstation, including monitor</td>
<td>5</td>
<td>$1,222.00</td>
<td>$37,367.45</td>
</tr>
<tr>
<td></td>
<td>Keithley Instruments Model KUSB-3108 High Gain Multifunction Data Acquisition USB Module</td>
<td>5</td>
<td>$1,045.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chattanooga Group Intelect Legend XT Stim 2 Channel Combination Ultrasound - Electrical Stimulation Unit</td>
<td>5</td>
<td>$2,875.50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Basler A602fc Motion Analysis Camera w/ firewire card &amp; acquisition software (body movement analysis)</td>
<td>2</td>
<td>$1,885.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Transducer Techniques Model SBO-300-T Precision Load/Force Cell (muscle force production)</td>
<td>5</td>
<td>$325.00</td>
<td>$1,625.00</td>
</tr>
<tr>
<td></td>
<td>Transducer Techniques Model TMO-2 Load Cell Signal Conditioner (muscle force production)</td>
<td>5</td>
<td>$245.00</td>
<td>$1,225.00</td>
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<tr>
<td></td>
<td>Nautilus NT-1220 Rotary Leg machine (muscle force production)</td>
<td>5</td>
<td>$409.00</td>
<td>$2,045.00</td>
</tr>
<tr>
<td></td>
<td>Cole-Parmer Thermocouple Temperature Probe (tissue temperature analysis)</td>
<td>5</td>
<td>$58.00</td>
<td>$290.00</td>
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<tr>
<td></td>
<td>Grass Telefactor General Purpose AC Preamplifier Electromyographic (muscle electrical activity analysis)</td>
<td>2</td>
<td>$1,025.00</td>
<td>$2,050.00</td>
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<tr>
<td></td>
<td>Office Depot Astute Computer Desk, 36&quot;H x 48&quot;W x 25 1/2&quot;D</td>
<td>5</td>
<td>$89.99</td>
<td>$449.95</td>
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<tr>
<td></td>
<td>Misc. Cabling</td>
<td>1</td>
<td>$200.00</td>
<td>$200.00</td>
</tr>
<tr>
<td><strong>Software</strong></td>
<td>Innovision Systems MaxTRAQ Video Based Motion Tracking Software</td>
<td>2</td>
<td>$695.00</td>
<td>$1,390.00</td>
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<tr>
<td><strong>Other Expenses</strong></td>
<td>Additional electrical &amp; HVAC needs as per CBSAC and Planning &amp; Facilities review # 14375-06</td>
<td>1</td>
<td>$5,000.00</td>
<td>$5,000.00</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td>$43,757.45</td>
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10. Consequences of Partial Funding

**Only 75% funded:** The project would remain viable but we would reduce the number of enhanced learning labs from 5 to 4 and we would eliminate both of the motion analysis systems.

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<tr>
<td>Supplies</td>
<td>Windows/Intel processor workstation, including monitor</td>
<td>4</td>
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<td></td>
<td>Keithley Instruments Model KUSB-3108 High Gain Multifunction Data Acquisition USB Module</td>
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<td><strong>TOTAL</strong></td>
<td></td>
<td></td>
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<td>$32,327.96</td>
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**Only 50% funded:** The project would not be viable.

11. Standard Dollar Amounts

Standard dollar amounts have been used in the proposed budgets.

12. Standard Replacement Thresholds

N/A, no computers are being replaced.

13. Prerequisite, Non-Technology Fee Funding
14. Matching Funds

No matching funds.

15. Staffing and Other Support Availability

No change in staff is necessary.

16. Space Availability and Impact on Facilities

CBSAC and Planning & Facilities Review # 14375-06: This project will require adding additional electrical power and potential redistribution of HVAC in a room that currently doesn’t house computers. The total project cost is $5,000.00.


IS&T Review # IST07-086:

Information Security Review (Tammy Clark):
Impact: No
Assessment:

Wireless and Network Ports Review (Mark Roberson):
Impact: No
Assessment:

Server Connections (Charles Hollingsworth, Tammy Clark, Keith Campbell):
Impact: Yes/No (No-CH) (No-TC) (No-KC)
Assessment:

External Connections (Charles Hollingsworth):
Impact: Yes/No (No-CH)
Assessment:

DVR Installations (Mark Roberson, Tammy Clark, Charles Hollingsworth):
Impact: Yes/No (No-CH) (No-TC) (No-MR)
Assessment:

Lab and Classroom Configurations (Joe Amador):
Impact: Yes/No (NO – JA)
Assessment:

18. Physical Security Needs

N/A
19. Post-Project Assessment Criteria

During the Fall 2006 semester, 120 physical therapy students will be trained utilizing the enhanced learning labs in six PT clinical management courses. Students will be asked to evaluate learning effectiveness and their satisfaction with the new equipment at the end of these courses. We will have a survey distributed to all students assessing their opinions of the effectiveness of the enhanced learning labs and their satisfaction with the learning environment. Additionally, we will hold focus groups with the class officers (N=12) and faculty for in-depth feedback.

20. Review and Acknowledgements

This project has been reviewed and approved by:

Dr. Susan Kelley, Dean, College of Health and Human Sciences
Mr. Anthony Roberts, Business Manager, College of Health and Human Sciences
Dr. Lynda Thomas-Goodfellow, Chair, School of Health Professions
Dr. Leslie Taylor, Director, Division of Physical Therapy