The following websites are referred in this document:

Accreditation Board for Engineering and Technology (at http://www.abet.org)

Assessment Resource Center at the University of Missouri – Columbia (at http://arc.missouri.edu)

Association to Advance Collegiate Schools of Business (at http://www.aacsb.org)

Educational Testing Service (at http://www.ets.org)

Higher Education Research Institute at the University California, Los Angeles (at http://www.gseis.ucla.edu/heri/index.php)

Higher Learning Commission of North Central Association of Colleges and Schools (at http://www.higherlearningcommission.org)

Indiana University Center for Postsecondary Research (at http://nsse.iub.edu/index.cfm)

Missouri Department of Higher Education (at http://www.dhe.mo.gov)

National Council of Examiners for Engineering and Surveying (at http://www.ncees.org)

Noel-Levitz, Inc. (at http://www.noellevitz.com)


Voluntary System of Accountability (at http://www.voluntarysystem.org)
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DEFINITION OF TERMS

**Accountability**: Use of results for program continuance/discontinuance; the public reporting of student, program, or institutional data to justify decisions or policies; using results to determine funding.

**Assessment**: The ongoing process of 1) establishing clear, measurable expected outcomes of student learning; 2) ensuring that students have sufficient opportunities to achieve those outcomes; 3) systematically gathering, analyzing, and interpreting evidence to determine how well student learning matches out expectations; and 4) using the resulting information to understand and improve student learning.

**Direct Measures**: Direct measures of student learning require student to display their knowledge and skills as they respond to the instrument itself. Objective tests, essays, presentations, and classroom assignments all meet this criterion.

**Embedded Assessment**: Including questions from assessment instruments or selecting questions from existing tests of existing courses; paucity of number of questions can affect reliability.

**Evaluation**: Using assessment information to make an informed judgment on such things as: 1) whether students have achieved the learning goals we’ve established for them; 2) the relative strengths and weaknesses of our teaching/learning strategies; or 3) what changes in our goals and teaching/learning strategies might be appropriate.

**Goals**: General expectations for student intended outcomes.

**Indirect Measures**: Indirect methods such as surveys and interviews ask students to reflect on their learning rather than to demonstrate it.

**Learning Objectives**: Refers to the specific knowledge, skills, or attitudes that students are expected to achieve through their college experience; expected or intended student outcomes.

**Learning Outcomes**: Refers to the specific knowledge or skills that students actually develop through their college experience.

**Mission**: A general statement of purpose guiding the practices of an institution or program.

**Performance Assessment**: Assessment technique involving the gathering of data through systematic observation of a behavior or process and evaluating that data based on a clearly articulated set of performance criteria to serve as the basis for evaluative judgments.

**Portfolio**: A portfolio is collection of work, usually drawn from students' classroom work.

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1 Dictionary of Student Outcome Assessment, James Madison University.
EXECUTIVE SUMMARY

The Higher Learning Commission of the North Central Association (HLC/NCA) requires that institutions have a campus-wide assessment plan in place as part of the student learning outcomes assessment process. In September 2008, Provost Dr. Warren K. Wray appointed the university assessment committee. He asked the Committee to review the current university assessment policy, procedure, and tools and techniques, and develop a comprehensive assessment plan to fulfill the university’s mission and values consistent with the university strategic plan.

The university assessment plan has three major components. Section One of the assessment plan provides a brief introduction to assessment at Missouri S&T which includes the context and the need for the university assessment plan.

Section Two presents a comprehensive overview of the university philosophy of assessment. This overview addresses current ongoing accountability issues at the national, state, regional, and professional level, and the institutional desire for continuous improvement of student learning. Section 2.1 on accountability provides a brief overview of the Spellings Commission report and the Voluntary System of Accountability (VSA) as a response to the Spellings Commission. In addition, state level mandatory accountability requirements from the Missouri Coordinating Board for Higher Education (CBHE) are presented in detail. Section 2.2 focuses on the criteria for student learning from the Higher Learning Commission as well as program education objectives and program outcomes from the Accreditation Board for Engineering and Technology (ABET). A brief overview of the Association to Advance Collegiate Schools of Business (AACSB) requirements for accreditation, especially at the graduate level for business programs is presented. Finally, Section 2.3 summarizes the
institutional mission and values, university assessment policy and the university learning outcomes guided by the university strategic plan.

Section Three provides an overview of the university assessment plan within the context of the university philosophy of assessment. Section 3.1 provides a detailed discussion of the general education assessment, major field assessment, assessment of graduate learning, student experience and satisfaction, and various assessment techniques adopted by several academic departments. Missouri S&T administers the Measure of Academic Proficiency and Progress (MAPP) test and the College Basic Academic Subjects Examination (College BASE) as general education assessment tools. All seniors are assessed their knowledge and skills in their major fields. The assessment tools include the Fundamentals of Engineering Exam (FE) (engineering programs), Major Field Tests (MFT) (non-engineering programs), and Praxis II (the teacher education program). Current assessment processes in selected areas of graduate education are provided as a way of improving graduate learning outcomes in other disciplines. Missouri S&T has a long history of assessment of student experience and satisfaction through the Cooperative Institutional Research Program (CIRP), National Survey of Student Engagement (NSSE) and several locally administered satisfaction surveys. To enhance the student experience and satisfaction, the Plan calls for the administration of the Faculty Survey of Student Engagement (FSSE) and the Student Satisfaction Inventory (SSI) on a regular basis. In addition to the campus level assessment techniques described above, all academic departments administer numerous direct and indirect assessment tools to understand the learning outcomes. Section 3.2 of the Plan presents the assessment data collection and analysis and the dissemination of the results to various campus constituents. The remainder of the section discusses one of the most important aspects of assessment student outcomes – use of assessment results for continuous improvement.
1 INTRODUCTION

Since the early 1980s, assessment has been in the forefront as one of the key issues shaping the higher education debate in the United States. Within this context, Missouri University of Science and Technology (Missouri S&T) has a long history of assessment of student learning partly mandated by Missouri’s Coordinating Board for Higher Education (CBHE) and the discipline based accreditation of its engineering programs from the Accreditation Board for Engineering and Technology (ABET). Teaching and student learning are continuously enhanced by the assessment functions that are decentralized at the departmental level. Some of the assessment functions such as general education assessment, student satisfaction and engagement, freshmen experience are centralized at the institutional level. The new strategic plan calls for the creation and the implementation of a campus-wide assessment plan for Missouri S&T. This is necessary in part due to the reorganization of the colleges into academic departments reporting directly to the Provost.

As described earlier, much of the current efforts in assessment at Missouri S&T are guided by the institutional philosophy for improvements in the student learning process as well as state mandates. The requirement to assess students originates from a directive at the Governor’s Office and the legislature of the State of Missouri. Public universities are accountable to the State, and are expected to prove, by demonstrating student performance outcomes, that funds are being spent appropriately. While the State Coordinating Board for Higher Education (CBHE) doesn’t prescribe any specific assessment tests or practices, it does require that institutions evaluate student learning outcomes of the general education as well as the core curriculum and share the results of such efforts with CBHE in an aggregate form. The
Board of Curators has supported that directive, and the campus assessment committee has developed Missouri S&T’s assessment policy in order to implement the directive.

This document is developed by the university assessment committee based on the university’s philosophy of assessment. This document presents the rationale of assessment as well as the framework of Missouri S&T’s assessment plan.

2 PHILOSOPHY OF ASSESSMENT

Assessment is a means for general process improvement and accountability that occurs at different levels and in different contexts. Assessment should be fully integrated into the institution’s entire operational system.

Assessment should be guided by clearly stated student learning processes and outcomes that flow from and support the institution’s mission. Principles of assessment apply to all modes of instructional delivery.³

Assessment at Missouri S&T serves three primary purposes:

1. improvement of student learning and instruction;
2. accomplishment of institutional mission; and
3. accountability for the achievement of educational goals.

2.1 Accountability

2.1.1 Spellings Commission

In September 2006, *The Secretary of Education’s Commission on the Future of Higher Education* noted that U.S. education needs to improve in dramatic ways and, that unfulfilled promises of American colleges and universities remain.

³ Missouri Assessment Consortium Handbook (2nd edition), December 1999
To overcome the issues facing American higher education, the Commission identified several areas/issues that need to be addressed: Access, Cost and Affordability, Financial Aid, Learning, Transparency and Accountability and Innovation. While arguing for the increased transparency and accountability for institutional performance, the Commission felt institutions should measure and report meaningful student learning outcomes using national standardized assessment tests such as CLA (Collegiate Learning Assessment), MAPP (Measure of Academic Proficiency and Progress), CAAP (Collegiate Assessment of Academic Proficiency), and make them publicly available in a consumer friendly format as a condition of accreditation.

2.1.2 Voluntary System of Accountability

In response to the increased calls for accountability from the Spellings Commission, the Voluntary System of Accountability (VSA) was developed to communicate information on the undergraduate student experience through a common web reporting template, the College Portrait.

The College Portrait provides consistent, comparable and transparent information on the characteristics of institutions and students, cost of attendance, student engagement with the learning process, and core educational outcomes. The information is intended for students, families, policy-makers, campus faculty and staff, the general public, and other higher education stakeholders.

The VSA is a voluntary initiative for 4-year public colleges and universities. Developed through a partnership between the American Association of State Colleges and Universities (AASCU) and the National Association of State Universities and Land-Grant Colleges (NASULGC), the VSA is designed to help institutions meet the following objectives:

1. demonstrate accountability and stewardship to the public;
2. measure educational outcomes to identify effective educational practices; and

3. assemble information that is accessible, understandable, and comparable.

Missouri S&T has been an early adopter to VSA. The College Portrait has been published on the university’s homepage.

2.1.3 Coordinating Board for Higher Education

The Missouri Department of Higher Education (MDHE) has supported a broad range of initiatives by institutions, organizations, and other stakeholders to strengthen assessment of student learning across postsecondary education in the state.

Throughout the years, Missouri institutions have worked individually and collectively to develop assessment programs that are responsive to both external and internal constituencies. In addition, public institutions have participated in a grass-roots assessment consortium, the Missouri Assessment Consortium (MAC), since 1991 to promote good practice and share exemplary models.

While the MDHE does not directly mandate any specific student assessment, a robust culture of assessment at the postsecondary level is encouraged by the Coordinating Board for Higher Education, as well as directed and evaluated by institutional accreditors and other state agencies responsible for professional licensure. The MDHE has also coordinated state initiatives designed to promote meaningful student assessment, and the Department annually collects data to measure the scope of student assessment across public institutions.

Each institution of higher education in Missouri fosters a program of general education. General education programs vary from institution to institution as each represents a statement reflective of the institution’s ethos and mission. General education programs are developed by

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the faculty and validated by the institution’s administration and governing board. Each institution expresses, through its general education program, the high expectations for the academic skills and knowledge that all students should master who complete degrees offered by that institution. Consistent with its mission, each public institution of higher education in Missouri and each independent or proprietary signatory to this policy shall offer a general education program that is designed to enable students to achieve the following general education goals and competencies.

Two terms describe the aims of general education in the state of Missouri, goals and competencies. The term goals refers to the curricular intent of state policy regarding the academic skills and knowledge content of general education. The term competencies denotes illustrative state-level expectations for student performance in general education. Faculty at each institution design a general education program that fits the ethos and mission of each institution and meets state-level curricular goals. Each general education program must also specify institution-level student competencies that will follow from achieving these curricular goals and which are in alignment with the suggested competencies listed in the following sections. These general education aims and outcomes may be achieved in various ways, including traditional courses, interdisciplinary teaching, or competencies embedded across the curriculum.

State-level curricular goals and institution-level student competencies for general education fall into two categories: academic skills and knowledge5.

Skills Areas

1. Communicating

2. Higher-Order Thinking

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3. Managing Information
4. Valuing

Knowledge Areas
1. Social and Behavioral Sciences
2. Humanities and Fine Arts
3. Mathematics
4. Life and Physical Sciences

2.2 Accreditation

2.2.1 Higher Learning Commission of North Central Association of Colleges and Schools

While the assessment is a process for improving the institutional effectiveness and more specifically student learning outcomes, accreditation often plays a key role in defining the guiding principles of assessment at an institution. This is often more important at institutions such as Missouri S&T that offer a large number of programs that have both regional accreditation and discipline-based accreditation. Criterion 3 of the HLC accreditation states that “The organization provides evidence of student learning and teaching effectiveness that demonstrates it is fulfilling its educational mission.”

In crafting the Core Component 3a,

…, the Commission unambiguously embedded into its accreditation program its decade-long program to challenge affiliated organizations to create a culture of assessment. An organization needs to be accountable to itself and to its constituencies, to be clear about what it intends students to know and to do, and to find ways of learning whether, as a result of the education provided, students actually know and can do. The culture of assessment ought to extend to all education and training provided by the organization, not simply to the degree programs it offers.

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6 The Handbook of Accreditation, version 1:10/3, The Higher Learning Commission, Chicago, IL
Commission Statement on Assessment of Student Learning

The Commission posited in October 1989 that assessment of student academic achievement is an essential component of every organization’s effort to evaluate overall effectiveness. The experience of the past fourteen years has demonstrated that it is key to improving student learning. Assessment of student academic achievement is fundamental for all organizations that place student learning at the center of their educational endeavors. Among the public’s many expectations of higher education, the most basic is that students will learn, and in particular that they will learn what they need to know to attain personal success and fulfill their public responsibilities in the twenty-first century. The focus has moved from considering resources as primary evidence of the quality of education to expecting documentation of student learning. An organization’s focus on achieved student learning is critical not only to promoting and improving effective curricular and cocurricular learning experiences and to providing evidence of the quality of educational experiences and programs, but also to enhancing the public’s perception of the value of higher education.

The Commission appreciates that effective assessment can take a variety of forms and involve a variety of processes. However, faculty members, with meaningful input from students and strong support from the administration and governing board, should have the fundamental role in developing and sustaining systematic assessment of student learning. Their assessment strategy should be informed by the organization’s mission and include explicit public statements regarding the knowledge, skills, and competencies students should possess as a result of completing course and program requirements; it also should document the values, attitudes, and behaviors faculty expect students to have developed. Moreover, while strong assessment should provide data that satisfy any externally mandated accountability requirements, its effectiveness in improving student learning relies on its integration into the organization’s processes for program review, departmental and organization planning, and unit and organizational budgeting.

An organization’s commitment to and capacity for effective assessment of student learning will figure more prominently than ever in the accreditation relationship established between the Commission and that organization. The Criteria for Accreditation, the Core Components, and the Examples of Evidence adopted by the Commission in 2003 forge important new links between assessment of student learning and accreditation. More than just an effective strategy for accountability or an effective management process for curriculum improvement, assessment of student achievement is essential for each higher learning organization that values its effect on the learning of its students. Therefore, an organization committed to understanding and improving the learning opportunities and environments it provides students will be able to document the relationship between assessment of and improvement in student learning.

Adopted: February 21, 2003

Source: The Handbook of Accreditation, version 1:10/3, The Higher Learning Commission, Chicago, IL
2.2.2 Accreditation Board for Engineering and Technology

ABET defines assessment as “one or more processes that identify, collect, and prepare data to evaluate the achievement of program outcomes and program educational objectives. To enable the consistent understanding of the terminology, ABET defines the following program educational objectives and program outcomes as follows:

- **Program Educational Objectives** are broad statements that describe the career and professional accomplishments that the program is preparing graduates to achieve.
- **Program Outcomes** are narrower statements that describe what students are expected to know and be able to do by the time of graduation.

Of the nine criteria for baccalaureate level program accreditation in engineering, Criterion 2 and Criterion 3 focus on educational objectives and outcomes.

**Criterion 2. Program Educational Objectives**

Each program for which an institution seeks accreditation or reaccreditation must have in place:

a) published educational objectives that are consistent with the mission of the institution and these criteria;

b) a process that periodically documents and demonstrates that the objectives are based on the needs of the program’s various constituencies;

c) an assessment and evaluation process that periodically documents and demonstrates the degree to which these objectives are attained.
Criterion 3. Program Outcomes

Engineering programs must demonstrate that their students attain the following outcomes:

a) an ability to apply knowledge of mathematics, science, and engineering;
b) an ability to design and conduct experiments, as well as to analyze and interpret data;
c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;
d) an ability to function on multidisciplinary teams;
e) an ability to identify, formulate, and solve engineering problems;
f) an understanding of professional and ethical responsibility;
g) an ability to communicate effectively;
h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context;
i) a recognition of the need for, and an ability to engage in life-long learning;
j) a knowledge of contemporary issues;
k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Program outcomes are outcomes (a) through (k) plus any additional outcomes that may be articulated by the program. Program outcomes must foster attainment of program educational objectives. There must be an assessment and evaluation process that periodically documents and demonstrates the degree to which the program outcomes are attained.
Criterion 4 focuses on “Continuous Improvement.” Each program must show evidence of actions to improve the program. These actions should be based on available information, such as results from Criteria 2 and 3 processes.

ABET criteria for the Master’s level program are established at the program level and vary from discipline to discipline.

**2.2.3 Association to Advance Collegiate Schools of Business (AACSB)**

AACSB accreditation requires business programs to explicitly identify the learning goals and the demonstrations of achievement of learning goals. Four of the standards in the Assurance of Learning portion of the standards relate directly to the setting and achievement of learning goals. Those are standards 16, 18, and 19.

16: Bachelor’s or undergraduate level degree: Knowledge and skills. Adapting expectations to the school’s mission and cultural circumstances, the school specifies learning goals and demonstrates achievement of learning goals for key general, management-specific, and/or appropriate discipline-specific knowledge and skills that its students achieve in each undergraduate degree program.

18: Master’s level degree in general management (e.g., MBA) programs: Knowledge and skills. Participation in a master’s level degree program presupposes the base of general knowledge and skills appropriate to an undergraduate degree. Learning at the master’s level is developed in a more integrative, interdisciplinary fashion than undergraduate education.

19: Master’s level degree in specialized programs: Knowledge and Skills. Participation in a master’s level program presupposes the base of general knowledge and skills appropriate to an undergraduate degree and is at a more advanced level.
The learning goals describe the desired educational accomplishments of the degree programs. Business programs are encouraged to choose, create, and innovate learning measures that fit with the goals of the degree programs, pedagogies in use, and the programs’ circumstances.

2.3 University and Program Assessment Policy

2.3.1 University Mission and Values

**Mission**

The mission of the Missouri University of Science and Technology is to integrate exceptional education and research to solve problems for our State and the technological world.

**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.

2.3.2 University Assessment Policy
General Guiding Principles in Missouri S&T’s Assessment Plan⁷:

1. Missouri S&T should inventory their assessment activities prior to the development of the campus assessment strategy, with a focus on defining the goals of the assessment process(es), including implications or impact of assessment results on budget and resource allocation.

2. Members of the faculty should be intimately involved in the development of the assessment approach and assessment tool(s) used.

3. Campus learning outcomes should be defined.

4. Assessment should cover both discipline-specific and general education learning outcomes and should be linked to curriculum review and refinement.

5. Assessment should be an ongoing activity that is reviewed periodically.

6. Missouri S&T should maintain awareness of the various factors associated with assessment.

7. Students and alumni should be involved in the development of the assessment approach.

2.3.3 University Assessment Goal and Learning Outcomes

Consistent with the university’s mission and values as stated in Section 2.3.1, the following seven learning outcomes define skills and knowledge for students graduating from Missouri S&T to solve problems for the technological world:

- an ability to communicate effectively both orally and in writing;
- an ability to think critically and analyze effectively;

• an ability to apply disciplinary knowledge and skills in solving critical problems;
• an ability to function in diverse learning and working environments;
• an understanding of professional and ethical responsibilities;
• an awareness of national and global contemporary issues; and,
• a recognition of the need for, and an ability to engage in life-long learning.

In support of these learning outcomes, and consistent with Missouri S&T’s Assessment Policy as stated in Section 2.3.2, the university’s assessment process is guided by one of the goals of the its strategic plan. Specifically, Goal 1.1 of the plan is to “[d]evelop an institutional culture of continuous improvement and regularly assess student outcomes.” We believe that our students’ learning will be optimized in a climate of continuous improvement and through continuing consideration and, where appropriate, implementation of program changes based on the results of our outcomes assessment processes.

2.3.4 Program Assessment Policy

At Missouri S&T, program/major/departmental level assessment polices are guided by the overall vision of the S&T’s strategic plan discussed in the previous sections. In addition, specific learning goals, objectives and outcomes for various disciplines are developed as per the criteria and the guidelines provided by the Higher Learning Commission as well as the discipline based accreditation agencies. More details about the program level assessment can be found in the section of 3.1.5.
3 OVERVIEW OF THE ASSESSMENT PLAN

3.1 Components of the Missouri S&T Assessment Plan

Based on the university’s philosophy of assessment, the assessment plan consists of six components. General education assessment aims to evaluate academic skills and knowledge that undergraduate students who complete general education courses should master. Major field assessment evaluates graduating seniors’ learning outcomes in their academic fields. The graduate program assessment is to assess mastery of academic skills and knowledge at the advanced level. The assessment of student experience and satisfaction is for institutional effectiveness in terms of learning environment, services and facilities. Academic departments use various assessment tools and techniques to measure student learning outcomes in the academic discipline. Non-academic departments use assessment tools to measure student learning outside of traditional classrooms.

3.1.1 General Education Assessment

Missouri S&T started assessing students’ learning outcomes in general education in 1994. Missouri S&T undergraduate students who have completed 45-75 credit hours are scheduled to take a general education test. The instrument used for general education assessment is the Measure of Academic Proficiency & Progress (MAPP) test, developed by the Educational Testing Service (ETS). It replaced the Academic Profile Test (APT) in Fall 2006.

The MAPP test is an integrated test of general education skills. It assesses four core skill areas – reading, critical thinking, writing, and mathematics – in the context of humanities, social sciences and natural sciences covered in general education courses. The Office of Institutional Research and Assessment (OIRA) administers the MAPP test in the Spring and Fall semesters. The test results are posted on the OIRA website (http://ira.mst.edu/assessment.html). The
average scores of reading, writing, mathematics, and critical thinking are used to assess our
students’ general education learning outcomes. Missouri S&T’s average scores (total score and
four subscores) are compared to the reference group’s average institutional scores provided by
ETS. Missouri S&T is assigned to the reference group of research/doctorate universities by ETS.

Starting the academic year of 2009, Missouri S&T’s senior students will be scheduled to
take the MAPP test as well. The average scores of critical thinking and writing will be reported
on the College Portrait of Undergraduate Education (Voluntary System of Accountability). The
scores’ difference will indicate student learning gains from the sophomore year to the senior
year.

Students who are in the Teacher Education Program take the College BASE (Basic
Academic Subjects Examination). The College BASE is developed by the Assessment Resource
Center at the University of Missouri - Columbia to qualify individuals for entry into teacher
education programs and to test general academic knowledge and skills. The College BASE
content covers four subject areas: English, mathematics, science, and social studies.

Missouri S&T has administered the College BASE for several years. The College BASE
is administered on campus five times a year. Passing the College BASE is a requirement to
become a certified teacher in the State of Missouri. The percentage of passing rate on the first
attempt is calculated and compared with the State’s data.

3.1.2 Major Field Assessment (Discipline-Specific Assessment)

Missouri S&T assesses students’ learning outcomes in major fields. All senior students
are scheduled to take a major field test, such as the Fundamentals of Engineering (FE) exam, the
Major Field Tests (MFT) for non-engineering majors, or the Praxis II for students in the teacher
education program.
Missouri S&T seniors who are majoring in engineering are scheduled to take the Fundamentals of Engineering (FE) exam, which is in the charge of the National Council of Examiners for Engineering and Surveying (NCEES). The FE exam covers a comprehensive range of subjects in engineering. It includes a general exam common to all disciplines, and a discipline-specific (chemical, civil, electrical, environmental, industrial, or mechanical) exam.

The FE exam is offered on campus in the Spring and Fall semesters. The exam pass rate is used to assess students’ learning outcomes in engineering programs and is compared with the national rate provided by NCEES.

Missouri S&T seniors who are not majoring in engineering take the Major Field Tests (MFT), developed by ETS. The MFT assesses the mastery of concepts, principles and knowledge expected of students who have completed a specific program of study. The test evaluates students’ abilities to analyze and solve problems, understand relationships and interpret materials from the major field of study.

Missouri S&T offers tests in Biology, Business, Chemistry, Computer Science, Economics, History, Literature in English, Mathematics, Physics, and Psychology. The Office of Institutional Research and Assessment (OIRA) administers the MFT tests in the Spring and Fall semesters. The test results are posted on the OIRA website. The average total score in each subject is compared to the national institutional average scores provided by ETS.

Missouri S&T seniors who are in the teacher education program take the Praxis II tests, developed by ETS. The Praxis II tests measure knowledge of specific subjects that K-12 educators will teach, as well as general and subject-specific teaching skills and knowledge. The Praxis II tests are offered on campus seven times a year. Passing the Praxis II tests is required to
become a certified teacher in the State of Missouri. The average scores by subjects are calculated and compared with the State’s average scores.

3.1.3 Assessment of Graduate Learning Outcomes

Examples of how graduate learning outcomes are currently evaluated by graduate programs (Technical Communication, Manufacturing Engineering, Chemistry, and Mathematics and Statistics) at Missouri S&T are presented below:

**Technical Communication Program**

The Technical Communications graduate program uses comprehensive exams, student portfolios, and a thesis to evaluate student learning outcomes.

**Master of Science Comprehensive Exam Requirements:**

The M.S. candidate will select three courses from his or her program of study (e.g., Proposal Writing, Technical Editing, Research Methods in Technical Communication). The candidate will prepare a reading list of at least ten items (e.g., three books and eight journal articles) relevant to each of the three selected courses. Based on the reading list, the professor of each course (or a surrogate) will prepare a set of three questions from which the candidate will select one question to answer during the exam. In writing the exam, the candidate should strive for in-depth responses that demonstrate a good understanding of the subject. The responses should be well organized and free of mechanical errors, and they should make meaningful use of the sources from the approved reading list for that subject. A bibliography is not required, but the sources need to have been accurately identified and reflectively used in the response. The exam will be read by all committee members and then discussed at a meeting. The following criteria will be used to evaluate each response:

- The response addresses the question fully and competently.
The writing generally meets standards of edited English (avoids fragments, fused sentences, convoluted sentence structure; employs syntax, punctuation, and word choice that demonstrates writing proficiency).

The response accurately points to major published sources (i.e., at least three sources from the reading list), using them in support of statements made in the answer.

The comprehensive exam plays a significant role in program assessment. It reinforces and extends classroom learning by encouraging students to read additional material not covered in the coursework. Students pursuing the thesis option do not have to complete the comprehensive exam, but they must complete the portfolio in addition to the thesis.

Master of Science Portfolio Requirements:

Students pursuing either the thesis or non-thesis option in technical communication must submit a portfolio of their work during their final semester. The student and advisor must work closely together to prepare the portfolio. It will consist of five projects that reflect the quality and variety of the candidate’s work as a M.S. student. Projects can be selected from 300 and 400 level technical communication courses, projects from internships, a job, or a non-technical communication course. Examples of items that may be included in the portfolio include a proposal, a manual, a Website or CD or DVD, a white paper, and an editing project. The following items in the portfolio are required and should be presented in a professional way:

- An introduction that contextualizes, explains and critiques the project;
- The original assignment or project description;
- The version that was graded by the professor with the professor’s comments; and
- A revision based on the professor’s comments or feedback from the supervisor.
Two technical communication professors and the program director will review the portfolio and may ask the candidate to make changes and/or additions before approving the portfolio. The candidate cannot graduate until the portfolio is approved.

**Master of Science Thesis:**

The student’s M.S. thesis committee consists of at least three faculty members, including the advisor. The student works with the advisor and other committee members to complete the thesis. It is expected that the student will meet periodically with the advisor to discuss the research progress. The student will have to successfully defend his/her thesis in an open forum and submit the final thesis copy to the library.

**Manufacturing Engineering Program**

**Master of Engineering degree practice-oriented project requirement:**

A practice-oriented project is defined by the student and the academic advisor. At the end of the project, the student must demonstrate proficiency to operate specific manufacturing processes or he/she must demonstrate the capability to improve the manufacturing system/process. An oral presentation and report documenting the practice-oriented project are required at the end of the project.

**Chemistry Program**

**Master of Science thesis/non-thesis and Ph.D. degrees seminar requirement:**

All Chemistry graduate students are required to present a seminar over the thesis/dissertation research they have conducted. The seminar is presented during the semester prior to the semester of graduation. The seminar is typically 45 minutes in duration on their research area topic.

**Master of Science thesis and Ph.D. publication requirement:**
Chemistry M.S. thesis students are required to submit for publication at least one paper (refereed journal) or patent from the thesis. Chemistry Ph.D. students must submit at least two papers and/or patents or have one accepted by a refereed journal or the U.S. Patent Office.

**Mathematics & Statistics Program**

Master of Science non-thesis degree comprehensive examination:

Non-thesis M.S. students are given two options for meeting the M.S. comprehensive exam requirement.

Option 1: They can take the Ph.D. qualifying exam. If they score over a certain threshold they are considered to have passed the M.S. comprehensive requirement.

Option 2: A five-person faculty committee writes, administers and grades an exam that can be done in parts where each professor may give a small exam in class or assign a take-home exam. Some committees may choose to administer a comprehensive exam that may be both written and oral in nature.

**Improvement Areas in Graduate Program Assessment**

Individual graduate programs at Missouri S&T employ various means to measure graduate learning outcomes. Some graduate programs employ a formal annual review of the progress made by doctoral students. The identification and assessment of learning outcomes for graduate students should be conducted at multiple levels including the course-level, the program-level, and the campus-level. The identification and assessment of graduate learning outcomes at the campus-level is one that will need to be addressed in the immediate future. We are investigating the possibility of implementing a campus-wide annual dissertation assessment of student progress in research study, technical publications/presentations, teaching, and any other research/teaching activities. Graduate learning outcome rubrics have to be developed and
monitored at the program and the campus level. The rubrics should include appropriate direct and indirect measures of student learning. The graduate learning outcome results should be used to close the loop to improve the graduate curricula and programs. The proposed time-line for implementing campus-wide graduate learning outcomes initiative is listed below:

1. Discuss and define campus-level learning outcomes and learning objectives 2008-2009;
2. Define suitable methods for assessing doctoral student outcomes 2009-2010;
3. Conduct assessments 2010-2011;
4. Use assessment data for program evaluation 2011-2015;
5. Implement Changes to the graduate programs 2012-18;
6. Appropriate resources commensurate with the campus-wide graduate learning outcomes initiative outlined above will be identified by the campus leadership.

3.1.4 Assessment of Student Experience and Satisfaction

Cooperative Institutional Research Program - Freshman Survey (CIRP)

The Cooperative Institutional Research Program (CIRP) is a national longitudinal study developed by the Higher Education Research Institute at the University California, Los Angeles (UCLA). The survey covers a wide range of student characteristics:

- Parental income and education, ethnicity, and other demographic item
- Financial aid
- Secondary school achievement and activities
- Educational and career plans
- Values, attitudes, beliefs, and self-concept

Missouri S&T’s incoming freshmen are scheduled to fill out the CIRP Freshman Survey prior to their first day on campus. Missouri S&T has administered the CIRP survey since 1967.
The OIRA will administer it every three years (see Appendix A). The results of the CIRP provide a comprehensive portrait of entering students’ character at Missouri S&T.

**Entering Student Survey (ESS)**

The Entering Student Survey was developed by the Enrollment Management Office. The Enrollment Management Office started to administer this Survey in fall 2003. It is conducted at the Preview, Registration and Orientation program of every fall semester to the first year students. The Survey assesses entering students’ expectations of college experience in academic study, social life, and campus activities. The results of the survey provide the freshmen profile.

**National Survey of Student Engagement (NSSE)**

The National Survey of Student Engagement (NSSE) obtains information about student participation in programs and activities that institutions provide for their learning and personal development. It is coordinated by the Indiana University Center for Postsecondary Research. The survey assesses the extent to which students engage in a variety of educationally effective activities in the following aspects:

- Level of Academic Challenge
- Active and Collaborative Learning
- Student-Faculty Interaction
- Enriching Educational Experiences
- Supportive Campus Environment

Missouri S&T freshmen and seniors have completed the NSSE survey since 2001. The OIRA will administer the web version of NSSE every three years (see Appendix A). The results of this survey provide a fair picture of lower-division and upper-division students’ collegiate experience at Missouri S&T.
**Faculty Survey of Student Engagement (FSSE)**

The Faculty Survey of Student Engagement (FSSE) is designed to measure faculty expectations for and observations of student engagement in educational practices that are known to be empirically linked with high levels of learning and development. The FSSE focuses on:

- Faculty perceptions of how often students engage in different activities
- The importance faculty place on various areas of learning and development
- The nature and frequency of faculty-student interactions
- How faculty members organize their time, both in and out of the classroom

The FSSE is designed to complement the National Survey of Student Engagement (NSSE). It is coordinated by the Indiana University Center for Postsecondary Research. The OIRA will administer the FSSE in 2009. All faculty members will be invited to complete the web version of this survey. The results of NSSE and FSSE will provide a comprehensive picture of student engagement at Missouri S&T.

**Student Satisfaction Inventory (SSI)**

The Student Satisfaction Inventory (SSI) measures student satisfaction and priorities, showing how satisfied students are, as well as what issues are important to them. It is developed by Noel-Levitz, Inc. The SSI covers the following areas:

- Academic Advising Effectiveness
- Campus Climate
- Campus Life
- Campus Services
- Instructional Effectiveness
- Recruitment and Financial Aid
• Registration Effectiveness
• Safety and Security
• Student Centeredness

Missouri S&T started administering the SSI in Spring 2008, and the OIRA will administer the survey every two to three years (see Appendix A). All enrolled students are invited to complete the SSI. The results of the SSI are used to improve the quality of student life and learning.

3.1.5 Academic Departmental Assessment Techniques

In addition to the institutional level assessment, various assessment techniques, including direct and indirect assessment, are applied at the academic department level. The tables of direct and indirect measures will be sent to all academic departments to fill out in the near future.

3.1.5.1 Direct Assessment Tools

Comprehensive examination, embedded questions, graduate record examination, national exams assessing subject matter knowledge, performance assessment for graduating seniors, senior seminar, senior thesis/project, student portfolio, and general education assessment examinations are used to directly assess student learning achievement at the program level. The following table shows how direct assessment tools are used to measure student learning outcomes.

<table>
<thead>
<tr>
<th>Learning Outcomes and Direct Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Program Name</strong></td>
</tr>
<tr>
<td><strong>Direct Assessment Technique</strong></td>
</tr>
<tr>
<td>Comprehensive examination</td>
</tr>
</tbody>
</table>
### Embedded questions

<table>
<thead>
<tr>
<th>Graduate Record Examination</th>
</tr>
</thead>
<tbody>
<tr>
<td>National exams assessing subject matter knowledge</td>
</tr>
<tr>
<td>Performance assessment for graduating seniors</td>
</tr>
<tr>
<td>Pre-tests/Post-tests</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Senior seminar</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Senior thesis/Project</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Student portfolio</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Other (please list)</th>
</tr>
</thead>
</table>

#### 3.1.5.2 Indirect Assessment Tools

Indirect assessment is an alternative method to assess student learning outcomes. The following indirect assessment techniques are applied to departmental assessment: alumni survey, analysis of student grade distribution, community service/volunteerism participation, curriculum/syllabus analysis, employer survey, examination of information contained in a department’s own database, exit interview, faculty judgment of student reasoning, focus group discussions, graduate school acceptance rates, identification and assessment of at-risk students, internship evaluation, job placement of graduating seniors, performance in graduate school, senior exit survey, student awards and scholarly achievements, student course evaluation, student
The following table shows how indirect assessment tools are used to measure student learning outcomes.

<table>
<thead>
<tr>
<th>Program Name</th>
<th>Indirect Assessment Technique</th>
<th>What is the Learning Outcome that you intend to measure from this technique? Please leave it blank, if not used.</th>
<th>Do you have any documentation of the results? (Yes or No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alumni survey</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analysis of student grade distribution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community service/volunteerism participation</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Curriculum/syllabus analysis</td>
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<tr>
<td>Employer survey</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Examination of information contained in department's own database</td>
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<tr>
<td>Exit interview</td>
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<tr>
<td>Faculty judgment of student reasoning</td>
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<tr>
<td>Focus group discussions</td>
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<tr>
<td>Graduate school acceptance rates</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Identification and assessment of at-risk students</td>
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</tr>
</tbody>
</table>
3.1.6 Non-academic Departmental Assessment Techniques

Aside from academic departments, other campus departments also assess student learning outcomes outside of classrooms, such as Career Opportunity Center, International Affairs, Alumni Association, and the Office of Undergraduate Studies. An assessment survey will be developed and sent to targeted departments every three years to evaluate what and how students learn outside of classrooms.

The Division of Student Affairs (SA) formed a Student Leadership Team in 2005. The charge for the team was to examine the various ways and areas in which SA programs contributed to the development of leadership skills for our students. The team developed a
leadership skill assessment instrument, the Student Leadership Inventory (SLI), to assess student leadership skill development. The SLI is typically used as a self-assessment tool, often in a pre-post format, with various groups of student leaders. In academic year 2008-09, SA used the Student Leadership Inventory (SLI) to assess student leadership skill development in:

- Athletics, with Intramural Supervisors
- Counseling & Disability Support Services (C&DSS), with Sue Shear participants
- Leadership and Cultural Programs, with various program participants
- Residential Life, with RAs and Hall Government leaders
- Student Life, with various program participants

3.2 University Assessment Process and Procedures

3.2.1 Assessment Data Collection and Analysis

Assessment data is collected both qualitatively and quantitatively by several offices and departments on campus. The Office of Institutional Research and Assessment administers various exams and surveys, collects data, and conducts numerous research studies on general education learning outcomes, major field assessment (non-engineering fields) as well as institutional effectiveness. In addition, faculty and staff in the Department of Civil, Architectural, and Environmental Engineering coordinate and administer, on a voluntary basis, the Fundamentals of Engineering examination on behalf of the NCEES for engineering majors. Surveys and exams conducted on a regular basis are listed in Appendix A. Most of the data is collected through online surveys or assessment instruments through web based implementation. General education and major filed tests are administered over a period of several weeks in the Fall and Spring semesters in a paper-based format and sent for evaluation to respective testing agencies. Most quantitative data is analyzed by SPSS, Clementine and Microsoft Excel.
programs. The results of these exams and surveys are kept in the Office of Institutional Research and Assessment. The results summary is shared with the campus at the OIRA website (http://ira.mst.edu/assessment.html).

Section 3.1.5 provides a list of direct and indirect assessment techniques done by academic departments. Several non-academic units also conduct surveys to understand student learning outcomes in an indirect way. In most cases, data is kept and analyzed at the department or program level.

3.2.2 Dissemination of Assessment Results

Currently several dispersed strategies are adopted by various departments on campus. However, the University does not have a strategy to distribute the assessment results to all the constituents on campus. While some of the results are available on departmental websites, most of the data is shared through email or in paper format among the departments. One of the most common and effective forms of sharing the results currently in practice is the numerous presentations by individual departments for various campus groups and campus-wide committees.

In the future, most of the data will be made available through a secured website accessible to everyone on campus. The Office of IRA website (http://ira.mst.edu/assessment.html) will serve as a common repository for dissemination of assessment data across various departments. In addition, an annual assessment report will be provided by the Office of Institutional Research and Assessment during the Summer semester. The report will consist of the results of exams and surveys administered by the OIRA during the academic year. Assessment results will be presented to students, faculty and staff on a regularly scheduled basis.
3.2.3 Use of Results and Continuous Improvement

The purpose of assessment activities is the continuous improvement of student learning based upon the use of assessment results. The University Assessment Committee will evaluate student learning outcomes annually, and make recommendations on improvement strategies to the Provost and the strategic plan committee.

3.2.4 Assessment Plan Implementation

The primary responsibility with the implementation of the assessment plan rests within the Office of the Provost and the Vice Provost for Academic Affairs. The following table indicates the relationships between the University Learning Outcomes and the assessment tools.

<table>
<thead>
<tr>
<th>University Learning Outcomes</th>
<th>Assessment Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>An ability to communicate effectively both orally and in writing</td>
<td>MAPP, College BASE, course level assessment</td>
</tr>
<tr>
<td>An ability to think critically and analyze effectively</td>
<td>MAPP, College BASE, course level assessment</td>
</tr>
<tr>
<td>An ability to apply disciplinary knowledge and skills in solving critical problems</td>
<td>FE, MFT, Praxis II, course level assessment</td>
</tr>
<tr>
<td>An ability to function in diverse learning and working environments</td>
<td>Departmental assessment techniques*</td>
</tr>
<tr>
<td>An understanding of professional and ethical responsibilities</td>
<td>Departmental assessment techniques*</td>
</tr>
<tr>
<td>An awareness of national and global contemporary issues</td>
<td>Departmental assessment techniques*</td>
</tr>
<tr>
<td>A recognition of the need for, and an ability to engage in life-long learning</td>
<td>Departmental assessment techniques*</td>
</tr>
</tbody>
</table>

* Departmental assessment techniques include, but are not limited to, alumni survey, comprehensive examination, curriculum/syllabus analysis, embedded questions, employer survey, exit survey/interview, student portfolio, senior seminar, and senior thesis/project.

Although most of the assessment strategies presented in the plan are already taking place, the proposed implementation plan will formalize the entire assessment process by identifying the responsibilities of various stakeholders in terms of who collects the data, who analyzes the results, what mechanisms are used to share the results with various departments and how the
results will be used for continuous improvement. This formal process will begin in the academic year 2009-10, subject to the approval of the faculty and the various units involved. The following table provides a brief summary of responsibilities by generic office or unit descriptor. That is, which specific academic departments or units are involved in the analysis and interpretation of assessment data, its subsequent dissemination, and ultimately program improvement are yet to be identified for the various assessment tools noted. The annual assessment cycle and the schedule of assessment activities are in Appendix A.

**Responsibility for Specific Assessment Activities**

<table>
<thead>
<tr>
<th>Assessment Tool</th>
<th>Administered by</th>
<th>Analysis and Interpretation</th>
<th>Reporting and Dissemination</th>
<th>Feedback and Improvement</th>
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</thead>
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<tr>
<td>ESS</td>
<td>EM</td>
<td>EM</td>
<td>EM</td>
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</tr>
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<td>IRA</td>
<td>IRA</td>
<td>IRA</td>
<td>AD</td>
</tr>
<tr>
<td>NSSE</td>
<td>IRA</td>
<td>IRA</td>
<td>IRA</td>
<td>AD</td>
</tr>
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<td>IRA</td>
<td>IRA</td>
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</tr>
<tr>
<td>MAPP</td>
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<td>AD</td>
<td>IRA</td>
<td>AD</td>
</tr>
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<td>MFT</td>
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<td>AD</td>
<td>IRA</td>
<td>AD</td>
</tr>
<tr>
<td>College BASE</td>
<td>Testing Center</td>
<td>TEP</td>
<td>TEP</td>
<td>AD</td>
</tr>
<tr>
<td>FE</td>
<td>CAEE</td>
<td>AD</td>
<td>VPAA</td>
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<tr>
<td>SSI</td>
<td>IRA</td>
<td>IRA</td>
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</tr>
<tr>
<td>Praxis II</td>
<td>Testing Center</td>
<td>TEP</td>
<td>TEP</td>
<td>AD</td>
</tr>
</tbody>
</table>

CIRP: Cooperative Institutional Research Program  
College BASE: College Basic Academic Subjects Examination  
ESS: Entering Student Survey  
FE: Fundamentals of Engineering Exam  
FSSE: Faculty Survey of Student Engagement  
MAPP: Measure of Academic Proficiency and Progress  
MFT: Major Field Tests  
NSSE: National Survey of Student Engagement  
SSI: Student Satisfaction Inventory  
AD: Academic Department  
CAEE: Civil, Architectural, and Environmental Engineering  
EM: Enrollment Management  
IRA: Institutional Research and Assessment  
TEP: Teacher Education Program  
VPAA: Vice Provost for Academic Affairs
3.2.5 Assessment Flowcharts

The following flowcharts demonstrate the university’s assessment in general education, major field areas, and a comprehensive picture of Undergraduate student assessment outcomes.

**General Education Assessment Flowchart**

- Missouri S&T’s Mission, Values, & Goals
- General Education Goals and Objectives
- Assessment Instruments
  - MAPP
  - College BASE
  - General Education Courses
- Mastery of Basic Skills
  - Reading
  - Writing
  - Critical Thinking
  - Mathematics
- Targeted Students
  - Sophomores

**Major Field Assessment Flowchart**

- Missouri S&T’s Mission, Values, & Goals
- Program’s Academic Goals and Requirements
- Assessment Instruments
  - FE Exam
  - MFT
  - Praxis II Tests
  - Departmental Assessment Techniques
- Mastery of Discipline-Specific Skills and Knowledge
- Targeted Students
  - Seniors
MISSOURI S&T's MISSION, GOALS, & OBJECTIVES

CIRP: Cooperative Institutional Research Program
College BASE: College Basic Academic Subjects Examination
ESS: Entering Student Survey
FE: Fundamentals of Engineering Exam
MAPP: Measure of Academic Proficiency and Progress
MFT: Major Field Tests
NSSE: National Survey of Student Engagement
SSI: Student Satisfaction Inventory
APPENDICES

Appendix A  Schedule of Assessment Activities

The Office of Institutional Research and Assessment administers several surveys and exams to various student bodies to assess student learning outcomes and experience and satisfaction. The following tables indicate the time scale of the survey and exam administration.

**Assessment Timeline**

<table>
<thead>
<tr>
<th>Survey or Exam</th>
<th>FY 03</th>
<th>FY 04</th>
<th>FY 05</th>
<th>FY 06</th>
<th>FY 07</th>
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<td>X</td>
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</tr>
</tbody>
</table>

CIRP: Cooperative Institutional Research Program
CBASE: College Basic Academic Subjects Examination
ESS: Entering Student Survey
FE: Fundamentals of Engineering Exam
FSSE: Faculty Survey of Student Engagement
MAPP: Measure of Academic Proficiency and Progress
MFT: Major Field Tests
NSSE: National Survey of Student Engagement
SSI: Student Satisfaction Inventory

*Assessment instruments administered by academic departments are not included.
“S” means “scheduled.”
## Assessment Annual Cycle

<table>
<thead>
<tr>
<th>Assessment Tool</th>
<th>Jan</th>
<th>Feb</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
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Appendix B  University Assessment Committee

University Assessment Committee Charges

The initial charge to the Committee is to articulate and develop the campus-wide assessment policies and procedures within the context of the university strategic plan for improving the student learning outcomes and fulfilling the accountability mandate. The Committee will identify the current assessment efforts in various departments and articulate campus-wide assessment efforts, identify gaps in assessment and reporting strategies and ensure that the assessment information is incorporated into decision making for program and curricula improvement and, finally, develop the campus-wide assessment plan.

University Assessment Committee Objectives

• To identify, review and develop the campus-wide assessment policies and procedures

• To review the current assessment tools and techniques and recommend any improvements

• To develop a comprehensive campus-wide assessment plan, incorporating the policies, procedures, assessment instruments, analysis and reporting strategies to ensure that the assessment data is used for decision-making

• To advice the Office of Institutional Research and Assessment on matters relating to selection, administration of assessment instruments and reporting strategies for campus-wide dissemination
University Assessment Committee Members (Academic Year 2008-2009)

Venkata Allada (Graduate Studies)

Carl Burns (Student Affairs)

Jeff Cawlfield (Freshmen Engineering)

Harvest Collier (Co-Chair, Undergraduate Studies)

Kelvin Erickson (Electrical Engineering)

Amy Gillman (Undergraduate Studies)

Larry Gragg (History & Political Science)

Kakkattukuzhy Isaac (Faculty Senate)

Thulasi Kumar (Co-Chair, Institutional Research & Assessment)

Dianna Meyers (Student Council)

Jia Ren (Institutional Research & Assessment)

Andrew Ronchetto (Student Council)

William Schonberg (Civil, Architectural, and Environmental Engineering)

Robert Schwartz (Academic Affairs)

Christa Weisbrook (Engineering Management & Systems Engineering)
Appendix C  List of Accredited Programs

**Accreditation Board for Engineering and Technology (ABET)**

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<th>Program</th>
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<td>Aerospace Engineering</td>
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<td>Architectural Engineering</td>
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<td>Engineering Management</td>
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<td>Metallurgical Engineering</td>
<td>1936</td>
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<tr>
<td>Mining Engineering</td>
<td>1936</td>
</tr>
<tr>
<td>Nuclear Engineering</td>
<td>1960</td>
</tr>
<tr>
<td>Petroleum Engineering</td>
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