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The Chemical Engineering Program
Chemical engineering is a rigorous and creative discipline that is concerned with the study of matter and energy and their transformation into forms useful for society. The chemical engineering program at ASU is devoted to undergraduate and graduate education, innovative education and discovery, and is recognized nationally among the top 50 chemical engineering programs by U.S. News & World Report. The chemical engineering faculty are committed to fully developing students’ potential by providing a unique and stimulating learning and research environment, exposing students to a diversity of viewpoints and teaching/learning styles, and preparing students to work in teams to solve real-world, multidisciplinary problems.

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. Students should read the Graduate College 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, select a faculty advisor, and create 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 Chemical 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.

**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 and they must be in good academic standing before requesting the change.

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 CHE program chair must approve their request. Although non-thesis students are required to complete an applied project at the conclusion of their coursework, the research done for this paper is not at the same level as that required for a thesis. Additional coursework is required in place of the thesis.
**Applied Project**

Master’s students in the non-thesis track conduct an applied project (AP) their culminating experience. Applied project students are required to take three (3) credits of CHE 593: Applied Project in their final semester. Students should discuss potential committee members with the graduate program chair during course advisement at the end of their second semester of residence and form a committee. The chair of the committee will provide minimal technical guidance on the applied project, but will provide input on the suitability of the project for satisfying the requirements for the M.S., non-thesis degree.

Students must produce and defend a technical paper, often referred to as an applied project. Such papers are generally 15-20 pages in length (double spaced plus figures), and are based upon original work. The main goal of the paper is to demonstrate that the student has learned something in the classes and that the student can apply (or will be able to apply) the material to interesting technical problems. The supervisory committee for the applied project is comprised of two members. The paper should follow the form of engineering research reports and include a title page, table of contents, one page abstract, body, references, and optional supplementary material. A suggested outline for the body of the paper is: Introduction, Methods, Results, Discussion, and Conclusions. Figures should be clearly labeled and captioned. However, students should consult with their supervisory committee regarding the proper format of this paper. In the semester that the student plans to graduate, s/he should establish a suitable time with the committee to defend the research paper and register for the required 3 credits of CHE 593 with their faculty advisor. Students also have the option to participate in a poster session in lieu of the defense.

Although the Applied Project paper is not expected to be published, the paper should not contain any trade secret or proprietary information. Proprietary information may be omitted so long as the essential research method and results are clear.

**Thesis**

The thesis topic can be initiated by either the student or the faculty advisor. The thesis must be composed of original work and one or more research publications or presentations should result from the research project. Students are expected to present a thesis, which is defended in an oral examination. The thesis should be of high quality, giving evidence that the program provided an introduction to original research. Students should obtain copies of *The Format Manual* (which is a guide for the preparation of master’s thesis) from the Graduate College.

**Selection of Faculty Advisor and Research Topic**

Of paramount importance to a successful 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 second semester in residence. The faculty advisor or co-advisors selected must be part of the graduate faculty for chemical engineering and can be found on the following website: https://graduateapps.asu.edu/graduate-faculty/degree/ESCHEMEPHD

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

Oral Thesis Defense

After the student has completed his/her research, s/he is required to orally defend the master's thesis in an open and public forum. The Graduate College requires that the oral defense of the master’s thesis be publically announced to ensure that the university community is invited to attend. The oral defense of the student's master's thesis is a formal occasion and the student should treat it as such by dressing appropriately (i.e. business attire) and scheduling the meeting for an appropriate seminar room. It is the responsibility of the student to arrange a time mutually convenient for all committee members, for all audiovisual aids, and to schedule the room location. The student should follow the process outlined by the Graduate College and SEMTE Graduate Academic Advising to schedule the final thesis defense.

At the beginning of the examination, the student's research advisor will introduce the student and the topic of the research to the general audience. The student is then expected to present a brief seminar outlining the results of his/her research. The presentation should be limited to 30 minutes. Following the presentation by the student, the general audience is invited to ask questions. The general audience is then excused and the student's supervisory committee continues to question the student in depth regarding the research findings. The student should be prepared to defend the research methodology used in the study and the results obtained. The oral defense of the thesis is limited to a period of three hours. If necessary, however, the proceedings may be adjourned and rescheduled for a mutually convenient date within one week. Students must be registered in at least one graduate credit hour at the time of their defense. Before the defense can take place, it must be scheduled through the SEMTE Graduate Advising Office. The defense must take place at the Tempe campus.
Only one adjournment is permissible. When the committee completes its questioning, the student is asked to leave the room. The supervisory committee then discusses whether or not the student successfully defended his/her research and whether or not the completed thesis is acceptable. The results are transmitted to the SEMTE Graduate Academic Advising office on the Report for Master's Thesis/Practicum Defense form following the approval of the Head of the Academic Unit. Immediately after the defense, the student takes the form to the SEMTE Graduate Academic Advising office for academic unit processing. After the form has been processed at the academic unit level, the SEMTE Graduate Academic Advising office will forward the Report for Master's Thesis/Practicum Defense form to the Graduate College.

**Graduate College Policies**
The Graduate College must have final approval of all plans of study and is responsible for the conferral of the degree. All SEMTE policies must abide by Graduate College 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 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.
# Chemical Engineering (CHE) MS Degree Check Sheet

(Non-thesis option)

## Core Courses: 9 credit hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 533</td>
<td>Transport Processes I (Spring ONLY)</td>
<td>3</td>
</tr>
<tr>
<td>CHE 543</td>
<td>Thermodynamics of Chemical Systems (Fall ONLY)</td>
<td>3</td>
</tr>
<tr>
<td>CHE 544</td>
<td>Chemical Reactor Engineering (Spring ONLY)</td>
<td>3</td>
</tr>
</tbody>
</table>

## CHE Courses: 6 credit hours

Courses must come from the CHE prefix and must be at the 500-level or above.

1. ___ 3 credit hours
2. ___ 3 credit hours

## Technical Electives: 15 credit hours

Students must take at least ONE (1) TE from a NON-CHE prefix. A maximum of 3 credits of CHE 592 may be used toward the TE requirement. CHE 599 cannot be used to fulfill this requirement.

1. ___ (NON-CHE prefix course) 3 credit hours
2. ___ 3 credit hours
3. ___ 3 credit hours
4. ___ 3 credit hours
5. ___ 3 credit hours

## CHE 593 Applied Project: 3 credit hours

Total: 33 credit hours

*4+1 Students are not able to take CHE 584 as part of their program of study.*
Chemical Engineering (CHE) MS Degree Check Sheet - Thesis

**CHE Seminar:**  3 credit hours

Students must complete 3 credits of CHE 591.

1. ___  1 credit hour
2. ___  1 credit hour
3. ___  1 credit hour

**Core Courses:**  9 credit hours

- CHE 533  Transport Processes I (Spring ONLY)  3 credit hours
- CHE 543  Thermodynamics of Chemical Systems (Fall ONLY)  3 credit hours
- CHE 544  Chemical Reactor Engineering (Spring ONLY)  3 credit hours

**CHE Courses:**  6 credit hours

Courses must come from the CHE prefix and must be at the 500-level or above.

1. ___  3 credit hours
2. ___  3 credit hours

**Technical Electives:**  9 credit hours

Students must take at least ONE (1) TE from a NON-CHE prefix. A maximum of 3 credits of CHE 592 may be used toward the TE requirement. CHE 593 cannot be used to fulfill this requirement.

1. ___ (NON-CHE prefix course)  3 credit hours
2. ___  3 credit hours
3. ___  3 credit hours

**CHE 599 Thesis:**  6 credit hours

Total:  33 credit hours

*4+1 Students are not able to take CHE 584 as part of their program of study.