

Admissions and Academic Program Procedures

Admission to Graduate Study

Any person who holds a bachelor's degree, a master's degree, or any equivalent degree from a college of good standing and who wishes to enroll as a graduate student at Missouri S&T must submit a complete package of application materials to the Director of Admissions. This package includes an application form, an official transcript from all undergraduate and any graduate institutions, and a non-refundable application fee of \$50.00 (U.S. currency only) payable to Missouri S&T. Other application materials may be required by individual programs, so please refer to the department's website or entry in the Areas of Study section of this catalog to find out the specific admission requirements for your prospective degree program. All graduate school admissions must be approved by the chair or designate of the appropriate department, as well as the Vice Provost for Graduate Studies.

Application Deadlines for U.S. Students

Application materials must be received by the Missouri S&T Office of Admissions by the following dates:

- Fall semester – July 15
- Spring semester – December 15
- Summer session – May 1

International Student Admission

Students from outside the United States who wish to enroll at Missouri S&T are required to submit all application materials required by their prospective department, as well as to demonstrate a command of English sufficient to pursue graduate work at Missouri S&T. International students for whom English is a second language, or whose schooling has been conducted in another language, must do one of the following:

a. Take the Test of English as a Foreign Language (TOEFL).

The minimum acceptable scores are listed on each department's website or entry in the Areas of Study section of this catalog.

Students may obtain TOEFL information from:

Test of English as a Foreign Language
Educational Testing Service
Box 899
Princeton, NJ 08540 USA
<http://www.ets.org/toefl>

The TOEFL Bulletin of Information and registration form may also be obtained in a number of cities outside the United States, and are often available at American embassies and consulates, Offices of the United States Information Service (USIS), United States educational commissions and foundations abroad, and binational centers. Students seeking Taiwanese editions of the TOEFL should apply to:

Language Center
2-1 Hsueh Road
Taipei, Taiwan

TOEFL scores should be sent directly to Missouri S&T, using school code 6876.

b. Take the International English Language Testing System (IELTS) exam.

The minimum acceptable overall band score on the IELTS exam is listed on each department's website or entry in the Areas of Study section of this catalog.

Students may obtain test information from:

IELTS Administration
7900 W. Division
River Forest, IL 60305
<http://www.ielts.org>

c. Attend and satisfactorily complete an Intensive English Program (IEP) within Missouri S&T's Applied Language Institute.

Students who enroll in an IEP must complete that program to the satisfaction of its director and academic coordinator (i.e. satisfy all graduation requirements) before they are allowed to enroll in full-time academic coursework. A student enrolled in an IEP may simultaneously enroll for a part-time academic course load with the approval of his or her academic department chair or designate, the director of the Intensive English Program, and the Vice Provost for Graduate Studies.

International Transfer Students

An international student enrolled in another American college or university is eligible to transfer to Missouri S&T if he or she

- has been enrolled full time at the school he or she was last authorized to attend during the term immediately preceding the transfer or last preceding vacation period, and
- applies to and is accepted at Missouri S&T, and
- plans to be a full-time student at Missouri S&T, and
- is financially able to attend Missouri S&T.

International students must

- Pay all expenses while at Missouri S&T. In most departments, financial assistance, in the form of research and/or teaching assistantships, is available to some qualified applicants. International students are encouraged to apply for these competitive assistantships.
- Submit a health history and immunization record to the Missouri S&T Health Services office.

International students are encouraged to seek transfer for the fall semester, if possible, so that they can complete the International Student Questionnaire during the summer months after finishing their previous academic program.

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Application Deadlines for International Students

Application materials for overseas students and international students who are already in the U.S. but who want to transfer to Missouri S&T into a different degree level or into a different degree program must be received in the Missouri S&T Office of Admissions by the following dates:

- Fall semester – June 15
- Spring semester – November 15
- Summer session – April 1

Application materials for stateside applicants transferring to Missouri S&T at the same degree level and the same degree program (straight transfer) must be received in the Missouri S&T Office of Admissions by the following dates:

- Fall semester – July 15
- Spring semester – December 15
- Summer session – May 1

Applications, transcripts, English proficiency test scores (if applicable), Missouri S&T's International Student Questionnaire, and any other materials required by an individual degree program must be received by the above dates in order to facilitate the student's admittance to Missouri S&T. Students whose credentials are not complete or are still being processed by the above dates may have their admission delayed. Students are strongly encouraged to submit their complete application package as early as possible, to ensure that all documents can be processed in a timely manner.

Readmission After a Lapse in Enrollment

Main campus students who do not register for one semester must complete and submit a Former Graduate Student Refresh Registration (SRR) Eligibility Form (available at <http://registrar.mst.edu>) in order to reinstate their registration. Distance education students who do not register for three consecutive semesters must complete and submit the SRR form to reinstate their registration. A returning student can use this form to reestablish his or her admission status, provided that the student

- has a graduate GPA greater than 3.0, and
- has received fewer than nine credit hours of F and/or C grades, and
- has taken his or her first graduate course within the past six years, and
- has taken fewer than twelve credit hours under probationary M.S. status.

All these criteria must be met in order for the student to reestablish active status as a regular graduate student. If any of these criteria are not met, the student must reapply for graduate admission to his or her former department. A student who wishes to change departments or change from non-degree status to regular or probationary graduate status must submit a complete graduate admissions application package to his or her prospective department.

Admission Categories and Graduate Student Classifications

Graduate students at Missouri S&T are admitted or classified in one of the following categories:

Regular Status

Admission as a regular graduate student is normally limited to those who ranked in the upper third of their baccalaureate graduating class or who have done quality work at the graduate level. For this requirement, a cumulative B average (3.0 CGPA on a 4.0 scale), or a B average (3.0 GPA on a 4.0 scale) for the student's last sixty credit hours of undergraduate coursework is considered equivalent to an upper one-third standing. If the student's undergraduate coursework does not meet the standards of the graduate degree granting department, the student may be required to take additional courses, for non-graduate credit, as determined by the chair or designate of the major department. For more specific information about minimum GPA requirements, please consult your prospective department's website or entry in the Areas of Study section of this catalog.

Probationary Status

Any person not eligible for admission as a regular graduate student may be considered for admission as a probationary graduate student. Probationary graduate admission is normally limited to those students who ranked in the upper one-half of their baccalaureate graduating class, or who have achieved at least a cumulative 2.75 GPA (on a 4.0 scale) for their entire undergraduate career, or a 2.75 GPA (on a 4.0 scale) for their last sixty credit hours of undergraduate coursework. Minimum GPA requirements for particular departments may be set higher, so please consult your prospective department's website or entry in the Areas of Study section of this catalog for more specific information.

Any probationary graduate student who subsequently desires to pursue a degree as a regular graduate student may apply to change his or her status from "probationary" to "regular." However, such consideration is not permitted until the probationary graduate student has completed a minimum of twelve credit hours of graduate coursework with a cumulative grade point average of 3.0 or higher. After these initial twelve hours are completed satisfactorily, the probationary student may, with the concurrence of his or her advisor, apply for regular student status by submitting Form 1. The approval of Form 1 by the department chair and the Vice Provost of Graduate Studies confers "regular" status to a formerly "probationary" graduate student.

Only those credits completed as a probationary graduate student that are subsequently approved by the student's advisor, department chair, and Vice Provost for Graduate Studies may be applied toward a graduate degree. However, all coursework completed as a probationary graduate student, as well as the student's GRE scores, will be considered relevant to this change-of-status decision. Probationary graduate students may retain their probationary status for no more than one additional semester after completing their first twelve hours of graduate coursework. Regardless of the student's admission status, all

completed graduate coursework (excluding research and special problems) will apply toward the student's cumulative GPA. Students with probationary status are not allowed to register for 490 credit until the semester in which the minimum of twelve credit hours of graduate coursework that form the proposed schedule on Form 1 will be completed.

Non-degree Status

Any prospective student who wishes to study at the graduate level but who does not intend to pursue a graduate degree may be considered for admission as a non-degree graduate student. Typically, this category of admission applies to, but is not restricted to, individuals who have a job-related need for a particular graduate-level course. Admission to non-degree graduate student status requires an application form, official transcripts, and an application fee, but neither GRE nor GMAT scores are required. Prospective students seeking admission in this category are encouraged to refer to their prospective department's website or entry in the Areas of Study section of this catalog for further department-specific information regarding non-degree status admission requirements.

Up to nine hours of graduate coursework taken as a non-degree student may be counted toward a Missouri S&T graduate degree program, if applicable. Furthermore, if a student initially enrolls as a non-degree student and is subsequently accepted into a graduate degree program before completing a particular course, that course may be accepted toward the graduate degree program subject to approval by the student's advisor, department chair, and the Vice Provost for Graduate Studies.

Non-degree students may enroll in any graduate course. Coursework taken to fulfill the requirements of an approved certificate program can, in some cases, be transferred into a degree program with the approval of the department chair and the Vice Provost for Graduate Studies. Additional information about graduate certificate programs is available on the department websites and in the Areas of Study section of this catalog.

Students who must take particular undergraduate courses due to their different or deficient undergraduate degree, or for any other reason, but who otherwise meet graduate admission requirements are encouraged to apply for graduate admission by the first semester that they plan to take one or more graduate courses. These students must receive permission from their department in order to enroll in these graduate courses.

Dual Student Status

Undergraduates may apply for dual enrollment as both an undergraduate and a graduate student for the second semester of their senior year. A student who seeks dual enrollment must submit an application to the Director of Admissions. Admission for dually enrolled students is granted by the department chair and the Vice Provost of Graduate Studies. Admission is normally limited to those students who rank in the upper third of their undergraduate class. As an alternative to class rank, students who have at least a 3.0 GPA for the previous three semesters and at least a 3.0 mid-semester GPA in the semester prior to registering shall be permitted to dually enroll. Undergraduates in the

honors program may be dually enrolled for two semesters of their senior year. A form for this purpose can be obtained at <http://registrar.mst.edu/documents/dualenrolled.pdf>. Students must declare which courses are to be taken for graduate credit within the first two weeks of the semester. A dually enrolled student must take at least three hours of undergraduate credit from Missouri S&T each semester.

Dually enrolled students are limited to sixteen total credit hours per semester, but petitions for additional credit hours will be considered by the Provost. Petition forms are available at <http://registrar.mst.edu/documents/dualenrolled.pdf>. If a dually enrolled student fails to meet minimum undergraduate scholastic standards, his or her resulting academic probationary status will be that of an undergraduate and will be evaluated without reference to the student's grades in his or her graduate course(s).

Graduate Student Forms

With the help of their advisors and department chairs, all graduate students must complete and submit a series of forms to the Office of Graduate Studies throughout the course of their degree programs. These forms are used to indicate academic intentions, details of degree programs, membership of advisory committees, and performance on various examinations. All graduate student forms are available in the Office of Graduate Studies and online at <http://grad.mst.edu/currentstudents/gradforms.html>.

Graduate Student Appeals

Graduate students at Missouri S&T have the right to appeal decisions made about their performance or their status. For details regarding the appeals procedure, please refer to the Student Academic Regulations Handbook, available online at <http://registrar.mst.edu/academicregs/>.

Graduate Student Registration

The graduate student registration guidelines are outlined in Policy Memorandum No. II-20, for the current policy Memo II-20 see: <http://chancellor.mst.edu/documents/II20.pdf>. The policies below are taken directly from that document.

A. Registration Guidelines for All Graduate Degree Candidates

1. The full-time load for graduate students is a minimum of nine credit hours for a semester and three credit hours for a summer session.
2. Students possessing an F-1 or J-1 student visa may be subject to additional course enrollment requirements in order to retain their student visas.
3. Students may also be subject to the registration requirements of other agencies, such as federal financial aid, etc.
4. All graduate teaching and research assistants (GTA/GRA), including graduate assistants (GA), graduate instructors, and teaching fellows, are required to enroll for at least nine credit hours each semester and three credit hours during the summer session.
5. Graduate students using campus resources will enroll for credits consistent with their usage,

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as determined by their department and their own needs for credit.

6. On-campus graduate students conducting off-campus research for credit must obtain advance approval from the department chair and the Office of the Vice Provost for Graduate Studies.
7. If an on-campus graduate student defends his or her thesis or dissertation during the intersession, then an examination-only fee is an appropriate substitute for the three-credit hour-minimum enrollment requirement. Intersession, for the purposes of this section, refers to the specific interval of time between the closing date of one academic session (a semester or summer session) and one week before the commencement of classes in the academic session that immediately follows.
8. A one-time only, exit semester exemption of full-time enrollment is available to students in the terminal semester of studies at Missouri S&T. If a student does not graduate at the end of the semester of reduced enrollment, full-time enrollment will be required in each and every subsequent semester until the student graduates. Full-time enrollment consists of at least 9 credit hours in each regular semester and at least 3 credit hours for each summer session until the student graduates. This may adversely affect the student's availability for co-op or Curricular Practical Training.

B. Other Registration Guidelines for Candidates for a Doctoral Degree

1. After completing the residency requirement and passing the comprehensive examination for the doctoral degree, the doctoral student must remain enrolled until the degree is completed or the candidacy is cancelled. A student actively engaged in research work toward the degree at an off-campus location must be enrolled for credit commensurate with this activity, but in no case fewer than three credit hours each semester or summer session.
2. When all requirements except the dissertation have been completed, and the candidate is not using the university facilities, he or she must enroll for at least one credit hour for each registration period until the degree is completed. Failure to do so may invalidate the candidacy. Registration and billing will be automatic after the student passes the comprehensive examination, once application for continuous registration is made and approved on the Continuous Registration form.
3. Interruption of continuous registration due to failure to comply (e.g., non-payment of fees) may result in the need for readmission under requirements then in effect.

C. Other Registration Guidelines for Candidates for a Master's Degree

An examination-only fee is an appropriate substitute for the three-credit-hour minimum enrollment requirement when a master's degree student who has (in a previous session) completed all other requirements for the degree and is no longer an on-campus student returns at any time during the semester to defend the thesis or take the M.S. comprehensive examination.

D. Other Registration Considerations

Students enrolled in oral examination only during an intersession and who fail to submit the library copy of thesis/dissertation before the next academic session begins must register for at least one hour of research(490) through the end of the fourth week of the semester or the second week of the summer session. All non-resident students on appointment during the previous semester may enroll at the in-state educational fee rate. If the Thesis/Dissertation Approval and Report on Examination for Master's Degree and the library copy of the thesis/dissertation are not submitted by that time, the student will enroll in at least three but no more than nine credit hours, depending on the student's individual circumstances.

Graduate Assistantship Workload

A graduate student enrolled in a full-time academic program may enroll in no more than sixteen credit hours of coursework during any regular semester and nine credit hours during the summer session, except for those students enrolled in the eighteen-credit-hour MBA core semester. Graduate students who are employed by the university as graduate instructors, teaching fellows, or graduate teaching and research assistants may not exceed a total of eighteen credit hours during a regular semester or nine credit hours for the summer session of combined coursework and employment assignment. The credit-hour equivalent for graduate teaching appointments varies according to how many hours the student teaches. The chart below outlines permissible schedules for graduate instructors, teaching fellows, and graduate teaching and research assistants. The "Appointment" column indicates the level of employment assigned to a graduate student. FTE stands for Full Time Equivalent. A 0.25 FTE appointment requires approximately ten hours per week of effort; a 0.375 FTE appointment requires approximately fifteen hours per week of effort; a 0.50 FTE appointment requires approximately twenty hours per week of effort; a 0.675 FTE appointment requires approximately twenty-five hours per week of effort; and a 0.75 FTE appointment requires approximately thirty hours per week of effort. Graduate Instructors accept the responsibilities of a full-time position that requires forty hours per week of effort. The time commitment of Teaching Fellows varies. The "Credit Hours of Coursework" columns indicate the maximum number of academic credit hours in which a student with a particular appointment may enroll during a semester or summer session.

Credit Hours of Coursework

Appointment	Regular Semester	Summer Session
0.250 FTE Grad. Asst.	14	7
0.375 FTE Grad. Asst.	13	6
0.500 FTE Grad. Asst.	12	6
0.625 FTE Grad. Asst.	11	5
0.750 FTE Grad. Asst.	10	5
Graduate Instructor	8	4
Teaching Fellow	9	0

In addition to the above schedule, any graduate student may enroll for no more than one credit hour in graduate seminar courses in a given semester.

Enrollment Requirements for Students on GTA/GRA/GA or Graduate Fellowships of 0.25 FTE or More

Graduate students employed by Missouri S&T as Graduate Teaching Assistants, Graduate Research Assistants, or Graduate Assistants, or who receive university or departmental fellowships at the 0.25 FTE or higher level, are expected to enroll in at least nine credit hours per academic semester. Students hired in these positions will pay regular educational fees for the first six hours; the educational fees for all hours beyond the first six will be covered by a fee waiver. This policy is known as the 6/9 rule. All other charges and fees, including the engineering course supplementary fee, are not covered by this fee waiver. Furthermore, only courses for the graduate degree that are approved on Forms 1, 1-A, 5, or 5-A, or prerequisites for these courses, shall be covered by the fee waiver under the 6/9 rule.

Grading System for Graduate Students

Grades in graduate courses, with the exception of 490 research, are A, B, C, and F. A is an honor grade and indicates outstanding work. B means that the work is entirely satisfactory. C means that the work will be considered satisfactory, to a limited extent, in fulfilling the requirements for advanced degrees. F means that the student has not earned credit for the course. Research (490), internship (491), and continuous registration (495) grades are Satisfactory (S) and Unsatisfactory (U). Grades of S and U are also permitted for Special Problems (300 and 400) and Seminar (310 and 410). For ongoing research (490), a delayed grade (DL) can be used. Delayed grades are sometimes assigned to students enrolled in 490 until all of the research has been satisfactorily completed and the thesis or dissertation is successfully defended. Delayed grades may be changed to S upon satisfactory completion of the research or U if the research is not satisfactorily completed.

The grade of Incomplete (I) is given only at the end of a semester or session in which the student is prevented from completing a course due to sickness or unavoidable absence within the last four weeks of a semester or session (three weeks of class plus finals week). Incomplete grades can be assigned only if the student had earned a passing grade in the course up to the time of such sickness or unavoidable absence. Effective Winter 2001, students must complete the work in which they are deficient within one year from the close of the semester in which the Incomplete (I) grade was recorded. Failure to do so will cause the incomplete grade to be changed automatically to an F or a U. Effective Fall 1992, a student may not withdraw from a course in which he or she receives a grade of Incomplete.

GPA Requirements for Graduate Students

In order to earn a graduate degree, all students must achieve a cumulative GPA of 3.0 or higher in all graduate work taken at Missouri S&T, as well as for all graduate courses listed on the program of study (Form 1 for master's students and Form 5 for doctoral students). This 3.0 GPA requirement does not apply to courses taken for undergraduate credit, nor does it apply to courses taken so long ago that they cannot be counted toward a graduate degree. No substitutions may be made on the program of study for courses in which the student has earned less than a B grade. All graduate students are encouraged to maintain at least a 3.0 cumulative GPA at all times, and certain departments may even require this minimum GPA. In cases where a graduate student repeats a course, both the original and repeat grades will be used in calculating the student's GPA, and both will appear on the student's transcript.

A graduate student who accumulates ten or more credit hours of C or F grades shall no longer be a candidate for an advanced degree from Missouri S&T. This rule does not apply to courses taken for undergraduate credit, nor does it apply to courses taken so long ago that they cannot be counted toward a graduate degree. This limit is cumulative over all degree programs (M.S. plus Ph.D., M.S. plus a second M.S., etc.) and is not per degree program.

Certification of Enrollment Status

Students who must send certification of enrollment status to their lending agencies may apply for these certifications at the Registrar's Office, using the form located at: <http://registrar.mst.edu/documents/certlet.pdf>. Certification of full-time or half-time status is based upon the number of credit hours for which the student is enrolled and includes courses in which the student is enrolled as a hearer. Full-time status is granted to students enrolled in at least nine credit hours during a regular semester; half-time status is granted to students enrolled in at least four credit hours during a regular semester. For the summer session, at least four credit hours is considered full-time and two credit hours is considered half-time. Hours committed to fulfilling GRA and GTA appointments are not included in enrollment certifications.

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Master's Degree Programs at Missouri S&T

Missouri S&T offers three programs leading to Master of Science degrees: the Master of Science with thesis (a minimum of thirty credit hours; some departments require more), the Master of Science without thesis (a minimum of thirty credit hours; some departments require more), and the Master of Science for Teachers. In addition, Missouri S&T offers a Master of Business Administration degree (MBA), a Master of Engineering degree, and a Master of Arts degree (the M.A. is offered in cooperation with the University of Missouri-St. Louis).

The beginning graduate student should choose an appropriate degree program in consultation with his or her advisor and with the approval of the department chair. Within the first six weeks of the semester in which the student takes his or her fifteenth graduate credit hour, the student must formally plan the remainder of his or her graduate program in consultation with his or her advisor and selected committee members. For students pursuing the M.S. with thesis, the advisor will also serve as the chairperson of the three-person thesis advisory committee. The chairperson and at least half of the other thesis advisory committee members must be members of the graduate faculty. For students pursuing the M.S. without thesis, the student will assemble a five-person advisory committee. The chairperson and at least half of the members of this committee must belong to the graduate faculty; at least one member of this committee must belong to a department other than the student's major department.

After consulting with his or her advisor, the student will complete and submit Form 1 (<http://grad.mst.edu/documents/grad1.08rev2.pdf>), which outlines the student's intended program of study. A minimum of one-half of the course requirements for the degree should be completed after the student submits for approval the typed original Form 1 to the department chair and the Vice Provost for Graduate Studies. Students who fail to comply with the deadline to submit Form 1 will have a registration hold placed on their account by the Office of Graduate Studies. If changes to the approved Form 1 occur at any time, the student must submit Form 1-A to revise his or her approved plan of study.

Form 1 is required for all master's degree students except for those enrolled in Master of Engineering programs in Geotechnics and Mining Engineering. These departments use an electronic degree audit program to record and track graduate credit counted toward the Master of Engineering degree programs, rather than Forms 1 and 1-A. Students in Geotechnics and Mining Engineering degree programs are still expected to consult with their advisors and committee members to plan their degree programs.

Time Limits for Earning a Master's Degree

Students may earn a master's degree only if all graduate credit counted toward the degree has been earned within the previous six years. When recommended by the student's advisory committee, however, the committee may validate

by examination as many as six credit hours of coursework completed outside this six-year time limit.

Transferring Credits Toward a Master's Degree

A maximum of nine hours of coursework for M.S. degrees may be transferred from outside the University of Missouri. Such credits must have been registered as graduate courses when they were taken. Students must have earned at least a B grade for all courses to be transferred to a Missouri S&T graduate program, and these transferred courses must be entered as part of the student's program on Form 1 or 1-A. The Missouri S&T equivalent should be stated, and a transcript that includes the course(s) to be transferred should accompany Form 1. Approval of Form 1 or Form 1-A will allow the transferred course(s) to be entered on the student's Missouri S&T transcript, but only after the Registrar's Office has received the student's official transcript(s) from his or her previous school(s).

Earning a Second Master's Degree

A student who has earned a master's degree at Missouri S&T or elsewhere in one major shall be eligible to earn a second master's degree in another area upon the satisfactory completion of a minimum of 24 additional credit hours of graduate academic work (thesis or non-thesis). At least three credit hours of required coursework must be from the group of lecture courses bearing numbers in the 400-series. A maximum of three credit hours of 200-level courses can be accepted in a second M.S. program. The total credit hours earned in special problems, special investigations, special readings, and graduate seminars must not exceed four hours. In planning dual, or simultaneous, master's degrees, students must clearly define on Form 1 which degree is to be completed first. A change in order will require the submission of Form 1-A. International students must contact the International Affairs Office before attempting to pursue dual master's degrees.

Master of Science Degree With Thesis

The Master of Science degree program with thesis requires a minimum of thirty hours of graduate credit over and above any prerequisites, but some departments may require more than thirty hours. Please refer to individual department websites or entries in the Areas of Study section of this catalog for information about particular programs. A minimum of six hours of the required coursework must come from the group of 400-level lecture courses, and a maximum of six credit hours of 200-level coursework may be applied toward certain master's degree programs, although not all departments will accept 200-level coursework. Please consult your department for specific details. Students are encouraged to take at least six credit hours of coursework outside their major department. In addition, the program of study (Form 1) must include at least six hours of 490 (Graduate Research) and a minimum of eighteen hours of 300- and 400-level lecture courses (some departments will also accept 200-level coursework). The program of study

may also include up to nine credit hours of coursework transferred from universities outside of the University of Missouri system. When a student has co-advisors in different departments, the student's 490 credit may be shared by all departments involved. Research will normally be conducted on the Missouri S&T campus, but in special cases, all or part of the research may be conducted elsewhere. Off-campus research must be supervised by a member of the Missouri S&T faculty, and must have the prior written approval of the student's graduate advisor, department chair, and the Vice Provost for Graduate Studies (the "Application to do Non-Resident Research" is available at http://grad.mst.edu/documents/NonResident_Research_Application.pdf). Care must be taken to ensure that an off-campus research endeavor will result in educational experiences equivalent or superior to those that a student might expect to have at Missouri S&T.

Master's degree candidates who are writing a thesis are encouraged to make effective use of their three MS comprehensive examination committee:

- Submitting a written description of the proposed research to the members of the committee as soon as the topic is decided;
- Obtaining written approval of the committee indicating that the proposed research is of M.S. caliber;
- Submitting periodic progress reports to the committee and discussing these reports with individual committee members or with the committee as a group. (The frequency of reports and method of discussion should be determined by the committee.)

The Master's Thesis

The findings and results of research undertaken by the candidate for a master's degree must be presented in a written thesis. A manual entitled "Specifications for Thesis and Dissertations (T/D)" is available at <http://grad.mst.edu/documents/specs-1-08.doc>; this manual outlines the specific requirements for the thesis. Students should prepare a minimum of one original and three copies according to these specifications, unless a different format is approved in advance by the student's advisor.

Oral Examination, or Master's Thesis Defense

When the thesis is completed, the candidate distributes a copy to each member of his or her advisory committee and arranges a time and place for the oral examination, or defense, of the thesis. These oral examinations are normally scheduled only when the University is officially in session, and the candidate must be enrolled at the time of the examination. Each committee member should be allowed to examine the thesis for at least seven working days before the oral defense. The defense may be comprehensive in character, and the candidate should be able to demonstrate an acceptable level of knowledge of a professional area, as defined by his or her degree program.

In order for the candidate to pass the examination, every member of the examining committee must vote

affirmatively. If any member votes not to pass the candidate, the Vice Provost shall appoint a new examining committee on which the dissenting member may be replaced, and the new committee will administer a second examination. A student who fails a second time will no longer be eligible to receive a graduate degree from that program. However, the student is still eligible to pursue a graduate degree from any other graduate degree program willing to accept him or her.

Immediately following the thesis defense, the chair of the examining committee will report the action of the committee (on Form 2) first to the department chair and then to the Vice Provost for Graduate Studies. Approval of Form 2 signifies that the members of the committee examined the thesis closely for both scientific content and format, and determined that it meets the requirements for a master's degree and is worthy of acceptance by the graduate faculty of Missouri S&T.

Approval and Filing of the Thesis

At the close of a successful thesis defense, the members of the examining committee will sign the thesis title sheet to signify that they have read and approved the thesis. If the committee indicates that corrections must be made to the thesis, the student must make such corrections and then seek approval of the revised thesis from the committee members and obtain the necessary signatures. The final approved copy of the thesis is then taken to the Office of Graduate Studies, where it is carefully checked to ensure that the document is properly formatted according to the specifications available online. After the Office of Graduate Studies approves the document, it is forwarded to the Missouri S&T Library. Liberal choices are allowed relative to the style manual used in the preparation of the thesis. However, approval of the thesis requires strict adherence to the style manual selected, and must reflect a level of quality suitable for professional publication. The student will present one copy of the approved thesis to the department chair and one to the thesis advisor, and will retain one copy for his or her personal records.

Procedures for Earning the Master of Science Degree With Thesis

All master's degree students must have fulfilled all admissions requirements, including English proficiency test scores, if necessary. Students admitted to a Master of Science degree program and who are writing a thesis must adhere to the following procedures.

1. The student will consult with the graduate advisor about course scheduling, and register for classes.
2. The student will select an advisor and committee, and complete Form 1 (typed original) within six weeks of the beginning of the semester in which the student takes his or her fifteenth graduate credit hour. Students who fail to comply with this deadline will have a registration hold placed on their account.
3. The student will complete academic requirements.
4. The student will check with the Registrar to make application for graduation within four weeks of the

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beginning of the student's final semester, or within two weeks of the beginning of the summer session. The graduate application form for graduation is available at: <http://registrar.mst.edu/documents/gradgraduationappl.pdf>.

5. The student will arrange a date, time, and place for the oral examination, or thesis defense, and forward this information to the Office of Graduate Studies electronically. The student must be enrolled at the time of the oral examination.
6. The student will distribute copies of the thesis to all members of the examining committee at least seven working days before the oral examination.
7. The chair of the examining committee will report the action of the committee to the Office of Graduate Studies by submitting a typed original Form 2, accompanied by a copy of the approved thesis.
8. The Vice Provost of Graduate Studies will forward the approved thesis to the Missouri S&T Library after the student fulfills all academic requirements and pays all enrollment or examination fees. At this point the student must complete the Scholars' Mine Online Thesis and Dissertation Submission Form, available at <https://scholarsmine-contribute.mst.edu/rrapp/>.
9. The student will present one copy of the approved thesis to the department chair and one to the advisor, and will retain one copy for his or her personal records.
10. The Board of Curators will, upon the recommendation of the graduate faculty, grant the student the Master of Science degree when all degree requirements are met.

Master of Science Degree Without Thesis

The master's degree program without thesis requires a minimum of thirty hours of graduate credit over and above any prerequisites, but some departments may require more than thirty hours. Please refer to individual department websites or entries in the Areas of Study section of this catalog for information about particular programs. A minimum of nine credit hours of the required coursework must come from the group of 400-level lecture courses, and a maximum of six credit hours of 200-level coursework may be applied toward certain master's degree programs, although not all departments will accept 200-level coursework. Please consult your department for specific details. Students are encouraged to take at least six credit hours of coursework outside their major department. Students may take a maximum of four credit hours in special problems, special investigations, special readings, and graduate seminars.

Comprehensive Examination

The master's degree candidate must successfully complete a final written comprehensive examination that is administered by an examining committee. The members of this committee are chosen by the candidate, in consultation with his or her advisor and department chair. The

department chair then submits for approval the names of four faculty members and that of the major advisor to the Vice Provost for Graduate Studies, using Form 1-B. The committee must consist of at least five members, including at least one person from outside the candidate's major department who is knowledgeable about the student's chosen out-of-department coursework. The chair and at least one half of the members of this committee should belong to the graduate faculty.

The comprehensive written examination will be given only once each semester or summer session and not earlier than six weeks before the last Friday of the semester or three weeks before the end of the summer session. The candidate will receive a passing grade if all, or all but one, of the members votes to pass. A student who fails the examination must take it again at the next regularly scheduled examination time. A student who fails the examination a second time will no longer be eligible to receive a graduate degree from that program. However, the student is still eligible to pursue a graduate degree from any other graduate degree program willing to accept him or her.

Some master's degree programs at Missouri S&T do not require students to take a comprehensive written examination. Please consult your department's website or Areas of Study section of this catalog to determine if the comprehensive examination is required for master's degree candidates.

Procedures for Earning the Master of Science Degree Without Thesis

All master's degree students must have fulfilled all admissions requirements, including English proficiency test scores, if necessary. Students admitted to a Master of Science degree program who are not writing a thesis but who are taking a comprehensive examination must adhere to the following procedures.

1. The student will consult with the graduate advisor about course scheduling, and register for classes.
2. The student will select an advisor, and complete Form 1 (typed original) within six weeks of the beginning of the semester in which the student takes his or her fifteenth graduate credit hour. Students who fail to comply with this deadline will have a registration hold placed on their account.
3. The student will complete academic requirements.
4. The student will check with the Registrar to make application for graduation within four weeks of the beginning of the student's final semester, or within two weeks of the beginning of the summer session. The graduate application form for graduation is available at: <http://registrar.mst.edu/documents/gradgraduationappl.pdf>.
5. The student will work with the graduate advisor and the department chair to complete and submit Form 1-B, which identifies potential members of the student's examining committee.
6. The Vice Provost for Graduate Studies will formally appoint the student's examining committee.
7. The student will take the written comprehensive examination.

8. The chair of the examining committee will report the action of the committee to the Office of Graduate Studies, using Form 3.
9. The Board of Curators will, upon the recommendation of the graduate faculty, grant the student the Master of Science degree when all degree requirements are met and all enrollment or examination fees have been paid.

Procedures for Earning the Master of Science Degree, Coursework Only

All master's degree students must have fulfilled all admissions requirements, including English proficiency test scores, if necessary. Students admitted to a Master of Science degree program who are not writing a thesis and who are not required to pass a comprehensive examination must adhere to the following procedures.

1. The student will consult with the graduate advisor about course scheduling, and register for classes.
2. The student will select an advisor, and complete Form 1 (typed original) within six weeks of the beginning of the semester in which the student takes his or her fifteenth graduate credit hour. Students who fail to comply with this deadline will have a registration hold placed on their account.
3. The student will complete academic requirements.
4. The student will check with the Registrar to make application for graduation within four weeks of the beginning of the student's final semester, or within two weeks of the beginning of the summer session. The graduate application form for graduation is available at: <http://registrar.mst.edu/documents/gradgraduationappl.pdf>.
5. The Board of Curators will, upon the recommendation of the graduate faculty, grant the student the Master of Science degree when all degree requirements are met and all enrollment or examination fees have been paid.

Master of Science Degree For Teachers

The Master of Science for Teachers degree program is primarily designed for high school teachers in the sciences and mathematics who want to further their education and earn an advanced degree. The Master of Science for Teachers degree is offered through the departments of Chemistry, Geological Sciences and Engineering, Mathematics, and Physics. More information about these specific degree programs is available on the departmental websites and in the Areas of Study section of this catalog.

Admission to the Master of Science for Teachers Program

Because of possible variation in the preparation and academic background of prospective Master of Science for Teachers students, the program of each admitted student will be planned and supervised by an advisory committee

approved by the Vice Provost of Graduate Studies. To be admitted into this program, the prospective student must have:

- A degree from an accredited college.
- A teaching certificate for mathematics, biology, earth science, physics, or unified sciences.
- Previous training totaling a minimum of 36 credit hours in mathematics and sciences, including at least 24 credit hours in any of the following areas: biology, chemistry, geology, mathematics, or physics. The department chair may modify or waive these requirements, if necessary, on a case-by-case basis.
- A complete application package, including an application form, official undergraduate and graduate transcripts, Graduate Record Examination (GRE) score (if required), and an application fee.

General Requirements for the Master of Science for Teachers Program

Students admitted to the Master of Science for Teachers program must complete at least thirty credit hours of courses numbered 200 or higher in sciences and mathematics. These must include at least one course of three hours or more numbered 400 or above, exclusive of seminars, special problems, and research courses. A maximum of nine credit hours may be transferred from other colleges or universities. The entire program must be outlined on Form 1 and submitted to the Vice Provost of Graduate Studies for approval. The cumulative GPA for all courses on the student's Form 1 must be 3.0 or higher.

Upon or near completion of the student's coursework, the student must satisfactorily pass comprehensive oral and written final examinations. A committee, appointed by the Vice Provost for Graduate Studies, will administer and evaluate both examinations for each candidate.

Specific requirements for individual majors enrolled in the Master of Science for Teachers program are described on each department's website and in the Areas of Study section of this catalog.

Master of Engineering Degree

The Master of Engineering (M.E.) degree program is designed for full-time students who are able to complete the degree requirements on campus within a single year, as well as for students who have jobs in industry and who thus choose to access this program through distance education. This degree program is practice oriented, and students are expected to complete a significant project in the course of their studies. Currently, the departments of Geotechnics, Manufacturing Engineering, and Mining Engineering offer the Master of Engineering degree. Students interested in pursuing the Master of Engineering degree should consult with an academic advisor and seek approval of the program director in the department of their choice.

General Requirements for the Master of Engineering Degree

The Master of Engineering degree program with project

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requires a minimum of thirty hours of graduate credit over and above any prerequisites (Mining Engineering requires at least 33 hours). A minimum of six credit hours of the required coursework must come from the group of 400-level lecture courses in the major field of study (not required for Mining Engineering). A maximum of six hours of 200-level coursework can be applied toward the M.E. Degree (the Geotechnics program does not accept 200-level coursework). A minimum three-hour practice-oriented project is required for all M. Eng. candidates, through taking at least three credit hours of graduate course 300: Special Problems. The findings and results of the practice-oriented project must be presented in a written report, and some programs may require the candidate to make an oral presentation as well. Care will be taken to provide distance education students with an industrial project that promises education experiences equivalent or superior to those that students working on the campus of Missouri S&T might expect to have. Specific requirements for individual Master of Engineering degree programs are described on each department's website and in the Areas of Study section of this catalog.

Procedures for Earning the Master of Engineering Degree

All students in a Master of Engineering degree program must have fulfilled all admissions requirements, including English proficiency test scores, if necessary. Students admitted to a Master of Engineering degree program must adhere to the following procedures.

1. The student will consult with the graduate advisor about course scheduling, and register for classes.
2. The student will select an advisor, and complete Form 1 (typed original) within six weeks of the beginning of the semester in which the student takes his or her fifteenth graduate credit hour. Students who fail to comply with this deadline will have a registration hold placed on their account.
3. The student will complete academic requirements.
4. The student will check with the Registrar to make application for graduation within four weeks of the beginning of the student's final semester, or within two weeks of the beginning of the summer session. The graduate application form for graduation is available at: <http://registrar.mst.edu/documents/gradgraduationappl.pdf>.
5. The student will submit the practice-oriented project report to the graduate advisor. (Some programs may also require the student to make an oral presentation based on the report.)
6. The advisor will advise the program director of the results of the report. The program director will complete Form 3 and submit it to the Vice Provost of Graduate Studies.
7. The Board of Curators will, upon the recommendation of the graduate faculty, grant the student the Master of Engineering degree when all graduation requirements are met and all enrollment or examination fees have been paid.

Master of Business Administration (MBA) Degree

The Master of Business Administration (MBA) is a practice-oriented professional degree that combines business, technology, and enterprise resource planning (ERP) to develop leaders for a technology-driven business world. The MBA program requires 36 hours of graduate coursework, and students can complete the degree program in as little as one calendar year of full-time study. Students attend full-time for the first semester and take eighteen hours of core coursework. They can then complete the remainder of the program on either a full-time or part-time basis. The classes beyond the initial eighteen-credit-hour core curriculum may be taken on the campus of Missouri S&T or through distance education.

General Requirements for the MBA Program

The Master of Business Administration program requires a minimum of 36 credit hours of study. Students must be residents on the Missouri S&T campus for one eighteen-week semester, in order to take the required eighteen-credit-hour integrated MBA core curriculum. During this semester, MBA candidates take six credit hours of required coursework, an applied practicum, and twelve credit hours of electives. These elective credits allow candidates to develop an area of specialization in enterprise resource planning, human-computer interaction, supply chain management, information technology management, marketing, or project management.

Procedures for Earning the MBA

All Master of Business Administration students must have fulfilled all admissions requirements, including English proficiency test scores, if necessary. Students admitted to the MBA program must adhere to the following procedures.

1. The student will consult with the graduate advisor about course scheduling, and register for classes.
2. The student will select an advisor and complete Form MBA 1 (typed original) within six weeks of the beginning of the semester in which the student takes his or her eighteenth graduate credit hour. Students who fail to comply with this deadline will have a registration hold placed on their account.
3. The student will check with the Registrar to make application for graduation within four weeks of the beginning of the student's final semester, or within two weeks of the beginning of the summer session. The graduate application form for graduation is available at: <http://registrar.mst.edu/documents/gradgraduaappl.pdf>.
4. The student will complete academic requirements.
5. The Board of Curators will, upon the recommendation of the graduate faculty, grant the student the Master of Business Administration degree when all graduation requirements are met and all enrollment fees have been paid.

Master of Arts Degree in Economics and English

The departments of Economics and English at Missouri S&T have entered into a cooperative agreement with the corresponding departments at the University of Missouri-St. Louis to offer the Master of Arts in Economics and English. This agreement permits students to take up to twelve hours of graduate credit on the Missouri S&T campus. However, students may take only nine credit hours at the 300-level. Students interested in enrolling in a Master of Arts program are required to fulfill all admissions requirements, including English proficiency test scores, if necessary. Specific requirements for individual majors enrolled in the Master of Arts degree are described on each department's website and in the Areas of Study section of this catalog.

Doctor of Philosophy (Ph.D.) Degree

The degree of Doctor of Philosophy is awarded to students who have pursued graduate study without serious interruption, submitted an acceptable dissertation, passed all prescribed examinations, and satisfactorily met all requirements described below. The Missouri S&T graduate faculty attests that recipients of this degree have attained a high level of learning through extensive study in some specialized area of knowledge, and have developed the ability to conduct independent research. Students interested in pursuing the Ph.D. at Missouri S&T must first submit a complete application package. Please consult your prospective department's website or entry in the Areas of Study section of this catalog for further information about admissions requirements for particular programs.

Shared Doctoral Programs

Through its identification of faculty qualified to direct doctoral candidates on all four University of Missouri campuses, Missouri S&T provides a unique opportunity for doctoral students to attain a remarkable breadth of academic experience. Candidates admitted to doctoral status at Missouri S&T may plan, with the consent of their committee, either coursework or research on another University of Missouri campus. Advisory committee membership may also involve more than one campus, and dissertations may be pursued under the direction of an appropriate graduate faculty member on a campus other than Missouri S&T. Residency and other routine requirements of Missouri S&T must be followed. The Vice Provost for Graduate Studies should be involved in planning shared doctoral programs as early as possible, to prevent potential misunderstandings or complications.

Acceptance of Candidates for the Ph.D.

Technically, a student is considered a doctoral-level student only after he or she satisfactorily completes thirty credit hours of graduate study. Students must pass a Ph.D. qualifying examination before they can be formally considered candidates for the doctoral degree, and several departments require the qualifying examination to be passed

by the end of the second semester after completion of the M.S. degree. The proposed Ph.D. program of study (Form 5, available at <http://grad.mst.edu/documents/grad5.pdf>) must be submitted by the end of the semester in which the student passes his or her qualifying examination. This examination may be taken after the student has been accepted to Missouri S&T, but prior to the student's initial enrollment, if the student desires. The department chair will report the results of the qualifying examination to the Vice Provost for Graduate Studies using Form 4 (http://grad.mst.edu/documents/grad4_2.pdf).

A student will be formally accepted as a candidate for a doctoral degree after (1) he or she passes the qualifying exam; and (2) his or her program of study (Form 5) has been approved by the advisory committee, the department chair, and the Vice Provost for Graduate Studies.

After passing the qualifying exam, the doctoral candidate will consult with an advisor of his or her choice to select an advisory committee. The committee will consist of at least five members, and at least four of the members should belong to the graduate faculty. The advisory committee must include at least one member from outside the candidate's major department. One member of the committee should also be designated to represent the department most closely associated with any minor field of study elected by the student. The names of the proposed members of the advisory committee will be listed on Form 5 (<http://grad.mst.edu/documents/GradFormV.pdf>) and sent by the student's department chair to the Vice Provost for Graduate Studies for formal appointment. Additional members and replacement members may be appointed using Form 5-A.

Doctoral candidates are encouraged to make effective use of their advisory committee by:

- submitting a written description of the proposed research to the members of the committee as soon as the dissertation topic is decided;
- obtaining written approval of the committee indicating that the proposed research is of Ph.D. caliber;
- submitting periodic progress reports to the committee and discussing them with individual committee members or with the committee as a group (the frequency of the reports and the method of discussion should be determined by the committee).

A person who has held the rank of assistant professor or higher at Missouri S&T is not eligible to become a candidate for the Ph.D. at this institution.

Proposed Program of Study for the Ph.D.

Any student admitted to a doctoral program who has not already received a master's degree should consult with his or her advisor about a proposed program of study. An advisory committee (listed on Form 5, available at <http://grad.mst.edu/documents/GradFormV.pdf>), shall be submitted for approval by the Vice Provost for Graduate Studies during the second semester of the student's graduate coursework. The committee will aid the student in preparing an outline of his

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or her coursework and the research investigation proposed for the dissertation; this information will be included on Form 5 (<http://grad.mst.edu/documents/grad5.pdf>) and must be submitted by the end of the semester in which the student passes his or her qualifying examination.

A doctoral student who has already received a master's degree should also consult with his or her advisor about a proposed program of study, and complete and submit Form 5 to the Vice Provost for Graduate Studies for approval before the student enrolls for a second semester. For Ph.D. students who have already earned a master's degree, Form 5 will designate all appropriate graduate work beyond the baccalaureate level to be applied to the doctoral program requirements.

Residency Requirement for the Ph.D.

The candidate for the Ph.D. will normally complete three years of residency, which is the equivalent of six semesters and a minimum of 72 credit hours of full-time academic work beyond the bachelor's degree. At least half of those credit hours must be taken at Missouri S&T. For those holding a master's degree from Missouri S&T or another institution, this three-year residency requirement can be met by completing the equivalent of two years (four semesters) of full-time academic work beyond the master's degree, including at least two consecutive semesters in residence at Missouri S&T while enrolled in at least nine graduate credit hours per semester. If the student has spent any years of graduate work away from Missouri S&T, the Vice Provost for Graduate Studies, upon recommendation of the student's advisory committee, will decide in each case whether these years may be properly regarded as having been spent under suitable guidance and favorable conditions, and thus be applied to the student's residency requirement at Missouri S&T. At least fifteen hours of graduate coursework, exclusive of research (490), special problems, special investigations, and seminars, must be taken on the Missouri S&T campus. Please use the following chart to determine how to calculate residency.

Credit hours per session	Residency equivalent
12 to 16	0.500 year
9 to 11	0.375 year
6 to 8	0.250 year
[6 to 9, summer]	0.250 year
3 to 5	0.125 year
0 to 2	0.00 year

The Ph.D. student's residency requirements are to be included on Form 5.

For Ph.D. degrees being offered wholly through distance education, such as the one available in Systems Engineering, residency requirements are calculated differently. Please consult your department's website or the entry in the Areas of Study section of this catalog for further details.

Ph.D. Qualifying Examination

A qualifying examination will be administered by the faculty of the candidate's major department no later than the student's fifth semester of enrollment. The results of this examination will allow the student's advisory committee to assess the student's level of preparation for the Ph.D. degree,

and will assist the committee in helping to plan the student's program of study (Form 5). The results of the qualifying examination will be reported on Form 4 and submitted by the department chair to the Vice Provost for Graduate Studies.

Subjects of Study for the Ph.D.

The subjects of study for the Ph.D. may be chosen from one or more departments, as determined by the advisory committee, but shall constitute a definite plan of training for research or scholarly investigation in some particular field. Students must designate a major field of study, and are encouraged to select one minor field of study consisting of at least twelve credit hours of work outside their major area of study.

The doctoral program will include at least 24 credit hours of dissertation research (490) and a minimum of 24 credit hours of coursework (exclusive of 300, 400, and 490) as part of the degree requirements. Deviations from this requirement must receive special approval from the Vice Provost for Graduate Studies. Students are encouraged to enroll in at least fifteen credit hours of 400-level lecture courses during the span of their doctoral program.

Correspondence and extension courses do not form part of the program for the Ph.D. degree, except as they constitute a part of a master's program. Correspondence and extension courses beyond those allowed for a master's degree may not be applied to a doctoral degree program.

Doctoral research will normally be conducted on the Missouri S&T campus. In special cases, all or part of the research may be conducted elsewhere, but must be supervised by a member of the Missouri S&T faculty. Students who conduct off-campus research must have the prior written approval of their advisor, the department chair, and the Vice Provost for Graduate Studies, as indicated on the Non-Resident Research Application (http://grad.mst.edu/documents/NonResident_Research_Application.pdf).

Time Limits for Earning the Ph.D.

The Ph.D. degree will be granted only if all graduate credit counted toward the degree has been earned in the previous eight years, unless a formal request for an extension is initiated by the advisor and approved by the department chair and the Vice Provost for Graduate Studies. An extension, if granted, may involve revising the candidate's program of study to update coursework and research. Students who are enrolled in a documented Ph.D. distance program, such as the one available in Systems Engineering, must also complete their graduation requirements within eight years. Candidates who have already earned a master's degree or its equivalent (first thirty hours of graduate credit), or who passed the qualifying examination, must have earned all remaining credit toward their degree within the last six years.

Applying prior credits from a master's degree program or its equivalent toward a doctoral degree program is up to the discretion of the student's advisory committee.

Foreign Language Requirements for the Ph.D.

The decision as to any foreign language requirement rests with the department and the doctoral candidate's advisory committee, and descriptions of any foreign language requirement can be found on the departmental websites or in the Areas of Study section of this catalog. Candidates may fulfill their foreign language requirement, if any, either before or after they take their comprehensive examination.

Ph.D. Comprehensive Examination

The Vice Provost for Graduate Studies will authorize the student's advisory committee to administer a comprehensive examination after the student has completed at least 75% of the coursework required for a doctoral degree, as listed on the student's approved program of study (Forms 5 and 5-A). Some departments require students to complete 100% of their coursework before they are permitted to take the comprehensive examination; consult your department's website or entry in the Areas of Study section of this catalog for additional details. The format of the comprehensive examination is both written and oral.

With the approval of the student's advisory committee, the written portion of the examination may be administered by the candidate's department, but the final judgment of the candidate's performance will be left to the advisory committee. Upon satisfactory completion of the written examination, the advisory committee will administer the oral examination. It is recommended that the oral examination take place within thirty days of the written examination.

The results of the comprehensive examination will be sent to the Vice Provost for Graduate Studies, using Form 6 (http://grad.mst.edu/documents/grad6_new.pdf). A student will be considered to have passed the examination if all, or all but one, of the advisory committee members vote that the student pass.

If the student fails the comprehensive examination, the advisory committee will recommend additional work or other remedial measures to the candidate. A second comprehensive examination may be scheduled no sooner than twelve weeks after the student's first attempt. A student who fails the examination a second time will no longer be eligible to receive a graduate degree from that program. However, the student is still eligible to pursue a graduate degree from any other graduate degree program willing to accept him or her.

The Ph.D. Dissertation

The dissertation, embodying the results of an original investigation, must be written upon a subject approved by the student's major advisor and be formatted in accordance with "Specifications for Theses and Dissertations (T/D)," a manual available online at <http://grad.mst.edu/documents/specs-1-08.doc>.

Final Examination, or Ph.D. Dissertation Defense

The final examination is an oral defense of the

dissertation and may be attended by any interested person. Attendees may question the candidate with the permission of the chair of the advisory committee. The Vice Provost for Graduate Studies will authorize the student's advisory committee to administer the final examination, which may be scheduled no sooner than twelve weeks after the completion of the comprehensive examination. Notice of the final examination, along with the dissertation abstract, shall be publicized by the Office of Graduate Studies at least one week prior to the examination.

The advisory committee shall closely examine the dissertation for both scientific content and format, in order to determine that it meets the requirements for a doctoral degree and is worth of acceptance by the graduate faculty of Missouri S&T. A report of the examination results will be sent to the Office of Graduate Studies using Form 7 (http://grad.mst.edu/documents/GradForm7-1_08.pdf).

A candidate will be considered to have passed the final examination if all, or all but one, of the advisory committee members vote that the student pass. If the student fails the final examination, the committee will recommend additional work or other remedial measures to be taken before another examination is scheduled. At the close of a successful final examination, the members of the examining committee will sign Form 7 to signify that they have read and approved the dissertation. If the committee indicates that corrections must be made, the student must make such corrections and then seek approval of the revised dissertation from the committee members and obtain the necessary signatures. The final approved copy of the dissertation is then taken to the Office of Graduate Studies, where it is carefully checked to ensure that the document is properly formatted according to the specifications available online. After the Office of Graduate Studies approves the document, it is forwarded to the Missouri S&T Library. Liberal choices are allowed relative to the style manual used in the preparation of the dissertation. However, approval of the dissertation requires strict adherence to the style manual selected, and must reflect a level of quality suitable for professional publication. The student will present one copy of the approved dissertation to the department chair and one to the dissertation advisor, and will retain one copy for his or her personal records.

Procedures for Earning the Ph.D.

All doctoral students must have fulfilled all admissions requirements, including English proficiency test scores, if necessary. Students admitted to a Ph.D. program must adhere to the following procedures.

1. The student initiates his or her candidacy for the doctoral degree by meeting both of the following requirements:
 - A) The student passes a qualifying examination administered by the department in which the student intends to become a doctoral degree candidate.
 - B) The student satisfactorily completes the first thirty hours of graduate study in his or her designated program.

In the case of students who do not have a relevant master's degree, requirement (B) will normally be fulfilled when the student satisfactorily completes thirty credit hours of suitable graduate coursework toward his or her doctoral

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degree. Requirement (B) will normally be fulfilled automatically for students who have already earned a relevant master's degree. In both cases, the department determines when the second requirement for candidacy is satisfied. Candidacy must be established prior to the beginning of the fifth semester (not counting summer sessions) of enrollment as a graduate student in a doctoral program. Graduate Forms 4, and 5, must be completed and submitted no later than six weeks into the student's fifth semester.

2. The candidate consults with his or her academic advisor about possible members of the advisory committee. The advisor, with the approval of the department chair, submits Form 5 to the Vice Provost for Graduate Studies, requesting the formal appointment of the advisory committee.
3. The candidate solicits the aid of his or her committee members in preparing an outline of courses and research, and, with the help of his or her advisor, completes and submits Form 5 to the Office of Graduate Studies.
4. The candidate completes 75% of the coursework outlined on the doctoral program of study (Form 5). At this point, the advisor requests the Vice Provost for Graduate Studies to authorize the advisory committee to administer the Ph.D. comprehensive examination, using the Request for Authorization of Ph.D. Comprehensive Examination form (<http://grad.mst.edu/documents/compre.pdf>). (Some departments, including Geological Sciences and Engineering, Materials Science and Engineering, and Mining and Nuclear Engineering, do not require this authorization.)
5. The candidate takes the Ph.D. comprehensive examination, and the advisory committee reports the results of the examination to the Vice Provost for Graduate Studies by completing and submitting Form 6 (http://grad.mst.edu/documents/grad6_new.pdf). After the candidate passes the comprehensive examination, he or she must maintain continuous enrollment until the degree is completed or the candidacy is cancelled.
6. The candidate checks with the Registrar to make application for graduation within four weeks of the beginning of the his or her final semester, or within two weeks of the beginning of the summer session. The graduate application form for graduation is available at: http://registrar.mst.edu/documents/gradgraduation_appl.pdf.
7. The candidate, in consultation with his or her advisor, selects the date, time, and place of the final examination and informs the Office of Graduate Studies electronically, so that the examination can be publicized at least one week in advance. Note: The candidate must be enrolled at the time of his or her examination.
8. The candidate takes the Ph.D. final exam, and the advisory committee reports the results of the examination to the Vice Provost for Graduate Studies by completing and submitting Form 7 (http://grad.mst.edu/documents/GradForm7-1_08.pdf), accompanied by an approved copy of the dissertation, the "Scholars' Mine Online Thesis and Dissertation Submission Form" (<http://scholarsmine-contribute.mst.edu/rropp/>), the

"UMI/ProQuest Doctoral Dissertation Publishing Agreement" form (http://grad.mst.edu/documents/dissertation_publishing_agreement.pdf), and the "Survey of Earned Doctorates" form (http://grad.mst.edu/documents/SED07_08.pdf).

9. The Vice Provost of Graduate Studies forwards the approved dissertation to the Missouri S&T Library after the candidate fulfills all academic requirements and pays all enrollment or examination fees.
10. The candidate presents one copy of the approved dissertation to the department chair and one to the advisor, and retains one copy for his or her personal records.
11. The Board of Curators, upon the recommendation of the graduate faculty, grants the candidate the Doctor of Philosophy degree.

Doctor of Engineering (D.E.) Degree

The Doctor of Engineering degree, like the Doctor of Philosophy degree, represents the highest attainable educational level in engineering study and practice. This degree is awarded to candidates who have pursued a broad program of study, completed an acceptable engineering internship, passed all prescribed examinations, submitted a satisfactory practice-oriented dissertation, and met all graduation requirements described here. The D.E. degree requires a minimum of ninety graduate credit hours.

Following admission to graduate study, a student can initiate candidacy for the D.E. degree by consulting with the advisor about the selection of an advisory committee. The committee should include the candidate's major advisor plus at least four other faculty members. The committee members should be representative of the departments included in the candidate's intended plan of study. This committee will aid the student in preparing the plan of study, which will include coursework, an engineering internship, an outline of the proposed dissertation project, and a program for completing residence requirements. The student is accepted as a candidate for the D.E. degree only after the Vice Provost for Graduate Studies approves the student's plan of study.

A person who has held the rank of assistant professor or higher at Missouri S&T is not eligible to become a candidate for the D.E. degree at this institution.

Residency Requirements for the D.E.

The D.E. candidate will normally complete three years of residency as a graduate student, which is the equivalent of six semesters and a minimum of 72 credit hours of full-time academic work beyond the bachelor's degree. For those holding a master's degree from Missouri S&T or another institution, this three-year residency requirement can be met by completing the equivalent of two years (four semesters) of full-time academic work beyond the master's degree, including at least two consecutive semesters in residence at Missouri S&T while enrolled in at least nine graduate credit hours per semester. If the student has spent any years of graduate work away from Missouri S&T, the Vice Provost for

Graduate Studies, upon recommendation of the student's advisory committee, will decide in each case whether these years may be properly regarded as having been spent under suitable guidance and favorable conditions, and thus be applied to the student's residency requirement at Missouri S&T. Please use the following chart to determine how to calculate residency.

Credit hours per session	Residency equivalent
12 to 16	0.500 year
9 to 11	0.375 year
6 to 8	0.250 year
[6 to 9, summer]	0.250 year
3 to 5	0.125 year
0 to 2	0.00 year

The D.E. candidate's residency requirements are to be included on Form 5.

Time Limits for Earning the D.E.

The Doctor of Engineering degree will be granted only if all graduate credit counted toward the degree has been earned in the previous eight years, unless a formal request for an extension is initiated by the advisor and approved by the department chair and the Vice Provost for Graduate Studies. An extension, if granted, may involve revising the candidate's program of study to update coursework and research.

Qualifying Examination for the D.E.

A qualifying examination will be administered by the faculty of the candidate's major department no later than the fifth semester of the student's enrollment. The results of this examination will allow the student's advisory committee to assess the student's level of preparation for the Doctor of Engineering degree, and will assist the committee in planning the student's program of study (Form 5). The results of the qualifying examination will be reported on Form 4 (http://grad.mst.edu/documents/grad4_2.pdf) and submitted by the department chair to the Vice Provost for Graduate Studies.

Coursework for the D.E.

The coursework for D.E. students normally includes two areas of emphasis in engineering. A third technical area of emphasis should be selected from the physical sciences, computer science, mathematics, or another field of engineering. In addition, a non-technical group of courses, comprising nine to twelve credit hours, should also be included in the student's program of study. These non-technical courses could be selected from such areas as foreign language, engineering managements, or psychology. D.E. students are expected to take at least 65 hours of graduate coursework (not including 490 credit for research), and most students average around 72 hours. The allocation of the credit hours between the three technical emphasis areas will be at the discretion of the student's advisory committee; however, at least nine credit hours in each technical area must be included to provide students with the appropriate depth of study.

Correspondence and extension courses may not be applied to a Doctor of Engineering degree program, except as they may constitute part of a master's program.

Internship for the D.E.

The internship for the Doctor of Engineering degree involves a minimum of one year of planned and approved high-level engineering experience. The candidate and the major advisor will plan the internship in cooperation with the interning organization (normally an industrial concern or government laboratory). The candidate then prepares a detailed proposal that describes the goals of the internship, the tasks to be accomplished, and the facilities at the intended site. This proposal must be approved by the candidate's advisory committee, the major department chair, and the Vice Provost for Graduate Studies prior to the start of the internship. At the time the internship is approved, the candidate's internship advisor (the supervisor at the interning organization) will be added to the advisory committee (using Form 5-A). The internship advisor is to be selected on the bases of his or her thorough education and experience, qualifications that suggest doctoral equivalency credentials. The organization must allow visits to the internship site by the candidate's major advisor and/or advisory committee members. The interning organization must also agree that any results of the internship may be published by the candidate, although reasonable proprietary rights of the interning organization will be protected. Responsibility for arranging the internship, including site selection and financial compensation during the period of the internship, lies with the candidate.

Graduate credit earned from the internship (graduate course 490) that leads to the candidate's preparation for his or her dissertation work will apply toward the total required credit hours. Approximately 18 to 25 hours of 490 credit for this phase of the degree will be regarded as an appropriate portion of the ninety total credit hours required for the Doctor of Engineering degree.

Comprehensive Examination for the D.E.

The D.E. student is required to pass a comprehensive examination during his or her candidacy. The comprehensive examination is planned and administered by the student's advisory committee, and has both a written and an oral component. The comprehensive examination covers coursework contained in the candidate's plan of study.

A candidate is considered to have passed if all, or all but one, of the advisory committee vote that the student pass. If the student fails the comprehensive examination, the advisory committee will recommend additional work or other remedial measures to the candidate. A second comprehensive examination may be scheduled no sooner than twelve weeks after the student's first attempt. A student who fails the examination a second time will no longer be eligible to receive a graduate degree from that program. However, the student is still eligible to pursue a graduate degree from any other graduate degree program willing to accept him or her.

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Dissertation for the D.E.

The dissertation embodies the results of an original engineering investigation, and must be written upon a subject approved by the major advisor. Normally, the dissertation will relate directly to the candidate's engineering internship. The dissertation must represent significant, creative, and independent engineering work, and must be prepared in accordance with the "Specifications for Theses and Dissertations (T/D)," an online manual available at <http://grad.mst.edu/documents/specs-1-08.doc>.

Final Examination, or Doctoral Dissertation Defense

The final examination is an oral defense of the dissertation and may be attended by any interested person. Attendees may question the candidate with the permission of the chair of the advisory committee. The Vice Provost for Graduate Studies will authorize the student's advisory committee to administer the final examination, which may be scheduled no sooner than twelve weeks after the completion of the comprehensive examination. Notice of the final examination, along with the dissertation abstract, shall be publicized by the Office of Graduate Studies at least one week prior to the examination.

The advisory committee shall closely examine the dissertation for both scientific content and format, in order to determine that it meets the requirements for a doctoral degree and is worth of acceptance by the graduate faculty of Missouri S&T. A report of the examination results will be sent to the Office of Graduate Studies using Form 7 (http://grad.mst.edu/documents/GradForm7-1_08.pdf).

A candidate will be considered to have passed the final examination if all, or all but one, of the advisory committee members vote that the student pass. If the student fails the final examination, the committee will recommend additional work or other remedial measures to be taken before another examination is scheduled. At the close of a successful final examination, the members of the examining committee will sign the Form 7 to signify that they have read and approved the dissertation. If the committee indicates that corrections must be made, the student must make such corrections and then seek approval of the revised dissertation from the committee members and obtain the necessary signatures. The final approved copy of the dissertation is then taken to the Office of Graduate Studies, where it is carefully checked to ensure that the document is properly formatted according to the specifications available online. After the Office of Graduate Studies approves the document, it is forwarded to the Missouri S&T Library. Liberal choices are allowed relative to the style manual used in the preparation of the dissertation. However, approval of the dissertation requires strict adherence to the style manual selected, and must reflect a level of quality suitable for professional publication. The candidate will present one copy of the approved dissertation to the department chair and one to the dissertation advisor, and will retain one copy for his or her personal records.

Procedures for Earning the D.E.

All Doctor of Engineering students must have fulfilled all

admissions requirements, including English proficiency test scores, if necessary. Students admitted to D.E. program must adhere to the following procedures.

1. The student takes and passes, as early in the program as possible, a qualifying examination administered by the faculty of his or her major department. The department chair reports the results of this qualifying examination to the Vice Provost for Graduate Studies using Form 4.
2. The D.E. candidate consults with his or her advisor to select an advisory committee of at least five members. This should be undertaken only after the candidate has completed thirty graduate credit hours or has already earned a relevant master's degree. However, a tentative program of study may be planned much earlier.
3. The D.E. candidate's graduate advisor, with the approval of the department chair, submits Form 5 to the Vice Provost for Graduate Studies, requesting the formal appointment of the advisory committee. Any changes in committee membership are to be recorded using Form 5-A.
4. The D.E. candidate solicits the aid of his or her committee members in preparing a plan of study and internship, using Form 5-DE. Form 5-DE should not be sent to the department chair or to the Vice Provost for Graduate Studies for approval until the student has passed the qualifying examination.
5. The D.E. candidate completes all the courses outlined on his or her program of study (Form 5-DE). At this point, the candidate's advisor requests the Vice Provost for Graduate Studies to authorize the advisory committee to administer the comprehensive examination, using the Request for Authorization of Ph.D. Comprehensive Examination form (<http://grad.mst.edu/documents/compre.pdf>). (Some departments, including Geological Sciences and Engineering, Materials Science and Engineering, and Mining and Nuclear Engineering, do not require this authorization.)
6. The D.E. candidate takes the comprehensive examination, and the advisory committee reports the results of the examination to the Vice Provost for Graduate Studies by completing and submitting Form 6 http://grad.mst.edu/documents/grad6_new.pdf. After the candidate passes the comprehensive examination, he or she must maintain continuous enrollment until the degree is completed or the candidacy is cancelled.
7. The D.E. candidate completes his or her engineering internship. The candidate's industrial supervisor should be added to the advisory committee at the beginning of the internship (Form 5-A).
8. The D.E. candidate checks with the Registrar to make application for graduation within four weeks of the beginning of the student's final semester, or within two weeks of the beginning of the summer session. The graduate application form for graduation is available at: <http://registrar.mst.edu/documents/gradgraduationappl.pdf>.
9. The D.E. candidate, in consultation with his or her

advisor, selects the date, time, and place of the final examination and informs the Office of Graduate Studies electronically, so that the examination can be publicized at least one week in advance. Note: The candidate must be enrolled at the time of his or her examination.

10. The candidate takes the D.E. final exam, and the advisory committee reports the results of the examination to the Vice Provost for Graduate Studies by completing and submitting Form 7 (http://grad.mst.edu/documents/GradForm7-1_08.pdf), accompanied by an approved copy of the dissertation, the "Scholars' Mine Online Thesis and Dissertation Submission Form" (<http://scholarsmine.contribute.mst.edu/rrapp/>), the "UMI/ProQuest Doctoral Dissertation Publishing Agreement" form (http://grad.mst.edu/documents/dissertation_publishing_agreement.pdf), and the "Survey of Earned Doctorates" form (http://grad.mst.edu/documents/SED07_08.pdf).
11. The Vice Provost of Graduate Studies forwards the approved dissertation to the Missouri S&T Library after the candidate fulfills all academic requirements and pays all enrollment or examination fees.
12. The candidate presents one copy of the approved dissertation to the department chair and one to the advisor, and retains one copy for his or her personal records.
13. The Board of Curators, upon the recommendation of the graduate faculty, grants the candidate the Doctor of Engineering degree.

Graduate Certificate Programs

Missouri S&T offers a number of graduate certificates that are designed to appeal to those working professionals who are interested in furthering their education and who seek the knowledge to understand and contribute to an emerging area of their professional lives. Once admitted to a certificate program, the student must complete four of the designated courses; at least three must be taken from Missouri S&T. The student must have a cumulative GPA of 3.0 or higher in these four courses in order to receive a graduate certificate. Students admitted to a graduate certificate program will have non-degree student status, but will earn graduate credit for the courses they complete. If the four-course sequence is completed with a grade of B or better in each of the courses taken, the student, upon application, will be admitted to the M.S. degree program sponsoring the graduate certificate. The certificate courses taken by students admitted to the M.S. program will apply toward their master's degrees.

Up to three credit hours of special problems courses (numbered 300 or 400) are allowed as part of all Missouri S&T Graduate Certificate programs. In order for a special problems course to be included in a graduate certificate program, a determination must be made by the offering department(s) that the focus of the special problems course is academically aligned with the general focus of the graduate certificate for which it is being used. The special problems course must be supervised by a full member of the graduate faculty and a letter grade (A, B, C, or F) must be assigned

each time a special problems course is taken for the purpose of completing a graduate certificate. In determining whether the graduate certificate program has been successfully completed for the purpose of entry into a graduate degree program, grades received in special problems courses will be considered in the same manner as grades received in lecture courses.

Some graduate certificate programs are sponsored by more than one department. If this is the case, the entering student will identify one of the sponsoring departments as his or her "home" department. Upon successful completion of the certificate program, the student may then apply and be admitted to the master's degree program in his or her "home" department.

Students who do not have all of the prerequisites necessary to take the courses in their chosen certificate program will be allowed to take "bridge" courses at either the graduate or the undergraduate level in order to prepare for the necessary certificate courses.

Once admitted to a certificate program, a student will be given three years to complete the program so long as he or she maintains at least a B average in the courses taken.

Students meeting the certificate requirements to be admitted into an M.S. program are not required to take the GRE or the GMAT. Students not meeting the certificate requirements may still apply to the M.S. program of their choice, but normal admission requirements (including minimum GRE or GMAT scores) must be met.

Additional information on graduate certificates at Missouri S&T is available at <http://dce.mst.edu>.

Designated Graduate Minors

Students enrolled in master's or doctoral degree programs at Missouri S&T may designate a graduate minor, if they choose. Designated graduate minors are offered by individual degree-granting departments, are listed with the Graduate Degree Programs in this catalog. Requirements for the graduate minor are determined by the department offering the minor. Graduate minors can only be awarded when the major degree is awarded, and all requirements for the graduate minor must be completed while the candidate is working toward his or her major degree.

Any graduate student interested in pursuing a graduate minor should consult with his or her academic advisor. Applications for a designated graduate minor must be completed and submitted for approval to the minor-granting department, and must be approved at least one full semester prior to the candidate's planned graduation date. The application form for designated graduate minors is available at <http://registrar.mst.edu/documents/gradminorapp.pdf>.
