NDSU Technology Action Plan Request

I. Action Plan Introduction and Authorizations

**NDSU ORGANIZATION OR UNIT**
Health, Nutrition and Exercise Sciences (HNES)
College of Human Development and Education

**TITLE OF PROJECT**
Voice amplification system for foods lab.

<table>
<thead>
<tr>
<th>Project Duration (3 years maximum)</th>
<th>From: Fall, 2011</th>
<th>To: Spring, 2014 or longer</th>
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<tr>
<th>Type of Project (Check one)</th>
<th>New</th>
<th>Previously Submitted</th>
<th>Renewal</th>
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</thead>
</table>

Total Technology Fee Request $2825.00

**Project Director**
(Must be NDSU faculty or staff)
Sherri N. Stastny, PhD, RD, CSSD, LRD
Assistant Professor, HNES

Project Address:
351 EML, Dept 2620
Phone: 701 231 7479
Fax: 701 231 7174
E-mail: Sherri.Stastny@ndsu.edu

<table>
<thead>
<tr>
<th>Name (Type or Print)</th>
<th>Signature</th>
<th>Date</th>
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<tbody>
<tr>
<td><strong>Project Director</strong></td>
<td>Dr. Sherri Stastny</td>
<td>2/24/11</td>
</tr>
<tr>
<td><strong>Unit Head</strong></td>
<td>Dr. Greg Gass</td>
<td>2/24/2011</td>
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<tr>
<td><strong>IT Division Consultant</strong></td>
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<tr>
<td><strong>Melissa Stotz</strong></td>
<td>Classroom Technology Manager</td>
<td>2/25/11</td>
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**Executive Summary (maximum of 175 words)**

Our goal is to have a ceiling mounted, surround sound speaker system with a pendant, hands free, microphone, for the instructor to improve quality of instruction and learning, and to improve overall communication. The system includes a handheld microphone for student use as well.

Other top-ranked culinary schools, such as the Culinary Institute of Charleston and food labs at Purdue are equipped with ceiling mounted surround sound speaker systems for instructors. Canadian K-12 schools require these same systems, and Minot (ND) Public Schools have installed many of the same systems in ALL of their classrooms.
II. Project Overview

1. How does this project meet student needs?

Currently, the classroom is fitted with equipment from the 1970's such as a chalkboard with an eraser and a drop-down mirror hanging from the ceiling. We need to increase technology to improve a student's ability to hear and see the experiment or technique that is intended for learning of all students in the learning environment. We propose to start with the problem of inadequate sound. The shape and layout of the room is not conducive to learning for at least 24 students at any given time. Students need to be able to sit to do book work and also need to be able to move about the food lab stations throughout the room. The room is crowded. Currently, all students must STOP what they are doing in order to hear the instructor, yet, often times there are five to six experiments occurring concurrently. It is not conducive to learning to stop certain experiments while they are in progress. Students must work autonomously after receiving initial instruction. Part of the learning experience is to plan one's day based on when the experiment (e.g. a meal) must be completed. If learners have control of their learning and interactions, and learner reflections are prompted, learning is enhanced (Means, et al., 2009). An improved sound system would essentially allow these interruptions to stop.

2. What audience does this project directly serve? What audience is indirectly served? How many students are affected?

The primary function of the teaching foods lab is to demonstrate various techniques for students who will pursue careers in nutrition, food science, culinary management, family consumer science and dietetics management. We also use the same lab to teach various classes for student and consumer groups. Each semester, there are at least 50 students that use the food labs, for instruction and learning. The lab is also fully utilized in the summer, during summer session one.

3. For projects that target a subset of NDSU's students, please describe the possibility for broader application in the future.

Objectives of the increased technology will be to increase student achievement and student safety through increased student attention, to increase equity among all students, including international students and those with impaired hearing (improved access to learning for all students), decrease teacher fatigue from having to project voice over noisy equipment, suppress typical microphone feedback (the squeal), increase classroom management through improved ability to hear all instructions and increase overall perceived level of classroom technology. Teacher fatigue is common, and student lack of attention is common. Improved amplification could help to alleviate both problems in many different classrooms on campus.

4. Describe both the immediate and long term impact of this project.

For all curriculum led in the food lab, students must know and use math. According to the National Council of Teachers of Mathematics, technology is essential to teach and learn math and the Council emphasize the importance of learning with technology rather than teaching about technology (in Li, 2003). Students learn better when technology is state-of-the-art. Our students pay for technology, so should be offered the best system available. The curriculum in this room requires professionally designed voice amplification.
5. Who will pay for ongoing expenses following the technology fee funded portion of this project (e.g., who will replace hardware or software after it has reached its end of life)?

There are three different departments that require students to use the foods labs. The two primary instructors would be in charge of maintaining needed upgrades for the equipment, and will be coordinated by Stastny (HNES).

6. Describe how this project will follow NDSU's best practices in information technology. (Please make sure the NDSU IT Division staff you consulted signs in Part I of this form.)

NDSU ITS equipped the foods lab (formerly in West Dining Center and presently in FLC310 and 312) with a microphone and smart cart, but sound feedback (squeal) is a problem, because the instructor needs to move about the room. Staying behind the speaker will prevent the squeal, but doesn’t allow proper instruction. The department purchased a Chatterbox body-carried speaker/microphone for $220.00 but the speaker cannot be heard on the opposite side of the room, nor over noisy equipment. ITS has not likely faced such a request on campus—our curriculum is unique. However, the curriculum has been led for decades, and will be around a few more years (we anticipate that quantity and quality food production skills will be needed as long as people need to eat).

7. What service on campus is most similar to the one proposed here? How does this project differ?

The system would be similar to those used in larger classrooms, such as Stevens and Century theatre, but unique because although our classroom is smaller, there is increased background noise due to the nature of the curriculum carried out in the room.

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III. Project Description

The technology need that voice amplification addresses is the student and instructor ability to hear: clearly, and without having to ask for a repeat of communication. A simple "one speaker" system has not worked. The surround system places speakers strategically throughout the room, so that students can hear from the far corners, over noisy equipment (coolers, slicers, dishmachine, etc.). Students will have a more satisfying learning experience, knowing they heard 100% of the instruction, instead of bits and pieces. Approximately 50 students use the room both in the fall and spring; the summer term brings about 25 students into the foods lab. Classes taught in the foods lab include HNES 261, HNES261L, HNES361, HNES361L, HNES460L, ADHM402 and ADHM404.

We propose that a professional installation would be completed by an outside company, because this system is uncommon at NDSU. However, there are several local companies (e.g. Pacific Sound) that are interested in the bid. Once installed, the system would be self-contained, and run by the instructor using the room. Several faculty teach in the foods lab, and require surround sound.

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IV. Milestones

List the date for each project milestone. These milestones should represent the significant accomplishments that will be associated with the action plan. For each milestone, please indicate its
expected outcome and the means for assessing that outcome. (The table may be extended as needed.)

<table>
<thead>
<tr>
<th>Date</th>
<th>Milestone</th>
<th>Expected Outcomes</th>
<th>Means of Assessment</th>
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<tbody>
<tr>
<td>1. Summer, 2011</td>
<td>Put project out to bid</td>
<td>Local bidder will be hired to complete work</td>
<td>Lowest bid, meeting standards required</td>
</tr>
<tr>
<td>2. Summer, 2012</td>
<td>Test system</td>
<td>System will improve amplification</td>
<td>Teach two classes—one with and one without system, same curriculum, and do pre-post-assessment of knowledge and learning</td>
</tr>
<tr>
<td>3. Fall, 2012</td>
<td>Use system consistently, and ongoing. Company guarantees for 5 years.</td>
<td>Other instructors will improve teaching and learning with amplification, if teaching in this classroom.</td>
<td>Pre- and post-assessment</td>
</tr>
<tr>
<td>4. Fall, 2013</td>
<td>Invite other instructors on campus to experience and try system.</td>
<td>Other instructors will improve teaching and learning with amplification, if teaching in this classroom.</td>
<td>Pre- and post-assessment</td>
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<td>5.</td>
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VI. Budget

| Edit the dollar amounts in the “clear fields.” (click in area so that it appears “gray,” then edit) The “darkly shaded fields” can perform arithmetic. Simple use Ctrl A to “Select All” and then press function key 9, F9. |
# NDSU Organization or Unit
Health, Nutrition, and Exercise Sciences

## Project Director(s)
(Must be NDSU faculty or staff)
Sherri N. Stastny, Assistant Professor, HNES

<table>
<thead>
<tr>
<th>A. Salaries and Wages (Number)</th>
<th>Number of Months</th>
<th>FUNDS REQUESTED</th>
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<tbody>
<tr>
<td>1. Staff (0)</td>
<td></td>
<td>$0.00</td>
</tr>
<tr>
<td>2. Graduate Students (0)</td>
<td></td>
<td>$0.00</td>
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<tr>
<td>3. Undergraduate Students (0)</td>
<td></td>
<td>$0.00</td>
</tr>
</tbody>
</table>

**B. Total Salary and Wages (Sum A.1., A.2., and A.3.):** $0.00

**C. Fringe Benefits:** $0.00

**D. Total Salaries (Sum B and C):** $0.00

**E. Equipment (List each item; include installation and maintenance costs in your estimates):**

All from gofrontrow.com:

1. Receiver/amplifier, 1 each $750.00
2. Transmitter/microphone, 1 each $850.00
3. Pass around microphone/charger, 1 each $450.00
4. Distributed ceiling speaker(s), 4-6, depending upon final consultation $375 to $475.00
5. Local installation (hire out installation but use local vendor, e.g. Pacific Sound, to avoid paying travel expense) $300.00

**Total Equipment Cost:** $2825.00

**G. Materials and Supplies (List each item):**

1. Wiring included in installation (see above)
2. 
3. 
4. 
5. 

**H. Total Materials and Supplies (Sum items in G):** $2825.00

**I. Total Salaries; Equipment; Materials and Supplies (Sum: Line D + Line F + Line H):** $2825.00

**J. Total Technology Fee Request:** $2825.00

**K. Match (Describe in Match Section):** $0.00

**L. Total Project Expenditure (Sum: Line J + Line K):** $2825.00
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VII. Budget Justification

The system must minimally contain at least one amplifier, lanyard microphone, handheld microphone and installation. The vendor cannot finalize bid until on-campus visit is completed, but estimate that 4 to 6 speakers would be needed for the trapezoid-shaped room.

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VIII. Budget Match

The department has already invested in the Chattervox amplification system, as a back-up system. However, this system is ineffective because it only has one speaker and cannot be heard in the corners of the room, over the noise of equipment.

The department requests a professional installation of voice amplification for foods lab.