



University of
Science & Technology

Strategic Plan

FY2008 - FY2012

Missouri University of Science and Technology

Strategic Plan

Introduction

The Missouri University of Science and Technology, founded in 1870 as the University of Missouri School of Mines and Metallurgy, was the first technological institution west of the Mississippi, and one of the first in the nation. In 1964 in recognition of its expanded educational and research roles, the name of the institution was changed to the University of Missouri at Rolla. The name was changed in January 2008 to Missouri University of Science and Technology (Missouri S&T) a more fitting description of our mission as one of the nation's leading technological research universities. To ensure the University continued to meet its land-grant mission and maintained its focus on science and engineering, the campus has engaged in a strategic planning process since 1992.

While there are many quality institutions in the United States that call themselves a technological research university, there are few institutions that possess the same unique size and focus of Missouri S&T. For planning and benchmarking purposes, Missouri S&T has defined a technological research university as one in which:

- 1) at least one-fourth of the student body major in engineering;
- 2) at least one-half of students are enrolled in the study of engineering, the sciences, business or mathematics;
- 3) a robust graduate program exists;
- 4) a strong research culture exists within the university; and
- 5) exceptional liberal arts, humanities and social sciences degree programs thrive so as to complement and lend context to the technological strengths of the university.

By this definition, only 16 such universities exist in the United States. (see Appendix C)

To ensure continued progress toward its mission and vision, Missouri S&T continually benchmarks itself against the other technological research universities based on ten key quality indicators that are listed in Appendix C.

This Strategic Plan complements the Strategic Plan developed by the University of Missouri system. Missouri S&T is proud to contribute to the overall achievement of the University of Missouri Strategic Plan.

The Strategic Plan is made up of 4 Strategic Objectives and 16 Goals. Where appropriate, tangible target measures of success are proposed. This plan is supported by an annual campus tactical plan and individual department and unit plans. This Strategic Plan is an evolving, living document. The campus will continue to monitor environmental changes affecting higher education to ensure Missouri S&T remains at the forefront of technological research universities.

Missouri University of Science and Technology

Strategic Plan

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.

(Mission Statement Approved January 2008 Board of Curators' Meeting)

Vision

Missouri University of Science and Technology will be recognized as one of the top five technological research universities in the nation.

Values

Tradition: We are a diverse scholarly community of hard-working problem-solvers who draw inspiration, strength, and pride from our history, our students' success, and our entrepreneurial spirit.

Interdisciplinary Collaboration: We value the entire realm of human knowledge and seek to transcend conventional boundaries in the pursuit of our goals.

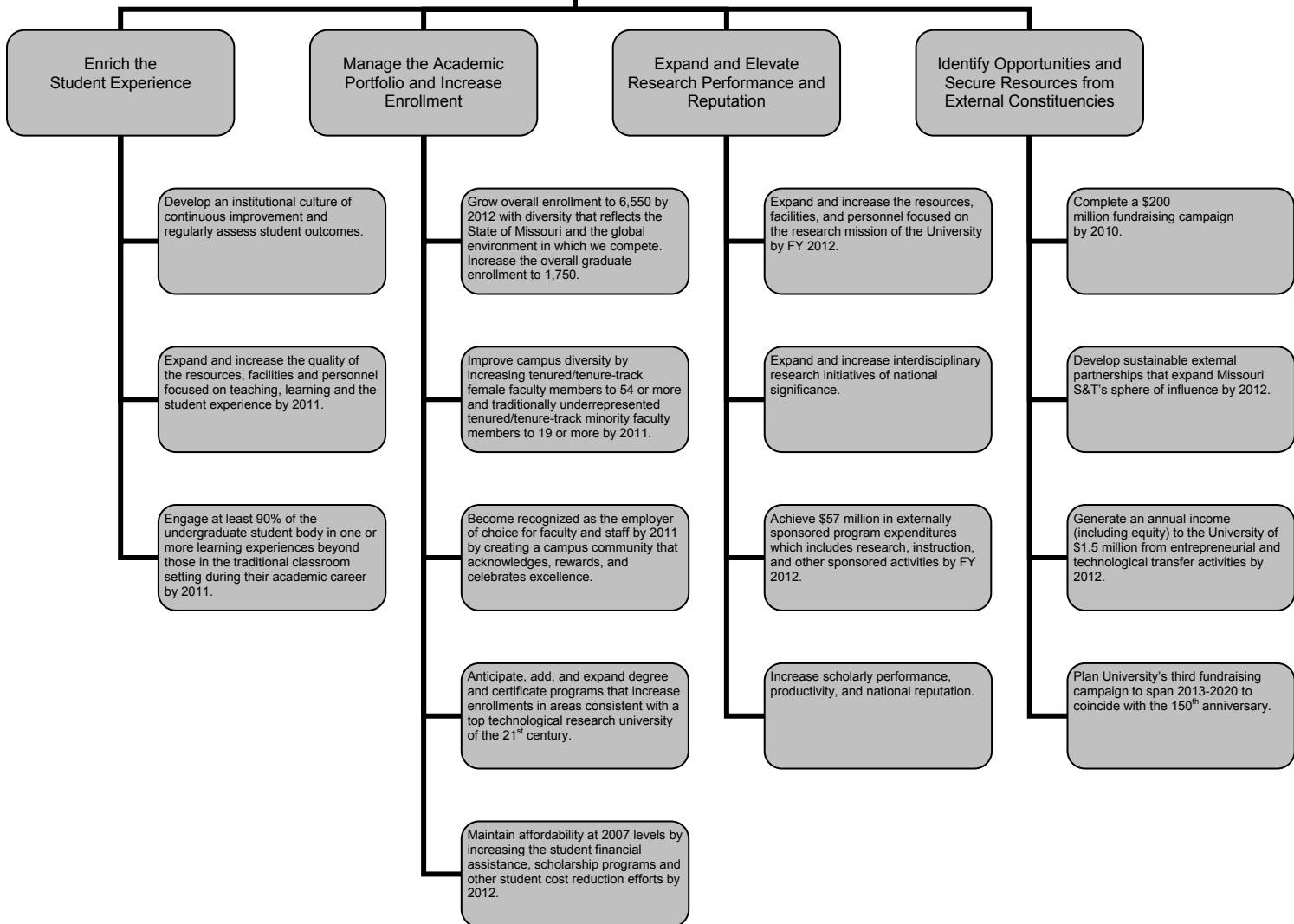
Inclusiveness: We encourage and depend upon mutual recognition and respect and the voluntary cooperative efforts of our diverse constituents to sustain a strong and cohesive scholarly community.

Excellence: We embrace academic integrity, exceptional results, and constant improvement in teaching, research, service, and economic development activities.

Strategic Objectives

1. Enrich the Student Experience
2. Manage the Academic Portfolio and Increase Enrollment
3. Expand and Elevate Research Performance and Reputation
4. Identify Opportunities and Secure Resources from External Constituencies

Missouri S&T will be recognized as one of the top five technological research universities in the nation.



Strategic Objective 1: Enrich the Student Experience

Missouri S&T will promote student learning, achievement, teamwork, diversity, leadership, health, and recreation. Missouri S&T will foster a campus culture that embraces its vision by emphasizing cutting edge academic preparation, hands-on experiences (experiential learning), relevant career connections, supportive and engaging communities, and leadership development opportunities.

Goal: 1.1 Develop an institutional culture of continuous improvement and regularly assess student outcomes. *[OPR: Provost]*

Progress Indicators:

- Create a campus-wide assessment plan
- Activate the campus assessment committee to conduct the implementation of the assessment plan and report to the campus annually
- Number of departments that develop a continuous improvement plan
- Number of departments that implement and annually report on their continuous improvement plan
- Number of student learning outcomes assessed annually
- Percentage of institutional units that prepare, use, and annually review their unit strategic plan
- Percentage of students that achieve selected discipline-specific learning outcomes (e.g., for engineering departments, ABET metrics)
- Mean scores of students in reading, writing, critical thinking and math components of MAPP examination
- Maintain ISO 14001 certification

Goal: 1.2 Expand and increase the quality of the resources, facilities and personnel focused on teaching, learning and the student experience by 2011. *[OPR: Provost and VCs]*

Progress Indicators:

- Collect, report, and assess the impact of learning communities
- Number of courses that utilize Learning Communities (Increase by a minimum of 10%)
- Number of distinguished teaching faculty awards
- Number of total teaching faculty
- Number of faculty utilizing instructional design services
- Number and impact of new teaching and learning technologies introduced
- Retention and graduation assessments
- Student satisfaction surveys
- Missouri S&T's score in UM System "accent reduction" program
- Rank against classroom technology index

- Percentage of classrooms that have been improved from a technology perspective and number of added or improved learning resources and facilities IT survey regarding technology-based improvements in teaching and learning resources and facilities)
- Percentage increase in expenditures on classroom and related improvements that impact teaching, learning and the student experience (Administrative Services budget and actual data)
- Percentage increase in participation in formal professional development activities of faculty and staff (LDP, ALDP, Freshman Faculty Forum and New Faculty Teaching Scholars, attendance at campus workshops in teaching and advising)

Goal: 1.3

Engage at least 90% of the undergraduate student body in one or more learning experiences beyond those in the traditional classroom setting during their academic career by 2011. *[OPR: Provost]*

Progress Indicators:

- Collect, report and assess student engagement
- Number of students participating in campus undergraduate and graduate research conferences and symposia (Increase to 75 or more undergraduate and 250 or more graduate students)
- Number of courses that provide service learning components (Increase to a minimum of 5)
- Percentage of students with a global experience
- Percentage of undergraduate students with a research experience by their senior year
- Percentage of students with an internship or co-op
- Number of students participating in student organization and the percentage in leadership roles.
- Annual Student Leadership Inventory composite results
- Annual student athlete life skills inventory composite results
- Composite summary of NSSE Item 7, Enriching Educational Experiences, reported every 3rd year

Strategic Objective 2: Manage the Academic Portfolio and Increase Enrollment

Missouri S&T will increase its enrollment while maintaining the quality of its student body by improving access and affordability, expanding diversity, increasing retention, and expanding extended learning activities. Missouri S&T will balance the academic portfolio and the student experience by increasing market share in areas such as life sciences and biotechnology, energy, computing, business and management, communication, the liberal arts, and education in science, technology, engineering and mathematics.

Goal: 2.1 Grow overall enrollment to 6,550 by 2012 with diversity that reflects the State of Missouri and the global environment in which we compete. Increase the overall graduate enrollment to 1,750. [OPR: Provost] [see Table 2.1 in Appendix A]

Progress Indicators:

- On-campus enrollment
- Distance education enrollment
- Size of freshmen class
- 1st to 2nd year student retention
- 2nd to 3rd year student retention
- Size of transfer class
- Graduate student enrollment
- Percentage of Ph.D. students among graduate students (Increase to 40% of total on-campus graduate students)
- Minority student enrollment
- Female student enrollment
- Number of pre-college students attending campus camps and academic workshops
- Student quality (e.g., class rank and entrance scores)
- Number of countries represented in the student body
- Number and type of degrees awarded

Goal: 2.2 Improve campus diversity by increasing tenured/tenure-track female faculty members to 59 or more and traditionally underrepresented tenured/tenure-track minority faculty members to 21 or more by 2012. [OPR: Provost and DCs]

Progress Indicators:

- Number of female tenured/tenure-track faculty members
- Number of traditionally underrepresented tenured/tenure-track faculty members

[see Table 2.2 in Appendix A]

Goal: 2.3 Become recognized as the employer of choice for faculty and staff by 2011 by creating a campus community that acknowledges, rewards, and celebrates excellence. *[OPR: Chancellor]*

Progress Indicators:

- Ability to define, assess and enhance employee satisfaction with the working environment (Benchmark: Fortune magazines' "100 Greatest Places to Work")
- Employee satisfaction (e.g., retention rate, acceptance of first offer of employment, and satisfaction survey results)
- Staff Council Survey data
- Chronicle of Higher Education faculty satisfaction survey

Goal: 2.4 Anticipate, add, and expand degree and certificate programs that increase enrollments in areas consistent with a top technological research university of the 21st century. *[OPR: VPAA, VPGS, and DCs]*

Progress Indicators:

- Degrees granted in comparison to Department of Labor reports and projections
- Number and type of new degree and certificate programs
- Percentage of undergraduate non-engineering majors (Increase to 25% of enrollment)

Goal: 2.5 Maintain affordability at 2007 levels by increasing the student financial assistance, scholarship programs and other student cost reduction efforts by 2012. *[OPR: VPDEM]*

Progress Indicators:

- Average unmet financial need of students (keep below 20%)
- Percentage of undergraduate students receiving financial aid

Strategic Objective 3: Expand and Elevate Research Performance and Reputation

Missouri S&T will enhance its research activity and performance to be recognized as a top five technological research university, distinguishing itself by interdisciplinary collaborations of national significance.

Goal: 3.1 Expand and increase the resources, facilities, and personnel focused on the research mission of the University by FY 2012. [*OPR: Provost VPR, and VCUA*]

Progress Indicators:

- Number of research and tenured/tenure-track faculty active in sponsored activity (increase by 25%)
- Total number of research and tenured/tenure-track faculty (increase by 15%)
- Physical space for research activities (increase by 30%)
- Seed funding for interdisciplinary research (increase to \$800K per year)
- Matching funds for equipment (increase by 100%)
- Number of endowed chairs (increase by six)
- Library subscription, database, and monograph funding by (increase by 25% beyond inflation costs)

Goal: 3.2 Expand and increase interdisciplinary research initiatives of national significance. [*OPR: VPR, CDs, and DCs*]

Progress Indicators:

- Number of interdisciplinary research centers with at least \$3M per year in research expenditure (increase by four)
- Number of NSF Engineering Research Centers (at least one)

Goal 3.3 Achieve \$57 million in externally sponsored program expenditures which includes research, instruction, and other sponsored activities by FY 2012. [*OPR: VPR*]
[see Table 3.3 in Appendix A]

Progress Indicators:

- Externally sponsored program expenditure per tenured/tenure-track faculty (increase by 25%)

Goal 3.4 Increase scholarly performance, productivity, and national reputation. *[OPR: Provost, VPAA, VPR, and DCs]*

Progress Indicators:

- Number of national academy members (increase by 1 by 2012)
- Number of faculty in leadership positions or with fellow status in professional societies (increase by 10)
- Number of scholarly publications, citations, and performances per tenured/tenure-track faculty FTE (increase by 20%)
- Number of distinguished research faculty awards (increase by 5)
- Number of faculty on intergovernmental personnel assignment (increase by 4)
- Number of master's theses and Ph.D. dissertations completed

Strategic Objective 4: Identify Opportunities and Secure Resources from External Constituencies

Missouri S&T will create opportunities and acquire resources from external constituencies by creating entrepreneurial opportunities and by engaging alumni, corporations, foundations, partners, and friends in the life of the institution.

Goal: 4.1 Complete a \$200 million fundraising campaign by 2010. *[OPR: VCUA]*

Progress Indicators:

- Dollars raised in private gifts (\$130 million between 2003 - 2010)
- Dollars raised in corporate grants (\$70 million by 2010)
- Annual alumni contribution rate (22% between 2003 - 2010)
- General Operating funds redirected when offset by private donations (\$1.4M by 2011)

Goal: 4.2 Develop sustainable external partnerships that expand Missouri S&T's sphere of influence by 2012. *[OPR: VPR, VCUA, VCSA, VPAA, and VPGL]*

Progress Indicators:

- Number of top corporate partners involved in campus boards for recruitment, research, and financial support (50)
- Percentage of top corporate partners (above) with master research agreements or other partnership agreements (40)
- Number of strategic alliances involving faculty, students, and administrative units (1)

Goal 4.3 Generate an annual income (including equity) to the University of \$1.5 million from entrepreneurial and technology transfer activities by 2012.
[OPR: VPR and OTED]
[see Table 4.3 in Appendix A]

Progress Indicators:

- Number of faculty and/or student start-ups based on University technology (cumulative total of 10 by 2012)
- Number of license and option agreements generating income (total of 25 by 2012)

Goal 4.4 Plan University's third fundraising campaign to span 2013-2020 to coincide with the 150th anniversary. *[OPR VCUA]*

Progress Indicators:

- Number of alumni, friends and organizational partners assessed and personally qualified at \$500K+ gift capacity
- Results from donor satisfaction surveys (2009-2010)
- Results from campaign impact survey (2010-2011)
- Compile leadership and campus input to conduct a 2011 campaign feasibility study with influencers

Appendix A: Tables

Table 2.1

Grow overall enrollment to 6,550 by 2012 with diversity that reflects the State of Missouri and the global environment in which we compete.
Increase the overall graduate enrollment to 1,750.

	Fall Semester Headcount								
	Actual				Original Goal	Goal			
	2000	2006	2007	2008	2008	2009	2010	2011	2012
Total Enrollment	4,626	5,858	6,167	6,371	6,150	6,300	6,425	6,550	6,550
Undergraduate Students	3,698	4,515	4,753	4,912	4,675	4,730	4,770	4,800	4,800
Graduate Students	928	1,343	1,414	1,459	1,475	1,570	1,655	1,750	1,750
Freshmen Class	696	977	1,051	1,056	945	1,005	995	985	975
Transfer Class	210	266	276	286	290	300	300	300	300
American Indian/ Alaskan Native	24	20	33	33	24	32	34	36	36
Asian-American	117	198	198	191	240	220	230	240	240
Black, Non-Hispanic	159	245	271	299	296	315	325	335	335
Hispanic-American	53	137	139	132	166	160	175	190	190
Total Female	1,071	1,326	1,391	1,419	1,600	1,425	1,450	1,480	1,500
Undergraduate Female	860	1,016	1,052	1,101	1,210	1,100	1,115	1,125	1,135
Graduate Female	211	310	339	318	390	325	335	355	365
Freshman Female	196	221	255	273	257	250	260	270	275
Transfer Female	45	70	74	67	80	85	90	90	90
On-campus	4,393	5,389	5,649	5,768	5,570	5,655	5,735	5,825	5,825
Distance Education	233	469	518	603	580	645	690	725	725

Table 2.2

Improve campus diversity by increasing tenured/tenure-track female faculty members to 59 or more and traditionally underrepresented tenured/tenure-track minority faculty members to 21 or more by 2012.

	Fall											
	Actual								Goal			
	2005		2006		2007		2008		2009	2010	2011	2012
	Head count	Percent	Head count	Percent	Head count	Percent	Head count	Percent	Head count	Head count	Head count	Head count
Female Faculty	36	12.9	36	13.0	38	13.9	49	16.8	51	53	54	59
Traditionally Underrepresented Faculty	11	4.0	10	3.6	12	4.4	14	4.8	16	18	19	21

Table 3.3

Achieve \$57 million in externally sponsored program expenditures which includes research, instruction, and other sponsored activities by FY 2012.

Dollars in Millions									
Fiscal Year	2004	2005	2006	2007	2008	2009	2010	2011	2012
Goal				\$36	\$38	\$42	\$46	\$51	\$57
Actual	\$35	\$35	\$36	\$32	\$38				

Table 4.3

Generate an annual income to the University of \$1.5 million from entrepreneurial and technology transfer activities by 2012.

Fiscal Year								
Dollars in Thousands								
	2005	2006	2007	2008	2009	2010	2011	2012
Goal			\$350	\$450	\$650	\$1,000	\$1,250	\$1,500
Actual	\$96	\$186	\$380	\$455				

Appendix B: List of Abbreviations

CDs	Center Directors
CIO	Chief Information Officer
DIRA	Director of Institutional Research and Assessment
DCs	Department Chairs
FS	Faculty Senate
DOL	Director of Library
OTED	Office of Technology and Economic Development
OPR	Office/Officer of Principal Responsibility
VCs	Vice Chancellors
VCSA	Vice Chancellor for Student Affairs
VCUA	Vice Chancellor for University Advancement
VPAA	Vice Provost for Academic Affairs
VPDEM	Vice Provost and Dean of Enrollment Management
VPGL	Vice Provost of Global Learning
VPGS	Vice Provost for Graduate Studies
VPR	Vice Provost for Research
VPUS	Vice Provost for Undergraduate Studies

Appendix C: Definitions

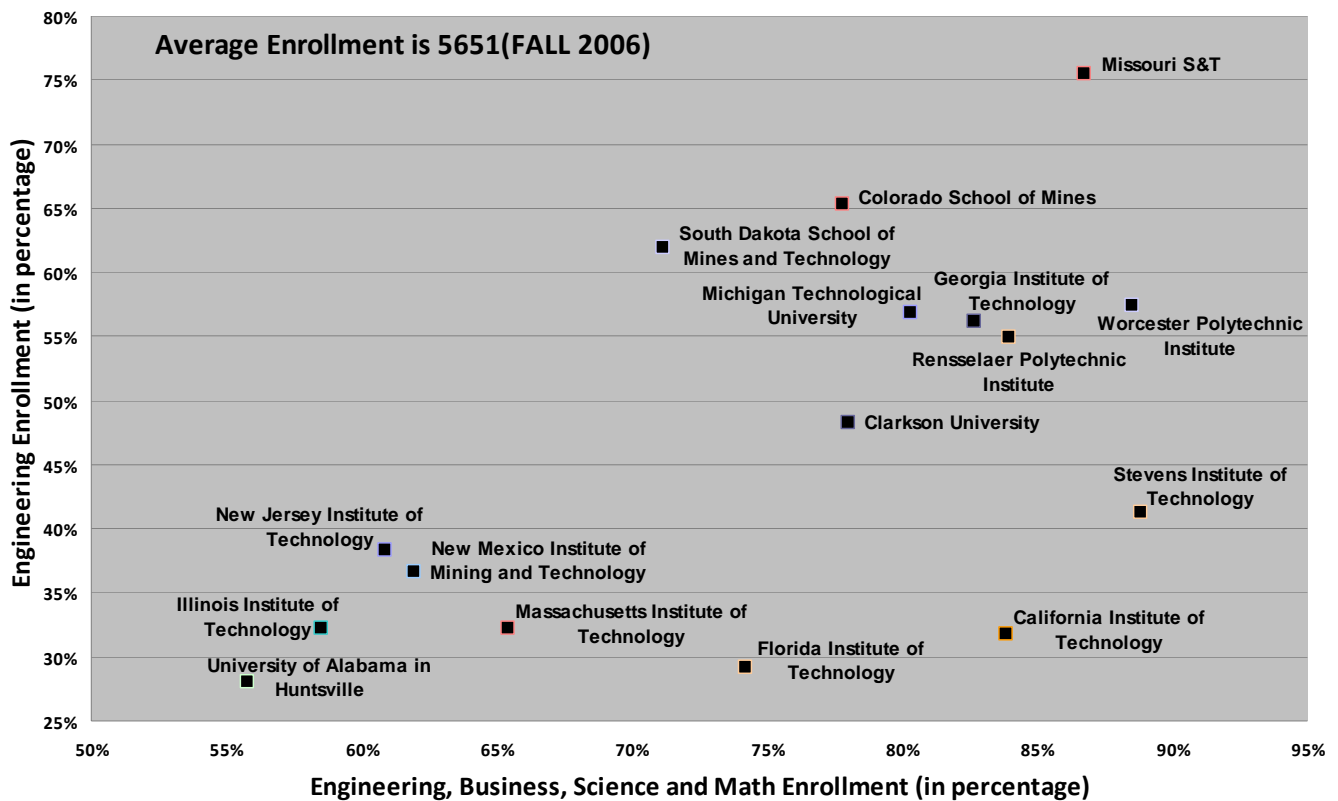
Technological Research University

Missouri S&T is classified by The Carnegie Foundation as **Doctoral, STEM dominant**. The 50 universities within this category award doctoral degrees in a range of fields, with the plurality in the STEM fields (science, technology, engineering, and mathematics.) They may also offer professional education at the doctoral level or in fields such as law or medicine.

Doctoral, STEM Dominant Institutions	Control
Alabama A & M University	Public
Alfred University	Private
Brigham Young University	Private
California Institute of Technology	Private
Clarkson University	Private
Clemson University	Public
Cleveland State University	Public
College of William and Mary	Public
Colorado School of Mines	Public
Colorado State University	Public
Dartmouth College	Private
Drexel University	Private
Florida Institute of Technology-Melbourne	Private
Illinois Institute of Technology	Private
Indiana University-Purdue University-Indianapolis	Public
Lamar University	Public
Marshall University	Public
Mayo Graduate School	Private
Michigan Technological University	Public
Missouri University of Science and Technology	Public
Montana State University-Bozeman	Public
Naval Postgraduate School	Public
New Jersey Institute of Technology	Public
New Mexico Institute of Mining and Technology	Public
North Carolina State University at Raleigh	Public
Oakland University	Public
Old Dominion University	Public
Polytechnic University (merged with New York University in 2008)	Private
The Scripps Research Institute	Private
South Dakota State University	Public
Stevens Institute of Technology	Private
SUNY College of Environmental Science and Forestry	Public
Tennessee Technological University	Public
Texas Southern University	Public
University of Alabama at Birmingham	Public
University of Alabama in Huntsville	Public
University of Alaska Fairbanks	Public
University of Dayton	Private

University of Louisiana at Lafayette	Public
University of Maryland-Baltimore County	Public
University of Puerto Rico-Mayaguez	Public
University of Texas at Dallas, The	Public
University of Texas at El Paso, The	Public
University of Vermont and State Agricultural College	Public
University of Wyoming	Public
Utah State University	Public
Virginia Polytechnic Institute and State University	Public
Wake Forest University	Private
Wesleyan University	Private
Worcester Polytechnic Institute	Private

The following institutions have the same characteristics but are separated from this classification by Carnegie because of their institutionally distinctive characteristics: Massachusetts Institute of Technology, Rensselaer Polytechnic Institute, South Dakota School of Mines and Technology, and Georgia Institute of Technology.



When reviewing all 54 institutions , 16 universities emerge as technological research universities.

California Institute of Technology
Clarkson University
Colorado School of Mines
Florida Institute of Technology
Georgia Institute of Technology and State University
Illinois Institute of Technology
Massachusetts Institute of Technology
Michigan Technological University
Missouri University of Science and Technology
New Jersey Institute of Technology
New Mexico Institute of Mining and Technology
Rensselaer Polytechnic Institute
South Dakota School of Mines and Technology
Stevens Institute of Technology
University of Alabama at Huntsville
Worcester Polytechnic Institute

The following quality indicators will be used when ranking the above list of institutions:

- ACT 75th percentile
- Alumni participation rate
- First-to-second year retention rate
- National academy members
- National merit scholars
- Ph.D's awarded per faculty
- Ratio of doctoral degrees to graduate degrees
- Six-year graduation rate
- Student faculty ratio
- Total research expenditures per faculty