Dear Donors, Alumni, & Friends,

We want to thank you for the support you have given to us over the years. The South Dakota School of Mines & Technology would not be the exceptional place that it is today without your support. Our alumni are a valuable resource for discovering trends in the industry and it is also great to know how our graduates are doing. Please consider completing a survey to help us evaluate our programs. You can find our surveys (use the Promo code of math to take the Mathematics survey and the code csc to take the Computer Science survey) at http://www.mcs.sdsmte.edu/survey. The survey should only take 10-20 minutes and we hope to compile results by January 10, 2010.

The first news item I would like to pass along is our new Master of Science degree in Robotics and Intelligent Autonomous Systems (RIAS). This exciting new interdisciplinary degree program involves faculty and students from Electrical Engineering, Computer Engineering, Mechanical Engineering, and Computer Science. The program currently has two active projects with one being the unmanned aerial vehicle and the other being an unmanned submersible. This type of research has already generated a great deal of interest and we are very excited with the amazing progress that has been made in such a short period of time. We have managed to launch a small new lab in support of RIAS, but will need to increase space and resources as the program grows. We appreciate the support that has come from L-3 Communications to aid in the startup of the lab and support a few of the graduate students. Of course, a motivating force behind this connection is June Alexander Knight who found out about our plans to start a new M.S. program from her visit as a member of our Industrial Advisory Council. To learn more about RIAS please feel free to contact the program coordinator, Dr. Jeff McGough (jeff.mcgough@sdsmt.edu), or you can consult the program website at http://rias.sdsmte.edu/rias/RIAS

The B.S. in Computer Science has emerged this academic year with some significant revisions and one of the major changes resulted in a full two semester sequence in senior design. This allows our senior design teams a full academic year to work on their projects and it also aligns our senior design sequence with the other engineering programs in the university. The university has been working out details that should assist with fostering interdisciplinary senior design projects and our recent revision in curriculum structure should help computer science students participate in this type of program. The Applied and Computational Mathematics program graduated one of our larger classes in recent years and the average salary offer for our graduates was well above the national average for math majors. Despite the current state of the economy, placement for our graduates has been over 90% and employers still eagerly seek our graduates when there is an open position.
This past spring, our campus played host to the Midwestern Instruction and Computing Symposium (MICS). Dr. Manuel Penaloza was conference chair and Dr. Jeff McGough was conference co-chair. Over two hundred people attended the conference last April and participants enjoyed their time on campus with many attendees taking the opportunity to visit the Black Hills. The keynote speaker for the banquet was Susan Opp, President and General Manager of the Communications Systems West Division of L-3 Communications Corporation. Our Keynote speaker is a prominent source of pride since she happens to be a graduate from SDSM&T with a degree in Electrical Engineering and she is also daughter of our very own Roger Opp.

One distinctive feature of our campus is the myriad of academic experiences outside the classroom. Your support of the ACM programming contest, the Putnam mathematics competition, and the math modeling contest are invaluable ways that we enhance the academic experience here at SDSM&T. Students also benefit from other areas of your support: senior design projects, funding for research projects, internships, student organizations, career services, and industrial collaborations.

The ACM Programming contest was held on Halloween this year and we had five teams from SDSM&T participate this year. If you have been following the contest over the years then you might recall that there was a limit on how many teams could participate in the contest from each school and that rule has been dropped. In addition, the ACM programming contest now allows graduate students to participate in the contest so that is another big rule change. Our top team placed in the top 6% of the over 200 teams competing in our region, which includes colleges and universities from South Dakota, Minnesota, Iowa, Kansas, Nebraska, North Dakota, western Michigan, western Ontario, and Manitoba. One fact that we are particularly proud of is that we had three other teams place in the top 20% for the region.

**Scholarships**

Scholarships are essential in order for us to continue to attract the best and brightest students to SDSM&T. As you may recall, increasing student scholarship support was identified by the department as our number one priority. Your valuable support allows us to recruit the future leaders in the professions of computer science and applied mathematics. Here are just a couple of examples of students that have been helped by departmental scholarship funds.

**Kelsey Stulken** is a double major in math and computer science. Kelsey has been a very positive force in the department, she was President of the student chapter of the MAA, she works as a lab leader for our first semester programming class, and she often works on campus in the summer for our summer education camps. Kelsey is currently getting support from the endowed McKeel Scholarship Fund.
Mark Pengitore is a major in Applied and Computational Mathematics, but his passion is more squarely based in the pure side of mathematics. Mark has already participated in a summer research program and he is planning to pursue an advanced degree in mathematics upon graduation. Mark is currently getting support from the endowed Guy March Scholarship fund.

Faculty

We would also like to take this opportunity to pass along a few informational items related to faculty.

Dr. Randy Hoover is our new Assistant Professor in Computer Science. Dr. Hoover recently finished his PhD in Electrical Engineering from Colorado State University at Ft. Collins. Randy is teaching a section of the first semester programming class and he is also teaching Assembly Language. His main areas of interest are: Computer Vision, Pattern Recognition, Control Theory, and Autonomous Systems. His dissertation work is entitled: “Pose Estimation of Spherically Correlated Images Using Eigenspace Decomposition in Conjunction with Spectral Theory.” We look forward to the contributions that Randy will be able to make in research, in the undergraduate program, and in the new masters program.

Dr. Antonette Logar has a sponsored senior project that involves a multi-touch screen system. The project, “An Open Toolset for Creating Educational Tools for Multi-Touch Surfaces” is funded by Computing Research Associates – Women (CRA-W) and will provide support for the three students for the academic year as well as funding for equipment and travel. The three students: Lori Rebenitsch, Robyn Krage, and Jaelle Scheuerman, will also have an opportunity to attend the Grace Hopper conference in computing.

The Department of Mathematics and Computer Science has always counted on passionate faculty, dedicated staff, excellent students, and generous support from our alumni and friends. We greatly appreciate your support. If you would like to learn more of the latest developments around the department then please feel free to consult our website at http://www.mcs.sdsmt.edu. Best wishes to you and yours from the Department of Mathematics and Computer Science.

Sincerely,

Dr. Kyle Riley
Department Chair
Building the Dream

B.S. Applied & Computational Mathematics

B.S. Computer Science

M.S. Robotics and Intelligent Autonomous Systems

The Vision
• Draw outstanding students into our programs, recruitment supported with scholarship dollars
• Excel in student development opportunities (e.g. student chapter activities, travel to conferences, work with faculty)
• Excel in faculty development opportunities (e.g. travel and conference attendance, bringing in outside colloquium speakers, release time to expand research)
• Support curriculum and research with modern computing hardware/software and lab facilities
• Establish visiting and endowed faculty positions to create additional research and curriculum development opportunities

The Opportunity
• Talented faculty in teaching and scholarship (5 winners of the campus outstanding teaching award are on staff)
• Graduates in high demand, especially in computer science, for the foreseeable future
• Industrial partnerships – both ongoing as well as possible new opportunities: High-tech corridor in western South Dakota (Black Hills Vision Group), The deep underground research lab in Lead, new RIAS program

The Dream
• National recognition of our computer science graduates for their outstanding software development skills and for their strong foundation in mathematics and hardware.
• National Recognition for the applied mathematics program as a unique program with graduates that can offer valuable skills to industry and graduate school.
• Develop a national reputation as an active community of scholars – students and faculty
• Further develop research collaborations and industrial partnerships with significant opportunities for involvement by our students – both undergraduate and graduate

The Need
• Student Scholarships: $50,000/a year and $250,000 into endowed funds
• Student & Faculty Development: $20,000/a year
• Laboratory Upgrades: $50,000 - $100,000 one time
• Visiting Faculty Position: $100,000/a year
• Endowed Faculty Position: Up to $2,500,000

Please check out [http://foundation.sdsmt.edu/](http://foundation.sdsmt.edu/) to find out more about the opportunities to give to SDSM&T.