## MSU INVESTMENT PROPOSAL FOR INSTITUTIONAL PRIORITIES

### PROPOSAL OVERVIEW

| | | | |
|---|---|---|---|
| **Title** | Enhancing Instructional Technology Education | **Request Date** | December 16, 2011 |
| **Department** | Education | **Email** | sedavis@montana.edu; nicholas.lux@montana.edu |
| **Requestor** | Drs. Scott Davis and Nick Lux | **Phone** | 5775 & 6581 |

### STRATEGIC ALIGNMENT

**Core Themes and Objectives (check all that apply)**

**Educate Students**

☒ Our graduates will have achieved mastery in their major disciplines

☐ Our graduates will become active citizens and leaders

☐ Our graduates will have a multicultural and global perspective

☒ Our graduates will understand the ways that knowledge & art are created and applied in a variety of disciplines

☒ Our graduates are prepared for careers in their field

☒ We will provide increased access to our educational programs

☒ Communities and external stake holders benefit from broadly defined education partnerships with MSU

**Create Knowledge and Art**

☐ Students, faculty, and staff will create knowledge and art that is communicated widely

**Serve Communities**

☐ We help meet a fundamental need of the citizens of Montana by providing degree programs for our students

☒ We help meet the educational needs of the citizens of Montana by providing a wide range of educational opportunities to a variety of students

☒ Our students, faculty, staff, and administrators reach out to engage and serve communities

☐ Our students, faculty, staff, and administrator reach in to build the university community

**Integrate Learning, Discovery, and Engagement**

☒ Each graduate will have had experiences that integrate learning, discovery and engagement

☒ Outreach activities will educate students and address the needs of the communities we serve

☐ Students, faculty, and staff will create knowledge and art that addresses societal needs

☐ MSU is a community that will be characterized by synergy within and across disciplines, roles and functions.

**Stewardship**

☐ The public trusts the institution to operate openly and use resources wisely

☐ The faculty and staff are well-qualified and supported

☐ MSU will support Native American students, programs, and communities

☐ MSU will be an inclusive community, supporting and encouraging diversity

☒ Our publicly provided resources are used efficiently and effectively

☐ Natural resources are used efficiently and sustainably

☐ MSU nurtures a culture of resource conservation and ecological literacy among students, faculty and staff

☒ Our physical infrastructure (e.g., building, equipment, open spaces) will be well-maintained and useful

| INSITUTIONAL BENEFIT | | | | | | | |
|---|---|---|---|---|---|---|---|
| Campuses | ☒ Bozeman ☐ Billings ☐ Havre ☐ Great Falls ☐ FSTS ☐ Extension ☐ MAES | | | | | | |
| Cross Depts | Please List: | | | | | | |

| TIMEFRAME | | |
|---|---|---|
| Proposed Dates | Start: Summer 2012 | End: Summer 2013 |

**COST AND REQUIREMENTS**

| Funding Type | One-Time ($) | Multi-Year ($) | | | Base ($) | FTE |
|---|---|---|---|---|---|---|
| | | Year 1 | Year 2 | Year 3 | | |
| Personnel (*w/benefits*) | | | | | | |
| Materials & Supplies | | | | | | |
| Travel | | | | | | |
| Contracted Services | $ 16,000.00 | | | | | |
| Capital | $ 97,489.00 | | | | | |
| Other Operations | | | | | | |
| TOTAL | $113,489.00 | | | | | |

Please comment, if necessary, regarding cost and requirements.

| Contracted Services Detail | | | | |
|---|---|---|---|---|
| ITC Labor | | | $ 5,000.00 | |
| Facilities Labor | | | $11,000.00 | |

| Capital Expenses Detail | QTY | Individual Item Cost | Subtotal |
|---|---|---|---|
| Student Collaborative Desks | 50 | $ 225.00 | $11,250.00 |
| Compact Cherry Workstation with Silver Steel Frame | 14 | $ 140.00 | $ 1,960.00 |
| Advantage Navy Church Chair-20.5 | 45 | $ 32.95 | $ 1,483.00 |
| Boss Executive Computer Desk Chairs | 14 | $ 79.00 | $ 1,106.00 |
| Interactive Whiteboard System | 2 | $ 4,600.00 | $ 9,200.00 |
| Spectra 4' X 6' framed Magnetic Dry Erase Board | 1 | $ 299.00 | $ 299.00 |
| Thermal Inkjet Large format color printer | 1 | $ 814.00 | $ 814.00 |
| Alesis USB-MIC Podcasting Kit | 1 | $ 99.00 | $ 99.00 |
| Dell XPS 15 laptops | 10 | $ 1,814.00 | $18,140.00 |
| Guest Chair w/swivel palette | 4 | $ 579.00 | $ 2,316.00 |
| Mira Cherry Reception table | 1 | $ 399.00 | $ 399.00 |
| Vizio 55" LCD | 1 | $ 1,050.00 | $ 1,050.00 |
| Macbook Air 13" 128 GB | 25 | $ 1,249.00 | $31,225.00 |
| Applecare | 25 | $ 183.00 | $ 4,575.00 |
| MSOffice 2011 | 25 | $ 55.00 | $ 1,375.00 |
| Bretford PowerSync Cart of Mac | 1 | $ 1,799.00 | $ 1,799.00 |
| Bretford Digital Learning Cart | 1 | $ 699.00 | $ 699.00 |
| HP 1525 Color Printer | 1 | $ 300.00 | $ 300.00 |
| 50' VGA Cables | 4 | $ 100.00 | $ 400.00 |
| Carpeting 1300 sq ft | | $ 5,000.00 | $ 5,000.00 |
| Painting | | $ 4,000.00 | $ 4,000.00 |

It is the aim of the Department of Education to create educational spaces that increase student learning by providing state-of-the-art collaborative learning environments. This purpose of this proposal is to invest resources in the remodel of Reid 425 and 422 in order to address the instructional needs of the technology programs delivered in these classrooms. The Technology Education program and the Instructional Technology program utilize these rooms to provide technology-related learning experiences for elementary and secondary teacher education candidates as well as the non-teaching majors in Technology Education. The space is also used for academic and professional support purposes such as advising, professional development training for staff and in-service training for teachers.

It is critical for us to keep our learning spaces current and aligned with research-based best practice models. Much of the current curricula involving technology and learning have shifted to emphasize what educators are calling 21st century skills, and include competencies like critical thinking, collaboration, and creativity.

The physical space in Reid 425 is currently inflexible in its design as an instructional space. There are 19 IMacs set on tables that form long continuous rows. The tables are interconnected and due to the electrical drops in the room, furniture cannot be rearranged to provide a more collaborative and student-centered learning environment. Due to these electrical drops, there is visual barrier established for approximately one-third of the room. In terms of capacity, the current design limits course enrollment due to the roughly 20 usable workstations that result from these limitations. A more flexible environment, in which fixed workstations are located on the classroom perimeter, with movable and adaptable laptop stations located in the central part of the classroom, would increase class capacity to upwards of 35 students.

Reid 422 is an L-shaped room with one portion designed as a traditional classroom and the other portion setup with computers used for specialized software programs used in Technology Education. Similar to Reid 425, the large tables and other furniture in the classroom do not allow instructors to use the space for differentiated instructional strategies.

Learning spaces often reflect the people and learning approaches of the times. The designs of Reid 422 and 425 represent pedagogical approaches more aligned with the teaching and learning beliefs of the latter half of the 20th century than current 21st models of teaching and learning (Obligner, 2006). The outdated design elements present in these classrooms include little flexibility in the way the learning space can be configured, long rows of computer desks, and little space for technology-based collaborative group work. These room layouts prevent student-centered active, participatory learning. A primary focus of the Reid 422 and 425 re-design is to conceptualize the learning space to instead align with 21st century skills, and promote student-centered learning that facilitates experiential, social, collaborative learning.

During fall semester 2011, 16 students in the TE 230 2D Computer-aided drafting class were charged with redesigning both rooms in order to provide for a more flexible learning environment. Students were paired in groups of two to investigate and design collaborative learning environments. Students presented their room design proposals to the Education Department Head, Dr. Jayne Downey as well as professors Dr. Nick Lux and Dr. Scott Davis. In all of the presentations, students recognized the need for furniture which could easily be reconfigured as well as updating of the technology used in both rooms. The intent of this proposal is to address the needs identified by the students, new classroom furniture as well as an updating of the technology (computer and infrastructure).

Tom Morrison and Bob Underkoffer, representatives from ITC reviewed the wireless infrastructure and have agreed to commit resources to improve the wireless infrastructure.

In order to meet the State standards for accreditation, every Elementary, K-12 and Secondary teacher education candidate (@1000 majors) is required to take an Instructional Technology course in the Department of Education. It is central to our mission to provide a learning space that supports the goals of preparing teachers to be instructional leaders who embrace technology and pedagogical innovation rooted in best practice. The importance of providing an instructional technology educational experience that includes the use of the latest instructional technology equipment cannot be overstated. Perhaps the importance was best stated by a recent teacher candidate who sent Cyndi Meldahl (Education Advising Center Director) the following email;

"Cindy, here is a quick note about the technology session I went to at the MEA conference in October. It was put on by the Billings Technology Cadre. When I mentioned that I was in a technology class at MSU Bozeman, it got the attention of the leader of the session and the other teachers in the room. They said they were proud of MSU Bozeman for making a technology class a requirement in the teaching program and they wished that was happening state wide. Some of the teachers in the room, who were from Billings, Butte, and Great Falls, said that they had student teachers coming into their classrooms who did not even know what a Smartboard was or how to use it. They also said that the student teachers were at a disadvantage because the teachers had to spend so much time catching them up on the technology of their classrooms, that it cut into the time they should have been focusing on other things. So anyway, just a quick note that teachers are noticing that MSU Bozeman is preparing their future teachers technologically for the classroom." (Email forwarded from Cyndi Meldahl, 11/15/2011)

The Technology Education paradigm provides courses for the preparation of Technology Education teacher education candidates. There is also a non-teaching option in Technology Education called Industrial Technology. Similar to the need of elementary education majors, Technology Education majors need instructional technology training as well as specific career related experiences in the use of technology appropriate to the career field they are going to enter. Computer-aided drafting, computer-aided machining, the use of technology in collaborative problem-solving in manufacturing are some of the unique characteristics and requirements in courses related to Technology Education. The redesign of Reid 422, which includes increasing wireless speed and access numbers as well as upgrading the existing technology infrastructure would help these students better implement and use technology not only in preparing them to teach but also for other careers outside of education.

Not only will these rooms serve preservice teachers taking educational technology courses and those in the Technology Education program, but the newly designed instructional spaces will also provide collaborative learning opportunities for all Department of Education students and faculty. In addition to the 1000 undergraduate majors that these rooms serve, the redesigned learning spaces would also function as a resource room to provide professional development opportunities for graduate students and faculty. In order to help undergraduates become effective 21st century educators, faculty and doctoral students must be skilled in the use and integration of the tools that support those skills. As a result, these rooms could serve as a training hub to provide the support and guidance for graduate students and faculty learning how to use digital learning tools and online teaching technologies.

Lastly, there are a number of programs and groups within the MSU system and beyond that also make use of the spaces and would benefit enormously from a modernized learning environment. The Department of Education has a strong relationship with the Montana Region IV Educational Service Agency (RESA4U), as well as local school districts like Bozeman and Belgrade. This year we launched the After School Partnership with the Bozeman district and in the coming year we plan to provide a web-based version of this program to rural and reservation communities across the state. The remodel of these instructional spaces would enhance the effective delivery of this program to children and teens across Montana. Also, a number of professional development programs and courses are offered for these groups in these instructional spaces to provide training for Montana teachers.

## ADDITIONAL INFORMATION

### Implementation Plan *(Please describe with timelines)*

Depending on the availability of funding and the schedule of room usage during fall semester and spring semester, most of the work would have to be scheduled during the summer months, beginning 2012 and ending in 2013. In Room 425, counters and cabinets would have to be removed as well as the current wiring raceways in the center of the room. Tables would have to unbolted and removed as well as the chairs. New installations would include: electrical raceway for housing wiring and network connections along the walls; new lighting controls; flat panel displays as well as devices and wiring to control the displays; new chairs and desks.

The redesign for Reid 422 would include the removal of all furniture, installation of new carpeting, electrical wiring for new outlets and data ports. An additional flat screen display would also need to be installed. New desks and chairs would also have to be setup.

### Assessment Plan *(Please describe with indicators)*

**Core Theme 1: Educate Students**

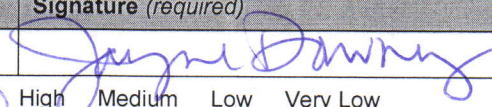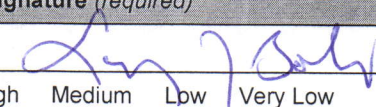| Objectives | Indicators | Assessment |
|---|---|---|
| Our graduates will have achieved mastery in their major disciplines. | 1. Proportion of students completing degree requirements. | Data collected from Banner. |
| | 2. Performance on standardized professional exams. | PRAXIS scores collected in the Teacher Education Program Assessment System (PAS). |
| Our graduates understand the ways that knowledge and art are created and applied in a variety of disciplines. | 3. Performance on embedded assessments in selected courses. | Data collected in the Teacher Education PAS. |
| Our graduates are prepared for careers in their fields. | 4. Number of graduates employed in a field related to their degree. | Data collected in the Teacher Education PAS. |
| We will provide increased access to our educational programs. | 5. Number of support services provided to faculty and students for distance-delivered courses. | Data collected from sign-in logs at brown bag workshops and participant evaluation surveys. |
| Communities and external stakeholders benefit from broadly defined educational partnerships with MSU. | 6. Number of students, faculty and staff participating in identified programs focused on providing educational opportunities and/or meeting societal needs. | Data collected from participation records maintained by the After School Partnership. |

**Core Theme 3: Serve Communities**

| Objectives | Indicators | Assessment |
|---|---|---|
| We help meet the educational needs of the citizens of Montana by providing a wide range of educational opportunities to a variety of students. | 7. Number of programs offered in underserved communities. | Data collected from participation records maintained by the After School Partnership here in Bozeman and in rural and reservation communities. |
| | 8. Number of partnerships with K-12 institutions. | Data collected from participation records maintained in the Department of Education and the After School Partnership. |

**Core Theme 4: Integrate Learning, Discovery, and Engagement**

| Objectives | Indicators | Assessment |
|---|---|---|
| Each graduate will have had experiences that integrate learning, discovery and engagement. | 9. Number of courses that are updated to include engagement activities. | Data collected from participation records maintained by the After School Partnership. |
| Outreach activities will educate students and address the needs of the communities we serve. | 10. Proportion of students completing service learning courses and engagement experiences. | Data collected from participation records maintained by the After School Partnership and the Teacher Education PAS. |
| | 11. Proportion of students completing identified courses that offer engagement opportunities. | Data collected from participation records maintained by the After School Partnership and the Teacher Education PAS. |

| Core Theme 5: Stewardship | | |
|---|---|---|
| Our physical infrastructure (e.g., buildings, equipment, open spaces) will be well-maintained and useful. | 12. Percentage of classrooms with current educational technologies. | Data provided by Dean's Office, College of EHHD. |
| | 13. Classroom utilization rate. | Data provided by Dean's Office, College of EHHD. |

| If assessed objectives are not met in the timeframe outlined, what is the plan to sunset this proposal? |
|---|
| In order to meet the requirements of state and national accrediting bodies, the Department of Education has established a carefully designed Teacher Education Program Assessment System (PAS).  The PAS serves as the basis for our cycle of continuous improvement by providing sound data for decision-making regarding areas of program development.<br><br>Over the course of the academic year, the PAS is used to systematically collect, aggregate, and analyze data regarding the qualifications, knowledge, and skills of our candidates as well as program operations.  The data are collected from multiple sources including applicants, candidates, cooperating teachers, field supervisors, graduates, employers, and faculty.  Findings from the data analysis are shared with our stakeholders and used to identify areas in need of improvement.  Each area identified as needing improvement is assigned to a team of stakeholders including faculty, students, field supervisors, and cooperating teachers.  The teams engage in discussion, brainstorming, and the development of innovative solutions.<br><br>Data relevant to this proposal will be systematically collected, aggregated, analyzed, and reviewed using our established protocols.  Objectives that are not met will be presented to our stakeholders for discussion and development of adjustments that will enable us to meet our stated goals. |

## SIGNATURES

| Department Head (please print) | Signature (required) | Date |
|---|---|---|
| Jayne Downey | Jayne Downey | 12/29/11 |
| **Dept Head Priority** (please circle one): (Very High)  High  Medium  Low  Very Low | | |

| Dean/Director (please print) | Signature (required) | Date |
|---|---|---|
| Larry J. Baker | Larry J. Baker | 12-29-11 |
| **Dean/Director Priority** (please circle one): (Very High)  High  Medium  Low  Very Low | | |

| Executive/VP (please print) | Signatures (required) | Date |
|---|---|---|
| | | |
| **Executive/VP Priority** (please circle one):  Very High  High  Medium  Low  Very Low | | |

8' White Board

55" Flat Screen TV

26 Laptop Cart

Color Printer

55" Smart Board
with Projector