

Master of Science and Master of Engineering Programs

A. General Requirements

Graduate study at Mines can lead to one of a number of thesis and non-thesis-based master's degrees, depending on the interests of the student. All master's degree programs share the same academic requirements for grades and definition of minor programs.

1. Academic Requirements

A master's degree at Mines requires a minimum of 30 total credits, with some degrees requiring additional credits. As part of this minimum 30 credits, departments and programs are required to include a research or design experience supervised by Mines faculty. For more information about the specific research/design requirements, please refer to the appropriate department/program section of this catalog.

For non-thesis master's degrees, students must complete at least 21 credits at Mines in the degree program. All other coursework credits may be completed as transfer credits into the degree program. For thesis master's degrees, no more than 9 coursework credits may transfer.

The transfer credit limit includes any credits taken at another university, including credits taken under the Exchange Reciprocal Agreement. Transfer credits must not have been used as credit toward a bachelor's degree, must not be prerequisites or deficiencies, must have a letter grade of C or better, must be graduate-level credits and must be required for the degree. Requests for transfer credit must be approved by the faculty according to the process defined by a student's home department or program. All credits applied toward the degree, except transfer credits, must be earned at Mines. Students must maintain a cumulative grade-point average of 3.0 or better in Mines coursework.

2. Minor Programs

Students may choose to have a minor program or programs at the master's level. A minor program may not be taken in the student's major area of study. A designated minor requires a minimum of 9 credits of graduate coursework and must be approved by the student's advisor, home department head or program director, and a graduate faculty representative of the minor area of study. Fewer than half of the credits applied toward the minor degree program may be in the form of transfer credits. Transfer credits applied toward the minor are included as part of the overall transfer limitation applied to the degree as defined above.

3. Graduation Requirements

Within one calendar year of enrolling in the master's degree program, full-time students must complete the following requirements:

- Have a thesis committee appointment form on file in the Office of Graduate Studies (thesis-based students only).
- Complete all prerequisite and core curriculum course requirements of their department or program.

If students are admitted with deficiencies, the appropriate department heads or program directors will provide the students written lists of courses required to remove the deficiencies. These lists will be given to the students no later than one week after the start of classes of their

first semester in order to allow them to add/drop courses as necessary. Completion of prerequisites and deficiencies will be monitored by the department.

Upon completion of the above-defined requirements, students must submit a Degree Audit form documenting satisfactory completion of the core curriculum requirements.* Deficiency and/or prerequisite courses may not be listed on the Degree Audit form. The form must have the written approval of all members of the advisor and thesis committee, if appropriate.

- * Depending on the admit term, some students may not need to submit a Degree Audit form. Students who do not need to submit a Degree Audit form will be notified the first semester of study. Students who do not need to submit a Degree Audit form will, however, need to submit a form to transfer credits, double count credits, and/or substitute courses.

To graduate, all master of science and master of engineering students must submit all forms and complete the graduation checkout by the posted deadlines. In addition, thesis-based students must submit a signed Thesis Defense form, upload a content-approved thesis, and have the formatting approved by the posted deadlines.

B. Non-Thesis Option

Non-thesis master's degrees (both non-thesis master of science and master of engineering) are offered by a number of departments and programs. See the specific department/program section of this catalog for more information. Although non-thesis master's students are not assigned a thesis committee, students in this program are assigned a faculty advisor by the student's home department or program. The advisor is subject to approval by the Office of Graduate Studies.

1. Internships – Course Credit

Students in non-thesis master of science and master of engineering degree programs can earn academic credit toward their degree for a paid internship. The 3-credit course, SYGN 598I, must be used as an elective to meet the total credit requirement for the degree, as determined by a degree audit. As a letter-graded, 3-credit course, the paid internship must be a minimum of 165 hours during the registration term (e.g., sixteen-week semester or eight-week part-of-term). The internship site and project must be approved by the student's advisor and department/program in advance and learning goals must be developed and discussed with the student. The Internship Form is available from the Office of Graduate Studies.

2. Internships - Curricular Practical Training (CPT)

- International students on F1 or J1 visa must have completed two semesters in full-time status to be eligible to apply for authorization to participate in an internship and register for SYGN 598I. F1 students must apply and be approved for CPT before they can participate in any internship activity. J1 students must apply and be approved for academic training before they can participate in any internship activity.
- All international students must receive approval from their advisor and department/program, then submit the Internship form to the Office of Graduate Studies (OGS) for review before submitting their application for CPT or academic training to ISSS.
- International students on F1 visa must maintain full time status while on CPT in fall and spring terms.

C. Thesis Option

Thesis-based master of science degrees require completion of a satisfactory thesis and successful oral defense of this thesis. Academic credit toward completion of the thesis must include successful completion of no fewer than 6 credits of master's-level research credit. The thesis is expected to report on original research that results in new knowledge and/or techniques or on creative engineering design that applies state-of-the-art knowledge and techniques to solve an important problem. In either case, the thesis should be an exemplary product that meets the rigorous scholarship standards of Colorado School of Mines. The student's faculty advisor and the master's thesis committee must approve the program of study and the topic for the thesis. The format of the thesis must comply with the appropriate guidelines promulgated by the Office of Graduate Studies.

1. Faculty Advisor Appointment

When admitted, each thesis-based master's student is assigned a faculty advisor by the department or program. Students who are assigned temporary advisors at admissions will work with their department or program to have a permanent advisor assigned. Master's students changing a temporary advisor to a permanent advisor or selecting a new advisor will need the new faculty advisor approved by the Office of Graduate Studies by the end of the second semester at Mines.

Advisors will provide advice regarding the student's thesis direction, research, and selection of courses. To be approved by the Office of Graduate Studies, advisors must be designated as Mines graduate faculty. Please refer to the Faculty Handbook for a definition of what constitutes Mines Graduate Faculty. Upon approval by the graduate dean, adjunct faculty, teaching faculty, visiting professors, emeritus professors, and off-campus representatives may be designated additional co-advisors.

The department head or program director of the degree program, and the graduate dean, must approve all faculty advisor appointments.

2. Thesis Committee

The appointment status of faculty who can serve as voting members of a master's thesis committee was pending final approval by the Board of Trustees as of the date of publication of this catalog. Check with the Office of Graduate Studies for an update to the membership information provided below and if a catalog addendum is available.

The graduate dean will approve a thesis committee whose members have been recommended by the student, the student's faculty advisor, and the student's department head/program director and whose members meet the minimum requirements listed below. Students should have a thesis committee approved by the end of their second semester.

This committee will have a minimum of three voting members, including the student's advisor, who are familiar with the student's area of study.

1. Of these three committee members, the first member will be the student's advisor. The advisor must be a full member of the graduate faculty.
2. The second member must be designated as either a full or associate member of the graduate faculty and knowledgeable in the technical areas of the thesis. The committee members acts as the thesis committee chairperson.
3. The third member of the committee may be a full or associate member of the graduate faculty or an off-campus member.

- Off-campus members can be assigned to the committee as the third member or as additional members. If assigned as the third member, the member must be a voting member.
- Off-campus members nominated for voting status on the Committee Request form must include a brief resume of their education and/or experience that demonstrates their competence to judge the quality and validity of the thesis. Such members also must agree to assume the same responsibilities expected of on-campus committee members including, but not limited to, attendance at committee meetings, review of thesis proposals, and drafts and defense.

4. Additional members (more than the three required), either from Mines or off-campus, may serve either with full voting status or in a nonvoting capacity. Mines members with voting status must meet the same criteria as those of required committee members. Off-campus members with voting status assume all responsibilities of on-campus committee members with respect to attendance of committee meetings, review of thesis drafts, participation in oral examinations, and thesis defense sessions.
5. If a thesis co-advisor is assigned, this individual, Mines faculty or off-campus member, becomes a fourth required member of the committee. Co-advisors must be voting members of the committee.
6. If a minor field is designated, an additional committee member must be included who is an expert in that field. Minor representatives must be Full or Associate Members of the Graduate Faculty who are participating faculty in the minor program area. If multiple minor programs are pursued, each must have a committee representative as defined above.
7. A thesis committee chairperson is designated at the time the student requests the formation of the thesis committee. The chairperson is responsible for leading all meetings of the thesis committee and for directing the student's thesis defense. The second or third member, not the advisor or co-advisor, must serve in the role of committee chair. The committee chair must be Mines faculty and cannot be off-campus or adjunct/affiliate faculty.

Shortly after its appointment, the committee will meet with the student to hear a presentation of the proposed course of study and thesis topic. The committee and the student must agree on a satisfactory program and the student must obtain the committee approval of the written thesis proposal at least one semester prior to the thesis defense. The student's faculty advisor assumes the primary responsibility for monitoring the program and directing the thesis work. The award of the thesis-based master's degree is contingent upon the student's researching and writing a thesis acceptable to the student's faculty advisor and thesis committee.

3. Thesis Defense

The student submits an initial draft of their thesis to the faculty advisor, who will work with the student on necessary revisions. Upon approval of the student's advisor, the revised thesis is circulated to the thesis committee members at least one week prior to the oral defense of the thesis. The oral defense of the thesis is scheduled during the student's final semester of study. Students must be registered in that semester to be able to defend their thesis. This defense session, which may include an examination of material covered in the student's coursework, will be open to the public.

Following the defense, the thesis committee will meet privately to vote on whether the student has successfully defended the thesis. Three outcomes are possible: the student may pass the oral defense; the

student may fail the defense; or the committee may vote to adjourn the defense to allow the student more time to address and remove weaknesses or inadequacies in the thesis or underlying research. Two negative votes will constitute a failure regardless of the number of committee members present at the thesis defense. In the event of either failure or adjournment, the chair of the thesis committee will prepare a written statement indicating the reasons for this action and will distribute copies to the student, the thesis committee members, the student's department head or program director, and the graduate dean. In the case of failure or adjournment, the student may request a re-examination, which must be scheduled no less than one week after the original defense. A second failure to defend the thesis satisfactorily will result in the termination of the student's graduate program.

Upon passing the oral defense of the thesis, the student must make any corrections in the thesis required by the thesis committee. The final, corrected copy and an executed signature page indicating approval by the student's advisor and department head must be submitted to the Office of Graduate Studies for review of the thesis format. (Instructions on Mines thesis format policy are available on the Office of Graduate Studies webpage and should be thoroughly read before beginning work on the thesis.) Any necessary revisions to the format of the thesis must be completed by the student and approved by the Office of Graduate Studies prior to the posted deadlines for completion of the student's graduate degree.

4. Time Limitations

A candidate for a thesis-based master's degree must complete all requirements for the degree within five years of the date of admission into the degree program. Time spent on approved leaves of absence is included in the five-year time limit. Candidates not meeting the time limitation will be notified and withdrawn from their degree programs.

Candidates may apply for a one-time extension of this time limitation. This application must be made in writing and approved by the candidate's advisor, thesis committee, department head or program director, and the graduate dean. The application must include specific timelines and milestones for degree completion. If an extension is approved, failure to meet any timeline or milestone will trigger immediate withdrawal from the degree program.

If the graduate dean denies an extension request, the candidate may appeal this decision to the provost. The appeal must be made in writing, must specifically state how the candidate believes the request submitted to the dean met the requirements of the policy, and must be received no later than 10 business days from the date of notification of the dean's denial of the original request.

If a candidate is withdrawn from a degree program through this process (either by denial of an extension request or failure to meet a timeline or milestone) and wishes to re-enter the degree program, that candidate must formally reapply for readmission. The program has full authority to determine if readmission is to be granted and, if granted, to fully re-evaluate the candidate's work to date and determine its applicability to the new degree program.