Missouri University of Science & Technology
Department of Mining and Explosives Engineering

Graduate Degree Requirements in Mining Engineering

The following are requirements for graduate degrees in Mining Engineering, which are not included in the Graduate Catalog.

Applicants to the graduate program shall have a bachelor's degree in engineering or physical sciences equivalent to one of those offered at S&T. The application for admission must be accompanied by a letter addressed to the Department Chair, giving a summary of the applicant's education and research background and the specific areas of research interest. Applicants are encouraged to take Graduate Record Examination (GRE); however, it is not a requirement for admission.

All applicants are required to select an academic advisor before they are admitted to the graduate program. All major Advisors for graduate students in mining engineering must be members of Missouri S&T graduate faculty and the mining engineering faculty. Adjunct faculty members can only be co-advisors.

Physical sciences and Engineering graduates with undergraduate deficiencies in Mining Engineering shall make up the following two core courses in Mining Engineering: Surface Mining Methods (5933/6933) and Underground Mining Methods (5932). Additionally, they must select at least one of the following specialized mining courses: Mine Atmosphere Control (5113), Rock Mechanics (5823), or Environmental Aspects of Mining (5742). Prerequisites for these courses must be satisfied, unless individually waived by the instructor. *These deficiencies will be determined before admission or during the first two weeks of enrollment in the first semester. The successful completion of these courses shall be credited to the requirements for the graduate program a student is enrolled in at the time of course registration.*

Thesis-based MS students who have been funded as GTAs/GRAs cannot change their degree programs to non-thesis MS degrees, without the consent of their advisor(s) and the graduate coordinator.

Students with B.S. degrees and cumulative GPA 3.50/4.00 can enroll directly in the Ph.D. degree program. Students who obtain a cumulative GPA 3.75/4.00, after completing the course requirements in the M.S. degree program, may transfer and complete the requirements of the Ph.D. program without completing the M.S. program.

Each student will work with his/her advisor to determine the courses that will be taken to satisfy course-hour requirements. The courses selected should be relevant to his/her area of specialization and designed to enhance fulfillment of his/her research requirements.

MS students (thesis) must enroll in the seminar course, Min Eng 6010, at least once during the degree program. PhD students must enroll in Min Eng 6010, for at least three semesters during their program. Each student is required to attend and participate in all the graduate seminars each semester he/she is on campus.

PhD students must complete either Research Methods (Min Eng 6992) or an equivalent course (i.e., Chem Eng 6340, Civ Eng 6940, Env Eng 6940, Elec Eng 6810, Comp Eng 6810) within the first two years of candidacy.

PhD students are required to take at least three mining engineering courses as part of their first 15 credit hours. These three courses will be used as a basis for the qualifying examination if a student fails to obtain a minimum GPA of 3.00/4.00 for the first 15 credits in the program.

PhD students will complete a comprehensive examination at least 12 weeks before the final oral examination of the PhD dissertation scheduled date.

Thesis-based MS and PhD students may, with the approval of their supervisory committee, opt for either a traditional or a paper-based thesis. The number of publications required for paper-based thesis should be determined by the student's advisor and the advisory committee.

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Milestones for the M.S. Degree Program in Mining Engineering

1. **Finalize Course Deficiencies (approval by Chair and Major Advisor if known)**
   Meet with Chair or representative if not finalized prior to arrival; faculty approval required
   Time: Within first two weeks of arrival

2. **Selection of Committee Members and Preparation of Proposed Program for MS Degree**
   Time: Semester in which student completes the first 9 credit hours
   Information:

   a. Review this Policy and the Graduate Catalog

   b. Graduate **Form 1,** Proposed Course of Study (approval by Major Advisor, Committee, Chair, and VP of Graduate Studies is required)

   c. Graduate **Form 1-A**, Changes in Approved Program (approval by Major Advisor, Committee, Chair, and VP of Graduate Studies is required, as needed)

   d. Refer to Graduate Bulletin for course requirements.

   e. Regulations and specifications for theses and dissertations (available at http://grad.mst.edu/currentstudents/thesisdissertationinformation/formatting/)

3. **Completion of Final Draft of MS Thesis**
   Time: At least 3 weeks before oral defense
   Information: Submit to committee members and mining faculty

4. **Conditional Approval of Final Draft of MS Thesis**
   Time: At least 7 days before oral defense
   Information: Conditional approval of M.S. Thesis pending Oral Defense (approval by Major Advisor and Committee)

5. **Final Examination**
   Time: According to date approved in Item 6
   Information: Graduate **Form 2**, Report on Examination for MS degree (approval by Major Advisor, Committee, Chair, and VP of Graduate Studies is required) and GLO Rubric (filled by members of Advisory Committee)

6. **Graduation**
   Time: Upon approval of final oral examination
   Information: An application for graduation should have been submitted earlier in the semester

Milestones for the PhD Program in Mining Engineering

1. **Course Deficiencies**
   Finalize all course deficiency requirements if not already done prior to arrival (approval by Chair or and Major Advisor if known)
   Time: Within first two weeks of arrival

2. **Departmental Qualifying Examination**
   Time: Semester in which the student completes the first 15 credits of course work.
   Information:

   a. The Department shall consider the completion of the first 15 credit hours of graduate course work with a 3.00/4.00 cumulative GPA, or better, to be sufficient to satisfy this requirement.

   b. Students who obtain a cumulative GPA between 2.75 and 2.99 for the first 15 credit hours shall take a written topical examination covering three mining engineering topics (these shall be chosen from any three courses taken by the student at that time). The student shall submit a written request for the topical examination to the Department Chair. A score of 80% or higher on the topical examination shall be deemed a "Pass". If a student fails to obtain at least 80% on the first attempt, the student shall be given a second chance. Failure to obtain the passing mark of 80% on the second attempt shall result in the student's status being changed to a MS student.

   c. Students who obtain a cumulative GPA between 2.50 and 2.75 for the first 15 credit hours shall have their status changed to MS students.

   d. Students who obtain a cumulative GPA below 2.50/4.00 for the first 15 credit hours shall be dropped from the mining engineering graduate program.

   e. Graduate **Form 4** Report on Qualifying Exam (approval by Chair and VP of Graduate Studies is required)

   The Graduate Form IV will be completed after satisfying the qualifying examination requirements.

3. **Selection of Advisory Committee Members & Preparation of Program of Study**
   Time: Semester immediately after passing the Qualifying Examination
   Information: Graduate **Form 5/5-A**, PhD/DE Advisory Committee (to be completed)

   a. Review this Policy and the Graduate Catalog

   b. Graduate **Form 5**, Proposed Program for PhD (approval by Major Advisor, Advisory Committee, Chair, and VP of Graduate Studies is required)

   c. Graduate **Form 5-A,** Changes in Approved Program (approval by Major Advisor, Advisory Committee, Chair, and VP of Graduate Studies is required, as needed)

   d. Refer to Graduate Bulletin for course requirements.

   e. Regulations and specifications for theses and dissertations (available at http://grad.mst.edu/currentstudents/thesisdissertationinformation/formatting/)

4. **Comprehensive Examination (Written and Oral Components)**
   Time: Upon completion of at least 50% of course work required for the PhD degree; must be completed at least 12 weeks before Final Oral Examination
   Information:

   a. Submit a Ph.D. Research Proposal in the form of a funding proposal to the student's Advisory Committee with the consent of the student's Major Advisor. The student shall select a particular request for proposal and write a proposal that meets its requirements (except for requirements that are not reasonable for a PhD candidate, as determined by the Major Advisor).
   b. The Committee shall approve or reject the Ph.D. proposal based on originality and potential impact on the specialty area. A proposal shall be deemed to have been accepted if all but one of the Advisory Committee members approves the proposal. The student shall re-submit the

proposal if the Committee rejects the proposal. Only students who have their proposals accepted can proceed to the next stage of the Comprehensive Examination.

c. Undergo an Oral Examination of the Ph.D. Proposal, revised based on the Advisory Committee's feedback on the written proposal.
d. Complete Graduate **Form 6**, Report on Comprehensive Examination after satisfying the requirements of the oral Ph.D. Comprehensive Examination (approval by Advisory Committee, Chair and VP of Graduate Studies is required). The Advisory Committee shall fill out the GLO rubric.

5. Deadlines to be Eligible for Graduation

Each semester there are deadlines published for submission of the dissertation to Advisory Committee members, scheduling of the oral defense (Final Examination), and submission of the library copy of the dissertation. These can be found at the following website: http://grad.mst.edu/currentstudents/index.html

6. Conditional Dissertation Approval

Time: At least 7 days before Final Oral Examination
Information: Conditional approval of Ph.D. Dissertation pending Oral Defense (approval by Major Advisor and Committee)

7. Final Oral Examination

Time: At least 7 days after Conditional Approval (item 8)
Information: Graduate **Form 7** (approval by Advisory Committee, Chair, and VP of Graduate Studies is required). The Advisory Committee shall fill out the GLO Rubric.

8. Graduation

Time: Upon satisfying all the Requirements of the Final Ph.D. Oral Examination
Information: Submission of an Application for Graduation to the Office of Graduate Studies before the specified Deadline for particular Graduation Date