MISSION

Missouri University of Science and Technology integrates education and research to create and convey knowledge to solve problems for our State and the technological world.
EXECUTIVE SUMMARY

> The present North Central Association accreditation self study is the most significant organizational self evaluation in the history of Missouri University of Science and Technology. This study has made it abundantly evident that the university is a strong academic institution. The critical occurrences of recent university top leadership changes, an institutional name change, and organizational restructuring during the self study process indeed are unusual simultaneous occurrences in the life of Missouri S&T. These events have measurably influenced the university’s external and internal perspectives related to its operation and the self study has permitted a quantitative reflection of the “before-during-and-after” impact of these events relative to the institution’s overall quality.

The university’s self assessment of “what we do best” and “what we have learned” and the identification of “opportunities for improvement” provides significant clarity to the institution’s “strengths” and “challenges” in its description as a forward-looking organization.

Since its last NCA Accreditation Review, Missouri S&T has made significant progress in improving the quality of its operational processes. The 1999 evaluation team expressed concerns about the campus’ declining enrollment and the time it took students to graduate as well as the need for improved coordinated marketing, development, alumni affairs, and public relations. Equally challenging was the need for comprehensive strategic planning and a greater effort to enhance diversity on the campus. Declining interest among domestic students in engineering and science and substantial cuts in general operating funding from the state has complicated campus efforts to address the concerns raised by the Higher Learning Commission.

In the past decade, Missouri S&T has met most of those challenges with resounding success. Since 2000, the campus has increased undergraduate enrollment 33 percent while continuing to attract outstanding students. In the last decade, both the first-to-second year retention and six-year graduation rates have improved significantly from 83 percent to 87 percent and from 52 percent to 61 percent, respectively. These changes have been supported by the complimentary changes to the campus’ physical infrastructure and the quality and practice of dedicated faculty and staff. In 2003, the campus integrated its development, marketing, and alumni affairs into a University Advancement office, a decision that contributed to a robust “Advancing Excellence” capital campaign. Three years later, the campus embarked upon its most comprehensive strategic planning process, one that integrates departmental and unit plans, and includes an annual campus tactical plan.
Values

TRADITION

INTERDISCIPLINARY COLLABORATION

INCLUSIVENESS

EXCELLENCE
Responding to the challenges of adjusting to a new institutional name, significant organizational changes, and progressive strategic planning, Missouri S&T has strengthened its practice of pursuing measurable goals toward continual improvement. Yet, further challenges remain including implementing a comprehensive assessment of student learning outcomes, building greater diversity into the university community, implementing budget allocations that support the institution’s mission and vision, and improving the S&T faculty and staff work environment. Measurable and accountable progress in each of these areas is critical for the campus community.
Strengths and Challenges

STRENGTHS

1. The Missouri S&T mission is largely understood and supported throughout the organization. The administration promotes **effective leadership** and supports collaborative processes that enable the organization to fulfill its mission.

2. Acknowledging the role of science and technology and the challenges of **globalization** in the 21st century drives Missouri S&T’s planning process. A profound challenge for the institution is the diminishing interest among high school students in technological careers, a condition exacerbated by declining state support for higher education. Thus, much of its planning represents an attempt to meet those challenges while it seeks revenue sources to replace lost public funding and to respond to the changing needs of the employers of S&T graduates.

3. Beyond a campuswide strategic planning committee, the university has appointed an institutional assessment committee to contribute to the planning process and to provide leadership in **promoting accountability**.

4. Missouri S&T departments have developed **learning goals** appropriate to the undergraduate degrees they offer and faculty members in those departments revise those goals based upon assessment of their students’ work. Similarly, the campus, through its assessment of a variety of surveys and tests, has provided an array of programs to support student success. This collective effort has contributed to a marked improvement since 1999 in retention and graduation rates. Missouri S&T has also demonstrated a **commitment to effective teaching**. From its Freshman Faculty Program and New Faculty Teaching Scholars Program to its process of mentoring and Third-Year Reviews, the campus provides support for the continual development of its teaching faculty. Moreover, evidence of effective teaching is important in the hiring of new faculty members and in making salary, tenure, and promotion decisions. Missouri S&T has committed substantial resources to improving the various learning environments on campus. Beyond upgrading buildings, equipment and library resources, the campus has sought to employ technology and educational research practices in an effort to enhance the chances of student success.

5. Missouri S&T has a significant position of strength relative to its processes and practices supportive of meeting its strategic plan goals related to the acquisition, discovery and application of knowledge. The institution’s **focus on science and engineering education** demands that it integrate and promote the culture of lifelong learning that is inherently required by the ever-changing and continually improving nature of technology.

6. Missouri S&T engages numerous internal and external constituencies. The university is responsive to its constituents’ needs and makes good use of its available resources to provide valuable services. Beyond the additional resources that **entrepreneurial, distance education, and workshop activities** can produce for the campus, perhaps the most meaningful reason to engage even more constituencies can be found in the opportunities those engagements can provide for students. Besides the internships, co-ops, and proposed externship programs that help students prepare for their careers, there is an ever-larger opportunity for service activity for students.
Improvements in the strategic planning process are being made. However, full implementation and communication of progress toward the institution’s mission via the campus’ website would improve campus awareness of mission documents.

Beyond improving the process of evaluating graduate program learning outcomes, the campus faces the challenge of securing the resources to retain a high-quality faculty and improve campus teaching laboratories.

Notably, the campus must enhance the assessment effort. It must fully implement its strategic objective to “develop an institutional culture of continuous improvement and regularly assess student outcomes.” Missouri S&T should continue to build upon its recent success in experiential and collaborative learning by engaging an increasing proportion of the student body in both types of learning experiences. Missouri S&T must expand its efforts to develop an even more diverse campus. A continual upgrading of facilities is vital as is a commitment to improve the quality of advising on campus.

Missouri S&T must maintain enough funding and other resources to balance its continual improvement goals. The demands of meeting public, technological education needs through improved physical facilities, technological education tools, and the most competent staff and faculty members are indeed key challenges.

While the campus must always be mindful that its services and facilities are in ever-greater demand by external constituents, Missouri S&T cannot neglect the needs of its internal constituents. Notably, the campus must address the low morale of the staff and seek ways to measure faculty satisfaction.

Missouri S&T has made great gains in student diversity, but is still far from achieving a diverse student body, staff and faculty. Greater campus awareness of both progress and challenges in reaching diversity is needed.
Missouri S&T is a future-oriented organization as evidenced by the commitment of dedicated faculty and staff to continually improve the institution and the pursuit of Missouri S&T’s vision of achieving national prominence through its accomplishments in academic excellence, research, and public service.

As a higher education institution, Missouri S&T is indeed learning focused. Both its mission and vision reflect the commitment to pursue and apply knowledge toward technical problem-solving. Missouri S&T has extended its educational outreach to encompass distance learners and international undergraduates. This has served to strengthen its already strong engineering education reputation and to broaden its understanding of the value of science and humanities education as critical to providing a balanced education to all of its students. The focus on the application of technology as well as undergraduate research, service learning and experiential learning practices contribute significantly to improving the learning environment and the learning outcomes of students. These efforts foster the development of educational research practices and strongly support the formalization of a campuswide assessment program that serves as an anchor for establishing continuous improvement strategies.

Missouri S&T continues to grow as a well-connected organization through nurturing engagements with its international, national, state, regional and local communities and stakeholders. The desire of S&T, along with that of its collaborators and employers of its graduates, to grow its capacity to serve these constituents is significant. This significance is reflected in the growth of external constituents’ demand for technical intellectual property and employer demand for access to graduates as employees. This connectedness is clearly reflected in the institution’s Advancing Excellence Campaign for being on track to reach its $200 million fundraising goal by 2010.
DISTINCTIVE

GREEN CAMPUS INITIATIVE

> Missouri S&T is a distinctive university. Its vision of being recognized as one of the top-five technological research universities in the United States by 2011 is challenged continually as the world changes. Although we have reached this goal, maintaining it will depend on our ability to continually improve from what we learn. As the university increasingly uses assessment data to inform our strategies and employ an external focus as important ingredients in our decision-making processes, its distinctiveness will flourish.

The university stands out in its national and international reputation for graduating top quality students in engineering, science, and the humanities. Its national leadership in adopting environmental management practices has contributed to the campus’ new focus on coordinating its strengths in energy and environmental research toward becoming a green institution. This effort is balanced by the inclusion of student design projects in alternative energy, faculty research in bio-environmental science as well as energy and management, and the participation of external partners. Clear demonstrations of the benefit of these practices are reflected in the S&T hydrogen fueling station, solar car and solar house, wind energy, and eco-car projects. These and other projects point toward Missouri S&T’s distinctive ability to contribute to meeting the world’s energy and environmental challenges.