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The Materials Science and Engineering Program Options
Talk to Terry about a description of the MSE program

Plan of Study
Students are able to submit a Plan of Study from the first day of their graduate studies. The Plan of Study (iPOS) is an interactive web based form that graduate students complete and which outlines all coursework required to obtain their degree. Master’s students are expected to complete the iPOS in their first semester and no later than their second semester. Doctoral students should file the iPOS no later than their 8th week of their second semester. Students should read the Office of Graduate Education Policies on the plan of study requirements.

All SEMTE graduate students are required to submit and have their Plan of Study (iPOS) approved prior to being eligible for registration of their third semester classes. This means students who begin in one semester, will have a hold placed on their account before they begin their third semester. To prepare for this, students are expected to make use of their first semester in the program to know faculty, selecting a faculty advisor, and creating their Plan of Study to demonstrate their intended path to graduate from the program. Should a student fail to meet this requirement, the student is at risk of being removed from the program.

Audited courses do not apply toward the degree program and cannot be listed on the iPOS. In general SEMTE graduate students are not granted permission to audit a course until the student has filed a Plan of Study (iPOS) and are in their final semester. Special requests to audit courses must be submitted to the Graduate Program Chair after approval by the faculty chair.

Program Policy on Maximum Course Load
Per the Office of Graduate Education, registration in nine credits is considered a full-time load for graduate students. SEMTE students are restricted to 11 credit hours per semester. RAs or TAs will be allowed to take 12 credit hours with confirmation of their approved TA or RA position.

Academic Standing
A student who has been admitted to an MS, MSE, or PhD degree program in Materials Science & Engineering, with either regular or provisional admission status, must maintain a 3.0 or higher grade point average (GPA) as stated below.

1. In all work taken for graduate credit (courses numbered 500 or higher);
2. In the coursework on the student’s approved program of study, and
3. In all post baccalaureate coursework taken at ASU (overall GPA).

A. A student will be placed on academic probation if:
   o One or more of the student’s GPAs listed above falls below 3.0;
o Or the student receives a grade of D or E in a course at the 400 level or above;
Students will be notified by mail when placed on academic probation.

B. A student will return to academic good standing by obtaining a minimum 3.0 in the
GPAs listed above by the time the next nine hours are completed. Coursework such as
research and thesis/dissertation registration that are for Z or Y grade cannot be included
in these nine hours.

C. A student may be recommended for dismissal from a graduate program if:
   o The student fails to increase all of the GPAs listed above to a minimum of 3.0 by
     the time he/she completes the next nine credit hours as defined in section B;
   o Or the student receives a grade of D or E while on academic probation for any
     reason;
   o Or a provisionally admitted student fails to meet the required provision(s) of
     admission.
A student may appeal actions concerning dismissal by petitioning the departmental unit in
which they are enrolled.

Core Courses
Students can petition to waive any core course if they have taken an equivalent course at
another accredited university and achieved a grade of B or better at the graduate level.
Students must provide proof in the form of transcripts and a syllabus of that course. A petition
should be submitted to the graduate program chair who reviews requests for waivers or
substitutions of the core courses. The student must take an approved technical elective in
place of the waived core course. Students will be responsible for material from waived courses
during the qualifying exam (if applicable).

Students wanting to repeat a core course must have approval from their faculty advisor to
repeat the course. All core course grades will be used in calculating the core course GPA for
waiver of the qualifying exam.

Culminating Event
All students admitted to the Master’s program are admitted to the non-thesis track. If Master’s
students want to switch to the thesis track, a faculty advisor has to be secured before
requesting the change. Students admitted to the PhD program also have to secure a faculty
advisor on their own, unless they come into the program with one already.
Portfolio
The portfolio option requires that all 32 credits toward the Master’s program be taken as coursework and the portfolio is the culminating experience. Online students must choose the portfolio option. The portfolio consists of two projects completed by the student in Materials Science Engineering classes, chosen by the student, from the student’s iPOS. A paper summarizing the projects and synthesizing the knowledge obtained, plus a cover page is attached to the portfolio in one pdf format. To complete their portfolio requirements students must also complete the Graduating Student Survey. This must be completed by the last day of classes during the semester in which the student will be graduating.

Applied Project and Thesis
Students who are interested in pursuing an applied project or thesis for their culminating event must be in good academic standing, must have secured a faculty chair, and the MSE program chair must approve their request.

Applied Project
Master’s students in the non-thesis track can choose to conduct an applied project (AP) or the portfolio for their culminating experience. Applied project students are required to take a minimum of three (3) credits of MSE 593: Applied Project in their final semesters, but may take a maximum of six (6) credits of MSE 593. This gives students an opportunity to prepare their final report and presentation as the final culminating event for the degree. An AP can be done at an industrial site (or at a reputable university or national laboratory) in collaboration with ASU faculty and on-site mentors. Before students will be able to register for MSE 593 they must be in good academic standing, they must have a faculty chair, and the MSE program chair must approve their Applied Project Form. All forms must be completed and reviewed prior to the first day of classes during the student’s final semester.

The applied project captures the essence of the master’s degree focus and represents a major portion of the student’s course work as required for this specialization. The applied project (AP) culminates in a final overview written report and oral presentation incorporating knowledge gained from the program with integration and reflection of learning as applied to the job. This comprehensive report, typically 20-25 pages (1.5” spaced) plus figures, is on a topic of their choice and approved by their faculty advisor. Students should meet with their faculty advisor early in the plan of study to discuss the topic and to draft an AP plan.

Thesis
The thesis or dissertation topic can be initiated by either the student or the faculty advisor. Doctoral students should initiate their dissertation research before they are able to devote
fulltime work to the dissertation project. The dissertation must be composed of original work and one or more research publications or presentations should result from the research project. Students must meet SEMTE deadlines for submission. **Thesis students are required to complete 2 core courses.

Selection of Faculty Advisor and Research Topic

Of paramount importance to a successful doctoral or Master’s thesis student is the selection of a suitable research topic. The selection of the research topic is the student’s responsibility. Students are urged to select a topic and a faculty advisor early in their plan of study, and no later than the end of the first semester in residence. The faculty advisor or co-advisors selected must be part of the graduate faculty for materials science and engineering and can be found on the following website: http://graduate.asu.edu/graduate_faculty

In the selection of a faculty advisor, students should interview faculty members and select an advisor and thesis/dissertation topic that matches their goals and interests. Students must obtain the agreement of the faculty member to serve as the faculty advisor and, for doctoral students, to chair the faculty supervisory committee or dissertation committee.

The faculty advisor supervises the research performed by the student. This requires that the faculty member understand the time involved in helping the student complete the plan of study and to coordinate the coursework and research activities. Generally, the faculty advisor advises the student to select other members of the student’s supervisory committee that would be appropriate to serve on the faculty supervisory committee. **One member of this committee must also be a member of the MSE Program Faculty.** Frequent contact between the student and the faculty advisor is necessary to accurately define the research project. This helps to ensure that the student’s research prospectus is acceptable.

Office of Graduate Education Policies

The Office of Graduate Education must have final approval of all plans of study and is responsible for the conferral of the degree. All SEMTE policies must abide by Office of Graduate Education policies, although the School may impose stricter guidelines. Students are thus responsible for reading, understanding, and abiding by all of the policies found in the Graduate College Handbook as well as all SEMTE policies as described herein.

Graduate Student Academic Advising

The initial advising of all incoming students is carried out by the SEMTE Graduate Academic Advising Office and the Graduate Program Chair unless a faculty advisor has been arranged prior to the student’s (PhD or MS with thesis) arrival to ASU. Throughout the student’s graduate program, the SEMTE Graduate Academic Advising Office can assist with the process towards
completing the degree (i.e. registration, iPOS questions), but not with academic content. Questions involving academic content should be directed to either the faculty chair or the Graduate Program Chair.

**Professionalism and Honor Code**

Ethics and professional conduct are cornerstones of the Engineering profession and graduate students are fully expected to adhere to these expectations. Ethical violations (e.g. “cheating”) and unprofessional conduct with regards to faculty and staff will not be tolerated.

ASU has an approved Honor Code to which the students have to adhere.
Materials Science & Engineering (MSE) MS Degree Check sheet- Non Thesis
(Non-thesis option)

Seminar: MSE 591
2 credit hours
1. ___ 1 credit hour
2. ___ 1 credit hour

Math Requirement:
3 credit hours
Select one of the following courses: MSE 501, MSE 502, IEE 570, IEE 572 or any MAT 4xx or higher
1. ___ 3 credit hours

MSE Course Requirements:
15 credit hours
MSE 592 & MSE 599 cannot be used to fulfill this requirement.
1. _______ 3 credits (MSE 51x or above)
2. _______ 3 credits (MSE 51x or above)
3. _______ 3 credits (MSE 52x or above)
4. _______ 3 credits (MSE 52x or above)
5. _______ 3 credits (MSE 52x or above)

Technical Electives:
9 credit hours
MSE 592 & MSE 599 cannot be used to fulfill this requirement.
1. _______ 3 credits (MSE 52x or above; OR 500 level engineering/science)
2. _______ 3 credits (MSE 52x or above; OR 500 level engineering/science)
3. _______ 3 credits (MSE 52x or above; OR 500 level engineering/science)

Culminating Event:
3 credit hours
Select one of the following culminating event options:
1. MSE 593 (Applied Project) 3 credit hours
   OR
2. Portfolio (requires an additional 3 credit TE) 3 credit hours  Technical Elective

Total: 32 credit hours
# Materials Science & Engineering (MSE) MS Degree Check Sheet - Thesis

<table>
<thead>
<tr>
<th>Seminar: MSE 591</th>
<th>2 credit hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended: MSE 591. Other seminars and credits can be used with program chair approval.</td>
<td></td>
</tr>
<tr>
<td>3. ___</td>
<td>1 credit hour</td>
</tr>
<tr>
<td>4. ___</td>
<td>1 credit hour</td>
</tr>
</tbody>
</table>

## MSE Core Courses:
6 credit hours
Select two (2) MSE core courses from the list below:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSE 523</td>
<td>Structural and Mechanical Properties of Materials (Fall ONLY)</td>
<td></td>
<td>3 credit hours</td>
</tr>
<tr>
<td>MSE 524</td>
<td>Advanced Thermodynamics (Fall ONLY)</td>
<td></td>
<td>3 credit hours</td>
</tr>
<tr>
<td>MSE 561</td>
<td>Phase Transformation, Kinetics, &amp; Diffusion in Solids (Spring ONLY)</td>
<td></td>
<td>3 credit hours</td>
</tr>
<tr>
<td>MSE 598</td>
<td>Fund of Elec, Optical &amp; Magnetic Materials &amp; Device App (Spring ONLY)</td>
<td></td>
<td>3 credit hours</td>
</tr>
<tr>
<td>1. ___</td>
<td>3 credit hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. ___</td>
<td>3 credit hours</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Math Requirement:
3 credit hours
Select one of the following courses: MSE 501, MSE 502, IEE 570, IEE 572 or any MAT 4xx or higher

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. ___</td>
<td>3 credit hours</td>
<td></td>
</tr>
</tbody>
</table>

## MSE Course Requirements:
6 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. ________</td>
<td>3 credits (MSE 51x or above)</td>
<td></td>
</tr>
<tr>
<td>7. ________</td>
<td>3 credits (MSE 51x or above)</td>
<td></td>
</tr>
</tbody>
</table>

## Technical Electives:
9 credit hours
MSE 592 & MSE 599 cannot be used to fulfill this requirement.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ________</td>
<td>3 credits (MSE 52x or above; OR other 500 level engineering/science)</td>
<td></td>
</tr>
<tr>
<td>2. ________</td>
<td>3 credits (MSE 52x or above; OR other 500 level engineering/science)</td>
<td></td>
</tr>
<tr>
<td>8. ________</td>
<td>3 credits (MSE 52x or above; OR other 500 level engineering/science)</td>
<td></td>
</tr>
</tbody>
</table>

## MSE 599 Thesis:
6 credit hours

Total: 32 credits