This document serves as the official graduate student handbook for outlining degree requirements and policies and procedures for completion of a PhD degree in Chemical Engineering. This document is also available at the following website with hyperlinks in the electronic version:

http://engineering.asu.edu/semte/GradHandbooks.html
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I. INTRODUCTION

A. Objective of the Handbook
This document summarizes the current academic requirements for the Doctor of Philosophy degree in the Chemical Engineering program in the School for Engineering of Matter, Transport, and Energy in the Ira A. Fulton Schools of Engineering. The handbook serves as a guide by outlining important deadlines, degree requirements and rules and regulations imposed by the School, the Ira A. Fulton Schools of Engineering (FSE), and the Graduate College (GC). It also outlines the standards of performance expected of all doctoral degree candidates. In some cases, inconsistencies arise between the contents of the handbook and the Graduate College as either the Engineering or GC changes policies. In these cases, the university's published rules and policies take precedence. Please report any inconsistencies to the Graduate Coordinator.

Throughout the course of their graduate careers, students will need to submit various School or program and Graduate College related forms. Students may find program or School forms on the following website: http://engineering.asu.edu/semte/GradForms.html Graduate College forms may be found on the following link: http://graduate.asu.edu/forms/index.html.

B. Graduate Student Responsibilities
It is the responsibility of the graduate student to know and to observe all procedures and requirements as defined in this handbook, the Graduate Catalog, the Schedule of Classes, and the Format Manual (a guide to assist students writing theses or dissertations). Students may obtain a copy of the Graduate Catalog from the Graduate Coordinator. A copy of the Schedule of Classes is obtained from any registration site. The Format Manual can be obtained online at http://graduate.asu.edu/formatmanual Graduate students are expected to be familiar with the Code of Conduct which is available in the Office of Student Affairs. Violations of the Code of Conduct or incidents of dishonesty such as cheating in examinations, cheating in laboratory work or plagiarism are subject to university discipline whether committed by individuals or groups. Graduate students are expected to maintain the highest degree of academic integrity, enthusiasm for their academic studies, and a high degree of intellectual curiosity.

Effective fall 2012 and forward, all incoming SEMTE graduate students will be required to submit and have their Plan of Student (iPOS) approved, prior to being eligible for registration of 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, including summer.

To prepare for this, students are expected to make use of their first semester in the program by getting 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.
C. Faculty Responsibilities
Faculty accepting the responsibility of mentoring graduate students are expected to know, observe, and enforce the policies, procedures, and requirements as defined and outlined in this handbook and the other publications listed above.

D. Safety
The department is committed to providing a safe work environment for faculty, staff and students. Students are required to follow safe procedures in accomplishing their research and teaching assignments. All graduate students are required to attend a safety orientation class outlining University, Fulton Schools, and School safety guidelines and regulations. This orientation class is typically held at the beginning of each fall semester. You will be notified about the date and time of the orientation classes. Students who refuse to maintain a safe working environment are subject to withdrawal from the graduate program.

E. Critical Path to the Ph.D. Degree
The student must accomplish several activities in the process of acquiring the Ph.D. degree. This flowchart summarizes the chronological steps that must be followed in this process. Deadlines and additional details associated with each of these steps are given in Chapter VIII.

CRITICAL PATH TO THE DOCTOR OF PHILOSOPHY DEGREE

1. Gain admission to the Ph.D. program
2. Attend new graduate student orientation meeting
3. Select advisor and begin coursework
4. Initiate research
5. Submit iPOS (Plan of Study) by the end of the 2nd semester
6. Request permission to take the qualifying examination and pass
7. Select the remaining members of the dissertation committee, add them to the iPOS, and begin to prepare dissertation prospectus
8. Complete coursework
9. Request to defend the dissertation prospectus and take the comprehensive examination
10. Successfully defend the prospectus and pass the comprehensive exam
11. Apply for Master’s in Passing (optional)
12. Complete research and write the dissertation
13. Schedule the oral defense of the dissertation with both the School and the Graduate College
Submit the dissertation for format approval

Successfully defend the dissertation and complete any revisions

Submit appropriate pass/fail paperwork to graduate advisor and Graduate College

Submit the approved dissertation to ProQuest and provide confirmation of submission to Graduate Advisor for grade changes

Return all keys and dept. property; dispose of all lab materials, samples and waste

GRADUATE

II. GOAL OF THE DOCTORAL PROGRAM

The Doctor of Philosophy degree is the highest university degree. It is granted to students upon evidence of excellence in research and the demonstration of independent, creative scholarship culminating in a dissertation. Coursework in the doctoral program focuses primarily on the engineering science concepts in the student’s major and in certain basic sciences. The graduate research program introduces the student to the techniques, procedures and philosophical attitudes necessary for exploring unknown areas in his/her chosen profession. After receiving the degree, the student is able to identify areas within his/her major suitable for research; identify the current state of knowledge in these areas using literature search resources; propose plans for investigating the area; and apply fundamental principals to science and engineering to complete the investigation and teach these skills to others who follow. The student is taught the scientific method through in-depth study of a specific research topic. This also yields a more in-depth knowledge of his/her professional major. Often included in the graduate educational experience is an opportunity to teach undergraduates by preparing selected lectures in undergraduate courses, assisting in undergraduate laboratories or serving as tutors.

III. SELECTION OF A RESEARCH TOPIC/ADVISOR

Of paramount importance to a successful doctoral program is the selection of a research advisor. During the first few weeks of the fall semester, new students are required to meet with department faculty for the purpose of selecting an advisor and exploring potential research topics. After meeting with the faculty, each student will create a rank ordered list of whom he/she would like to work (note that faculty advisors must meet the qualifications required by the Graduate College). Students should seek to select advisors whose research matches their own goals and interests. Upon receiving the rank ordered lists from students, department faculty will then meet to decide the advisor assignments. Upon receiving their advisor assignments, students should begin discussing possible research topics. The selection of the research topic is the responsibility of the student. Students are urged to select a topic early in their program of study, no later than the end of the first semester in residence. Note that the department does not guarantee that a student will be selected to work on a specific project offered by a given faculty member. This is particularly true of funded research projects. Several students often desire to work on the same project in these cases. For this reason, the student should identify several projects of interest.
among those offered by the faculty. In some instances, students propose projects that may or may not be of interest to the faculty. The department does not require faculty to advise students on projects of this nature. In all cases, the student must obtain the agreement of a faculty member to serve as the research advisor and chair of the dissertation committee. Likewise, the student is responsible for recruiting faculty to serve as members on the dissertation committee and providing confirmation that they will serve on the committee to the Graduate Coordinator.

The research advisor (or major professor) works closely with the student to help plan his/her overall program and to coordinate coursework and research activities. Generally, the advisor helps the student select other members of his/her dissertation committees. Frequent contact between the student and the advisor is necessary to accurately define the research project. This helps to ensure that the student's research prospectus is acceptable.

The dissertation topic can be initiated by either the student or the faculty research advisor. Most doctoral research plans include both theoretical analysis and experimental measurements. The Ph.D. student is expected to have a major input in defining the research topic.

Research by nature is not precisely programmed. Often, well-planned experimental designs are unsuccessful. This requires the application of different procedures. For these reasons, students should initiate their dissertation research before they are able to devote full-time to the project. This helps to eliminate unnecessary delays in graduation.

Original work is required for the Doctor of Philosophy degree. One or more research publications or presentations should result from the research project.

Throughout the program of study, the student is encouraged to actively participate in efforts to acquire funding in support of the advisor's research program. The student should assist the research advisor in the preparation of grant proposals to local, state and national agencies seeking funding for the project. The student-advisor relationship is a vital one during the Ph.D. years, and it often continues well beyond them. Each such relationship is unique, and usually offers personal and professional benefits beyond the conduct of the Ph.D. research. These benefits might include meeting important post-degree job contacts and advice on professional development/training in non research-related professional skills (e.g. teaching). It is expected that in most circumstances student-advisor disagreements will be minor and will be amicably resolved. In the uncommon instances that attempts to resolve disagreements are unsuccessful, the student and advisor are encouraged to meet with the graduate program chair for further assistance in resolving any difficulties.

IV. MAJORS OFFERED BY THE PROGRAM

Faculty within the Chemical Engineering Program offer the Doctor of Philosophy degree in Chemical Engineering. Generally, full-time students should complete requirements for the Doctor of Philosophy degree in four to five years following the Bachelor of Science degree. Faculty in the program also participate in a number of university-wide interdisciplinary doctoral programs.

V. GENERAL ADMISSION REQUIREMENTS
Below are the admission requirements for acceptance into the doctoral degree program offered by the department.

A. Regular Admission
To be eligible for regular admission, the student must have a Bachelor's degree in Chemical Engineering (or in a closely related field). United States citizens normally will have a minimum cumulative grade point average (GPA) of 3.2 out of a total possible 4.0 or equivalent. International applicants normally will be in the top 10% of their graduating class. Students entering with master's degree are required to have a minimum cumulative GPA in their master's degree coursework of 3.5 out of a possible 4.0. The Graduate Record Exam (GRE) is required for all applicants. International students must also submit test scores from the Test of English as a Foreign Language Exam (TOEFL). A score of 600 (PBT) or 100 (IBT) or greater is required for regular admission.

B. Regular Admission with Deficiencies
Regular admission may also be given to students with a Bachelor of Science or Master of Science degree in another discipline. In this case, however, the student may be required to take a number of undergraduate courses to eliminate deficiencies. These courses are in addition to the graduate plan of study. Although highly uncommon, regular admission may also be given to students who are deficient in English by program requirements but meet University requirements (e.g. TOEFL 80<score<100 on the IBT). In this case, however, the student will be required to take and successfully complete courses through the ASU American English and Culture Program (AECP). Deficiencies are determined at the time of admission by the Graduate Affairs Committee and listed on the letter of admission, which specifies the deficiencies and the time frame in which they must be completed before the student is awarded the graduate degree. Students will be required to complete any deficiencies at the first opportunity after admission and will not be able to file a Plan of Study until all deficiencies are completed.

C. Provisional Admission
Applicants with scholastic records below the standards for regular admission may be admitted provisionally in certain special cases at the discretion of the program student admissions committee with the approval of the graduate program chair. A student admitted with provisional status must earn no grade lower than a "B" in his/her first 12 hours of graduate coursework, typically. Full-time provisional students must take a minimum of nine (9) hours during their first semester in residence. Part-time provisional students may take fewer than nine (9) hours of coursework during their first semester. Specific provisions are determined at the time of admission by the Graduate Affairs Committee. Failure to fulfill this requirement will result in the recommendation for academic dismissal from the program for not meeting the provisions of their admission offer. Students who meet this requirement are reclassified as regular graduate students, at which time the regulations governing academic performance for regular students becomes applicable. **It is the students’ responsibility to see that their status is changed from provisional to regular after having successfully completed these requirements.** Students should contact the Graduate Coordinator for assistance in changing their status. Students are not able to file a Plan of Study until all provisions have been met.

VI. GENERAL REQUIREMENTS FOR THE DOCTOR OF PHILOSOPHY DEGREE
The Graduate College (GC) sets certain general requirements for the Doctor of Philosophy degree. In addition to these general requirements, the department sets specific program requirements that exceed those imposed by the GC. This section outlines general requirements specified by both the Graduate College and by the Chemical Engineering Program. In addition to understanding the material presented in this handbook, we strongly encourage you to consult the current Graduate College Policies and Procedures for more information regarding these policies.

**A. Grading**

Grades are assigned in graduate courses as follows:
A  Excellent (4.00) --Please note that effective the fall 2004 semester, faculty can
B  Good (3.00) award +/- designations to grades. The awarding of +/- grades is
C  Passing (2.00) at the discretion of individual faculty. For a full listing of GPA
D  No Graduate Credit (1.00)** values associated with these grades, please see the following
E  Failure (0.00)** link http://students.asu.edu/grades-grading-policies

W  Withdrawal*
I  Incomplete****
X  Audit
Y  Satisfactory
Z  Course in progress***

*  This grade is given whenever a student officially withdraws from a class.
**  This grade cannot be applied to a graduate degree but is included in the calculation of a
***  grade point average.
****  This grade is usually given pending completion of courses such as a thesis, dissertation or
practicum. It may also be given in lieu of an "I" for other graduate courses where the
incomplete work may take in excess of one year to complete. All grades of "Z" must be
changed to "Y" before graduation.

****  Graduate course work (500-, 600-, and 700-level courses) reported as an “I” (incomplete)
must be completed within one calendar year. At the time the “I” grade is given, the
student must complete a “Request for Grade of Incomplete” form. The form first serves
as a record of the “I” grade and the work required to complete it. When the student has
completed the work, the form then serves as a change-of-grade authorization.

If the work specified on the form is not completed within one calendar year, the “I” grade
(500-, 600-, and 700-level courses) becomes part of the student’s permanent transcript,
and the student is not allowed to complete the course work as specified on the
“Incomplete” form. The student may, however, repeat the course after the “I” has become
permanent, by reregistering, paying fees, and fulfilling all course requirements. The
grade for the repeated course appears on the transcript but does not replace the permanent
“I.”

A grade of "P" (Pass) in a 400 or higher level course may not appear on a program of study.
Grades of "D" or "E" cannot be used to meet the requirements for a degree, although they are
used to compute grade point averages. A student receiving a grade of "D" or "E" must repeat
the course in a regularly scheduled (not an independent study) class if it is to be included in the
program of study. However, both the "D" or "E" and the new grade are used to compute the
grade point averages. Grades on transfer work (used toward a program of study) will not be used
in computing grade point averages.

B. Satisfactory Academic Progress
To be eligible for a graduate degree a student must adhere to the Satisfactory Academic Progress
set froth by the Chemical Engineering Program, School for Engineering of Matter, Transport, and
Energy, Ira A. Fulton Schools of Engineering, and the Graduate College. Academic excellence
is expected of students doing graduate work. Upon recommendation from the Graduate Program
Chair of the Chemical Engineering Program, the Director of the School for Engineering of
Matter, Transport, and Energy, the Dean of the Ira A. Fulton Schools of Engineering, and/or the
Dean of the Graduate College, students who are not making satisfactory academic progress towards their degree may be recommended for dismissal from the program.

A student who has been admitted to a graduate degree program in Engineering, with either regular or provisional admission status, must maintain a 3.0 or higher grade point average (GPA) in all three of the following areas:

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

A. A student will be placed on academic probation if one or more of the student's GPAs listed above falls below 3.0. Students will be notified by mail when placed on academic probation.

B. A student will earn academic good standing by obtaining a 3.0 or better in the GPAs listed above by the time the next nine hours are completed. Coursework such as research and 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 the student fails to increase all of the GPAs listed above to 3.0 or better by the time he/she completes at least nine credit hours as defined in section B.

A student may appeal actions concerning dismissal by petitioning the departmental unit in which they are enrolled.

Academic units in Engineering can expand this policy statement to include additional policy governing the satisfactory academic progress of the students in their graduate programs.

Students must also meet Graduate College satisfactory academic progress. Please see their website for requirements and additional information at http://graduate.asu.edu/faculty_staff/policies/maintaining_progress.

C. Program Good Academic Standing
The Chemical Engineering program has additional requirements that students must adhere to in order to maintain good academic standing on top of the academic standing requirements set forth by the Ira A. Fulton Schools of Engineering and the Graduate College. To remain in good standing, the student must achieve and maintain a minimum GPA of 3.00 or higher in all work taken for graduate credit (and that appear on the program of study), AND a 3.00 or higher GPA in all coursework at ASU.

A student is placed on academic probation by the program, School for Engineering of Matter, Transport, and Energy, and the Ira A. Fulton Schools of Engineering if any of the following conditions are met:
1. the student's GPA falls below 3.00 in the approved program of study;
2. the student's GPA for all post-baccalaureate courses taken at ASU falls below 3.00;
3. the student receives a grade of "D" or "E" in a required deficiency course; or
4. the student receives a grade of "D" or "E" in any course at the 400 level or above.
5. the student fails to successfully present the annual research progress report to his/her committee (see page 14 for a discussion of this requirement).
6. the student fails to make satisfactory progress toward a degree for reasons other than above.

A probationary student who does not successfully improve his/her GPA by the end of the next enrollment period may be recommended by the department for withdrawal.

A student may be recommended for withdrawal by the Graduate College if:

1. the student is on academic probation because his/her GPA has fallen below 3.00 in the approved program of study or for all post baccalaureate courses taken at ASU and fails to bring the GPA to 3.00 or above by the time the next nine semester hours are completed; or
2. the student receives a grade of "D" or "E" while on academic probation; or
3. the student fails to obtain a GPA of at least 3.00 in all courses cited as deficiencies upon admission; or
4. the student fails to meet any other conditions imposed as a part of probation; or
5. for reasons other than above, the student fails to make satisfactory progress toward a degree.

Students will be notified by postal mail to their local mailing address when they are first placed on academic probation. If a student is withdrawn from the graduate program, he/she will receive notice from the Graduate College. A student may appeal any action concerning academic probation and withdrawal by beginning with a petition to the graduate student affairs committee within the School for Engineering of Matter, Transport, and Energy.

D. Misconduct
The highest standards of academic integrity are expected of all students. The failure of any student to meet these standards may result in suspension or expulsion from the university and/or other sanctions as specified in the academic integrity policies of the individual colleges. Violations of academic integrity include, but are not limited to, cheating, fabrication, tampering, plagiarism, falsification or misrepresentation of data or facilitating such activities. The university and colleges’ academic integrity policies are available in the Office of the Executive Vice President and Provost and the offices of the deans of the individual colleges. The university academic integrity policy is available on the Web at http://provost.asu.edu/academicintegrity

E. Graduate Credit Courses
Courses at the 500, 600 and 700 levels are graduate credit courses. Courses at the 400 level satisfy graduate degree requirements when appearing on an approved program of study. Only a maximum of 6 credit hours of 400 level credit may be counted towards a graduate Plan of Study. For additional information, please see the following website: http://graduate.asu.edu/faculty_staff/policies/graduate_degree_requirements
F.  Transfer Credit
Transfer of credit is the acceptance of credit from another institution for inclusion in a program of study leading to a degree awarded by Arizona State University. A maximum of 12 credit hours that has not been previously used towards a previously awarded degree and completed in three (3) years of admission into the program may be used as transfer credit by PhD students on a graduate Plan of Study. PhD students already possessing a master’s degree in a similarly named field may use a blanket credit of 30 hours toward the doctoral degree. However, the applicability of these 30 hours is up to the discretion of the Graduate Affairs Committee. Students seeking to waive certain core or elective course requirements must petition the Graduate Affairs Committee. For additional information regarding transfer credit, please consult the Graduate Coordinator. Please see the Graduate College transfer policy:
http://graduate.asu.edu/faculty_staff/policies/graduate_degree_requirements

G.  Non-Degree/Pre-Admission Credit
Graduate College policy allows a student to take up to 12 semester hours of graduate level credit while enrolled as a non-degree student at ASU, which is known as pre-admission credit. Pre-admission may be applied to a program of study once enrolled in a graduate degree as long as the academic unit approves and the grades earned are above a 3.0 or “B” grade. A maximum of 12 credit hours, between transfer credit and non-degree credit may be used towards the degree (the combination of transfer/non-degree hours cannot exceed 12). All pre-admission/transfer credit must be completed within three (3) years of admission into the degree seeking program. This rule does not apply to the blanket 30 credit hours from a previously awarded master’s degree. Therefore, a PhD student could use the 30 hours from a previously awarded master's degree and a combination of 12 hours of pre-admission and transfer credit on the Plan of Study. For additional information, please see the Graduate College website:
http://graduate.asu.edu/faculty_staff/policies/graduate_degree_requirements

H.  Course load and Continuous Enrollment
At the graduate level, 9 hours is considered full time status by the university. Course load is not to exceed 15 semester hours of credit during each of the two semesters (fall and spring); 6 semester hours during each 5-week summer session or 9 semester hours of credit during the 8-week summer session. Enrollment verification guidelines for graduate students can be found on the Graduate College website: http://graduate.asu.edu/faculty_staff/policies/registration

All graduate assistants and associates must enroll for a minimum of 12 credit hours (this may include research credit hours) during each semester of their employment. This program and Ira A. Fulton Schools of Engineering requirement exceeds the Graduate College minimum of six (6) hours. **The hours cannot include audit enrollment.** A half-time (at least 50%) graduate assistant or associate working 20 clock hours per week may not register for more than 12 hours (13 hours with seminar) of coursework each semester; a one-third time (33%) assistant or associate for more than 13 hours and a one-quarter-time (25%) assistant or associate for more than 15 hours.

During the summer sessions, graduate assistants employed 25% time may enroll for a maximum of 6 semester hours during a 5-week session or 9 hours during an 8-week session; those employed 50% may enroll for a maximum of 5 hours during a 5-week session or 7 hours during the 8-week
session and those employed 100% time may enroll for a maximum of 3 hours during the 5-week session or 4 hours during the 8-week session.

All graduate students doing research, working on theses or dissertations, taking comprehensive final examinations or using university facilities or faculty time, must be registered for a minimum of one hour of credit that appears on the program of study or is an appropriate graduate level course. Students who withdraw from all of their courses are also considered as non-enrolled and therefore breaking continuous enrollment. Audit courses do not count towards continuous enrollment. If students do not maintain continuous enrollment (fall and spring semesters only), they will be considered out of status and must reapply to the program. All re-applications to the program involve a new admission date, which results in all coursework previously completed is counted as pre-admission credit. If a student is going to be away from the program for a semester, s/he is strongly encouraged to visit with the Graduate Advisor to discuss a leave of absence. Additional information can be found about continuous enrollment and leave of absence at the Graduate College website: http://graduate.asu.edu/faculty_staff/policies/registration.

Students a part of the Ira A. Fulton Schools for Engineering are allowed to register for no more than 15 credits each semester. Should a student wish to take more than 15 credits in a given semester, the student must receive approval from their Faculty Advisor, Program Chair, and the Dean’s Office. Please see Graduate Advisor for the petition form.

I. Graduate Student Orientation
All new entering graduate students are required to attend a departmental graduate student orientation meeting. The meeting is held in the week prior to the beginning of classes of the student’s first semester in residence. During this orientation meeting, students are advised regarding departmental policies and are given initial advice regarding registration for courses.

J. Formation of the Dissertation Committee
No later than one month after passing the qualifying examinations, the student should appoint the entire dissertation committee. The dissertation committee consists of a minimum of five faculty members (one of whom will serve as chair). The Chair of the dissertation committee is generally the student’s research advisor. The PhD dissertation committee must contain a minimum of three (3) ChE Program Graduate Faculty and among them, a minimum of two (2) must be ChE Program Faculty. Students are encouraged to consult with their research advisors in selecting members of their dissertation committees. Please keep in mind the following when forming the dissertation committee:

1) At least one member must be a resident ASU faculty member outside of the Chemical Engineering Program; individuals who are not members of the ASU resident faculty may be appointed to a dissertation committee as a main or extra member. Such appointments must be consistent with quality graduate training and must be strongly recommended by the chair of the department. To obtain approval for a non-resident faculty member to serve on the committee, a Committee Approval Request and curricular vita for this individual must be submitted to the Graduate College via the CHE Graduate Coordinator. The
Committee Approval Request can be found on the Graduate College website at: http://graduate.asu.edu/forms

2) In the case of doctoral dissertation committees, students are encouraged to select a research advisor from among the regular tenured or tenure-track faculty within their major. In instances where the student selects an individual who is not a member of the Chemical Engineering Program as a research advisor and chair of the dissertation committee, a co-chair must be appointed. The co-chair must be a member of the regular tenure-track faculty of the Chemical Engineering Program. When the student elects to have co-chairs, a letter outlining the responsibility of each co-chair must be submitted to the graduate program chair. Generally, one co-chair is responsible for the student’s research program; the second co-chair is responsible for the student’s program of study and the enforcement of departmental policies and requirements.

The dissertation committee approves the subject and title of the dissertation, and it advises the student during the course of the research and the dissertation writing. The committee meets for the presentation and defense of the student’s dissertation prospectus, for the oral defense of the dissertation, and upon request of the student or the committee chair to consult with the student on the progress of the research and dissertation.

Once the student has formed the dissertation committee, a committee change petition should be submitted to the iPOS system through the MyASU to list the entire committee. It is the student’s responsibility to obtain the proof of commitment for each committee member to serve on the committee and submit it to the Graduate Advisor.

K. Plan of Study
All students are required to submit an official program of study, outlining the courses they have taken to fulfill degree requirements. The official Interactive Plan of Study (iPOS) must be submitted by the time students complete 50 percent of the credit hours (42 credit hours) required towards their degree program. The iPOS is accessed through the MyASU system. Once students have completed the iPOS online, they will submit it to the Graduate Advisor (i.e. once the student hits “submit,” it automatically is sent to the academic unit although an email to the Graduate Advisor is helpful as there is no notification that it has been sent), who will review it with the Graduate Program Chair and forward it to the Graduate College for final approval. The student is also responsible for printing out the iPOS Committee Signature Sheet, obtaining signatures of all committee members, and submitting it to the Graduate Advisor before it is forwarded to the Graduate College. Faculty advisors may approve of the iPOS electronically if a screen shot or PDF of the entire iPOS is attached to an email. Additional information is available at http://graduate.asu.edu/faculty_staff/policies/doctoral_degree_requirements. The iPOS can be located on ASU Interactive/MyASU at http://my.asu.edu/.

The steps for filing the iPOS are laid out here for your convenience:

Register for and complete coursework in first semester
<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Select faculty advisor and begin coursework; have faculty advisor assist with course selection for second semester registration</td>
</tr>
<tr>
<td>2</td>
<td>At the end of the second semester, file the iPOS</td>
</tr>
<tr>
<td>3</td>
<td>File iPOS through the MyASU system</td>
</tr>
<tr>
<td>4</td>
<td>List all coursework already completed that you wish to use towards your degree</td>
</tr>
<tr>
<td>5</td>
<td>List all coursework that you plan to complete to fulfill degree requirements</td>
</tr>
<tr>
<td>6</td>
<td>List Faculty Advisor as Committee Chair</td>
</tr>
<tr>
<td>7</td>
<td>Add additional Committee Members to iPOS (*this may be done at a later date but must be done prior to scheduling the comprehensive exams. This is completed with a committee change petition to the iPOS accessed through MyASU)</td>
</tr>
<tr>
<td>8</td>
<td>Submit iPOS through MyASU system to Graduate Advisor</td>
</tr>
<tr>
<td>9</td>
<td>Obtain Faculty Advisor’s approval of iPOS courses (this may be done either with a physical signature on a printed iPOS with both the signature page and the course page or by email with the iPOS signature and coursework pages attached)</td>
</tr>
<tr>
<td>10</td>
<td>Submit Faculty Advisor’s approval to Graduate Advisor for academic unit processing (*please note that it is YOUR responsibility for obtaining and submitting the faculty advisor’s approval of the iPOS and your iPOS will not be processed until the Graduate Advisor has the proper approvals).</td>
</tr>
<tr>
<td>11</td>
<td>If you have added committee members to the committee, each will need to confirm their participation on the committee. This may be done either by an email to the Graduate Advisor or by having them sign the iPOS approval page</td>
</tr>
<tr>
<td>12</td>
<td>In the graduation semester, verify that your iPOS has the correct committee members and courses listed. (*if your iPOS is not correct, your graduation will be delayed. Please note that this is your responsibility)</td>
</tr>
<tr>
<td>13</td>
<td>Submit any necessary changes to the iPOS through the MyASU and notify the Graduate Advisor that a change is pending</td>
</tr>
</tbody>
</table>
L. Qualifying Examination
The Chemical Engineering Program requires all students seeking the Doctor of Philosophy degree to pass a qualifying exam. This examination is taken early in the student's program of study. The student must formally request to take the qualifying examination by the designated deadline after receiving the announcement by the program. Failure in the qualifying exam is final unless the committee administering the exam recommends a re-examination and this is approved by the graduate program chair. Students failing the re-examination will be recommended for academic dismissal for not making satisfactory academic progress.

The qualifying exam is required to be taken immediately after two semesters* of RA or three semesters* of residence, have been completed for students entering with regular admission to the Ph.D. program (*summer is counted as one semester). For students admitted with two or more course deficiencies, the qualifying exam is to be taken no later than the end of the fourth semester of residence. Failure to take the qualifying exam within this time period will in some circumstances be counted as a failed attempt. It is the student's responsibility to complete this examination within the deadlines. Additional guidelines of this exam can be found on in Appendix I.

M. Comprehensive Examination and Presentation of the Dissertation Prospectus
Once the student completes coursework and has selected and listed a research advisor/dissertation committee on the iPOS, he/she is required to take the Comprehensive Examination. During this exam, the student will formally present a written and an oral presentation of his/her research prospectus to the dissertation committee. Following this presentation, the student’s committee will question the student about the research and general principles within the student’s field of study. The student must request in writing to present the dissertation prospectus no later than one month prior to the proposed date for presentation of the prospectus. A departmental form, “Dissertation Prospectus and Comprehensive Examination Request,” for this purpose is provided on our website. The dissertation prospectus should be presented within one year of passing the qualifying examination. The CHE Program will allow two years, but recommends one year. If a student does not complete the comprehensive exams within two years of passing the qualifying exam, they may be dismissed for not meeting satisfactory academic progress or may petition a request to the Graduate Committee.

Elements of the dissertation prospectus include a statement of the proposed research, a discussion of the significance of the research, a statement of the hypothesis/hypotheses to be tested, a description of the research methodology, a discussion of the specific data to be collected, a description of the means by which the data will be analyzed, and a review of safety issues related to the research. The oral presentation of the dissertation prospectus to the dissertation committee is designed to test the student's overall comprehension of the problems selected for investigation. It also provides a forum for the student to receive input and advice from experienced researchers. Approval of the prospectus implies that the proposed research is suitable for the Ph.D. degree and can be accomplished with the resources available. It does not guarantee that the student's effort in conducting the research will in all cases satisfy degree requirements. Copies of the written proposal must be distributed to all members of the student's dissertation committee no later than two weeks prior to the oral presentation of the research proposal. It is the responsibility of the candidate to write the proposal without the aid of others. A rough draft of the proposal may be shown to the student's research advisor.
for approval of content. The oral presentation of the dissertation prospectus is made to the student's dissertation committee. Other interested members of the faculty are invited to attend. The student's presentation should take advantage of appropriate audio visual aids and should be limited to no more than 50 minutes. Appendix I provides guidelines for conduct of the oral presentation.

Following the successful completion of the comprehensive exam, students should fill out the Report of Doctoral Comprehensive Examinations and Approval of the Ph.D. Dissertation Prospectus form. Once the form has been completed, and all signatures have been obtained, please submit the form to the Graduate Advisor in ECG G337 for program processing. The link to this form can be found on our website at http://engineering.asu.edu/semte/GradForms.html. It is the student’s responsibility to obtain the proper forms and bring them to the exam period for original signatures of the entire committee.

Failure in the comprehensive examination is considered final unless the committee administering the exam and the chair of the department recommend a re-examination, and the dean of the Graduate College subsequently approves the re-examination. A re-examination may be administered no sooner than three months and no later than one year after the date of the original examination. Only one re-examination is permitted. Students failing the re-examination will be recommended for removal from the degree program for not making satisfactory academic progress. The content and format of the comprehensive examination for the Chemical Engineering program is outlined below under specific program requirements. Successful completion of the comprehensive examination/presentation of the dissertation prospectus is necessary to achieve Ph.D. candidacy.

N. Admission to Candidacy
Doctoral students are admitted to candidacy immediately after they have passed the qualifying and comprehensive examinations, approval of the dissertation prospectus, and completion of the required coursework in the program of study. The letter of candidacy is generated and prepared by the Graduate College and posted in the MyASU account.

O. Final Oral Examinations
The final oral examination in defense of the dissertation is mandatory and must be held on one of the campuses of Arizona State University. The oral defenses of a doctoral dissertation must be scheduled at least 15 working days prior to the agreed upon defense date with the program. Students will complete the Schedule Defense Room Reservation form found on the website to the Graduate Coordinator in ECG G337. After the student has received the room reservation from the program, the student must schedule the defense with the Graduate College at least 10 working days prior to the agreed upon defense date through the MyASU system. The dissertation defense is administered by the student’s supervisory committee. Doctoral dissertation defenses are public and open to all members of the university community. The oral defense engages the supervisory committee and the candidate in a critical discussion of the research and findings of the study. Moreover, the defense attempts to relate the content of the thesis to the major field. The presentation of the dissertation defense in an open forum fosters a broader awareness of the state of graduate research at the university, promotes a wider scholarly
dialogue among disciplines, and recognizes publicly the scholarly contributions of the candidate. The graduate advisor notifies students/faculty within the department about thesis defenses. Members of the university community are also invited to dissertation defenses through announcements published on the Graduate College website. The supervisory committee conducts a final part of its examination in closed session. The deliberation and final vote are always conducted in closed session.

Here is a flow chart for the thesis process to assist you once you are ready to defend.

1. Verify that the iPOS is in order with your entire committee listed

   ↓

2. Take note of the Graduate Deadlines set forth by the Graduate College and University found on their respective websites; [http://graduate.asu.edu/progress/graduation_deadlines](http://graduate.asu.edu/progress/graduation_deadlines) and [http://students.asu.edu/academic-calendar](http://students.asu.edu/academic-calendar)
   
   Confirm with your committee the date of defense

   ↓

3. File for Graduation through the MyASU system

   ↓

4. Confirm with your committee the date of defense
Verify that your iPOS has the correct committee listed through the iPOS tab in the MyASU system. If your committee has changed or is out of date, you need to submit a committee change petition through the iPOS system and notify the graduate advisor that you have done this.

Complete the Schedule Defense Room Reservation Form on the Program Website 15 working days or more prior to your defense date: http://engineering.asu.edu/emte/graduateforms and submit to the Graduate Advisor. As you are waiting for the room assignment, complete the Thesis/Dissertation Defense Announcement that will be provided to you by the Graduate Advisor.

After you have received a room assignment from the Graduate Advisor, you may schedule your defense with the Graduate College by logging into the MyASU and clicking on the tab that says “Defense.” This must be done 10 working days prior to the day you’d like to defend. Please make sure you pay attention to the input of your culminating document title as this is how it will appear on your official transcript; in other words, please make sure you spell everything correctly. You are also to provide your committee a final draft of the thesis at least 10 working days prior to the defense.

You must send the final draft of your completed document, including your 10 digit ASU ID number, to the Graduate College for format review within 24 hours of scheduling your defense to gradformat@asu.edu.

Notify the Graduate Advisor and the Graduate College via a change to the scheduling of the defense through the MyASU system if any modifications need to be made to the defense (i.e. date, time, or location; if you will have an absent committee member, please contact the Graduate Advisor for information on the Graduate College policy and procedure for absent committee members).

Confirm with your chair that s/he has received the pass/fail form from the Graduate College and that the chair will bring the form to the defense.
Successfully defend the dissertation

Bring your pass/fail form with the signatures to the Graduate Advisor for academic unit processing within 10 business days of defending the thesis; if you have revisions that must still be completed a copy of the form will suffice. The original form with all original signatures will need to be given to the Graduate Advisor after all revisions have been completed and signed off on by the chair.

The Graduate Advisor will notify you when your pass/fail form is ready to be picked up and taken to the Graduate College in Interdisciplinary Building B Wing, room 170 for the Graduate College Dean’s signature.

The Graduate College will notify you when your document is ready to be submitted to ProQuest, although you may also check the MyASU system under the “Defense” tab as that will say “Ready to submit to ETD/ProQuest”.

Provide a copy of the ProQuest Submission receipt to the Graduate Advisor to have CHE 799 and CHE 792 grades on the iPOS changed from “Z” to “Y”.

Your degree will post after the degree conferral date outlined in the Academic Calendar and all of your grades have been changed.

Verify your mailing address through the MyASU system.

You will receive your degree in the mail 6-8 weeks after your degree has posted. The degree will be mailed to your mailing address listed in MyASU.

It is the student’s responsibility to adhere to the deadlines set forth by the Graduate College for graduation: [http://graduate.asu.edu/graddeadlines.html](http://graduate.asu.edu/graddeadlines.html). Failure to adhere to these strict deadlines will result in a delay of graduation and the need to register for the next term in order to graduate.

**Enrollment Requirements for the Dissertation Defense** -- Students must be enrolled for at least one credit hour of appropriate graduate-level credit during the semester or summer session in which they defend a dissertation. This credit must appear on the official program of study unless it is CHE 795: Continuing Registration. If defending during the summer, enrollment in any one summer session (eight-week, first-five week, or second-five week) will fulfill this requirement. If your dissertation defense is scheduled during a break period, you must be enrolled during the following semester. If the break period is between the summer and fall semesters, enrollment fall enrollment will fulfill this requirement.

**Final requirements.** After completion of the steps above, students will need to take care of the following departmental requirements:
--return all keys and departmental property.
--samples and notebooks must be turned over to the student’s research advisor.
--laboratory waste needs to be disposed of and desks need to be cleaned out.
--a current mailing address must be updated in the MyASU system in order to ensure that any following correspondence, including the mailing of the diploma, reaches the student.

P. Applying for Graduation
Application for graduation should be made no later than the date specified in Academic Calendar: http://students.asu.edu/academic-calendar All fees are payable at this time. The student applies for graduation either through the MyASU system or in person to the Graduation Office located in the Student Services building. If a student does not graduate in the semester for which s/he has applied, then it will be necessary to withdraw the graduation and re-file with the correct semester before registration for the upcoming term can be completed.

Q. Graduation
The student is eligible for graduation when program, Ira A. Fulton Schools of Engineering, and Graduate College scholarship requirements are met; the final oral examination is passed; the dissertation is approved by the dissertation committee, head of the academic unit, and the Dean of the Graduate College; and the required number of dissertation copies are submitted to the bookstore for binding. Students are required to submit the dissertation to ProQuest per university policy. After the dissertation has been submitted and no additional revisions are necessary, it is the student’s responsibility to bring a copy of the ProQuest submission with the ASU ID number on it to the Graduate Advisor so that grade changes may be processed. Failure to do this may result in a delay of degree posting.

R. Foreign Language Requirement
There is no foreign language requirement.

S. Maximum Time Limit
Doctoral students must complete all program requirements within a ten-year period. The ten-year period starts with the initial admission semester and year into the doctoral program. In addition, the student must take the final oral dissertation defense examination within five years after passing the comprehensive examinations. Any exception must be approved by the dissertation committee and the Dean of the Graduate College and ordinarily involves repetition of the comprehensive examinations. Please see the Graduate College website: http://graduate.asu.edu/progress/steps/critical_policies_to_remember/time_limits
VII. SPECIFIC PROGRAM REQUIREMENTS FOR THE DOCTOR OF PHILOSOPHY DEGREE

A. Course Requirements
In addition to the general requirements listed above, the department establishes additional specific requirements for the Chemical Engineering major.

The Doctor of Philosophy (Ph.D.) in Chemical Engineering requires completion of 84 semester hours. These hours include core/elective coursework, research/dissertation and seminar credits. Below are the specific requirements:

1) Chemical Engineering Core
The Ph.D. program requires 9 semester hours of graduate-level Chemical Engineering courses. The following three courses (comprising these 9 hours) are required for all students:

- CHE 533 (3): Transport Processes I
- CHE 543 (3): Thermodynamics of Chemical Systems
- CHE 544 (3): Chemical Reactor Methods

2) Technical Electives
In addition to the 9 hours of core above, the Ph.D. program requires 18 semester hours of technical electives from within or outside the Department of Chemical Engineering. CHE courses meeting this requirement must be at the 520 level or higher. 400-level and 590 courses (from CHE or outside departments) may not be used to fulfill this requirement (although they may be used to satisfy #5 below). Students should consult with their supervisory committees in selecting appropriate technical elective courses.

3) Research/Dissertation
Students are required to take 12 hours of research (CHE 792) and 12 hours of dissertation (CHE 799), for a combined total of 24 hours. Note that no more than 12 hours of dissertation credit (CHE 799) may appear on a program of study. Moreover, students can only take CHE 799 once they have passed the comprehensive exam and been admitted to candidacy.

4) Seminar
Students must register for the one-credit hour seminar (CHE 591) during every semester in residence. However, only a maximum of 5 credit hours may apply to the program of study.

5) Additional Research/Elective hours
The additional 28 hours necessary to meet the 84-hour minimum may be fulfilled with any combination of additional research hours (CHE 792) and technical electives from the Chemical Engineering Program or other departments. CHE 590 (Reading and Conference) hours may also be used to fulfill this area. Note that 400-level courses in departments outside Chemical Engineering may be used to fulfill this area unless the course content significantly matches that of 300-level or lower courses in engineering. For example, STP 420 does not qualify as a valid elective because it is similar to ECE 383. Elective courses used to meet this requirement must be approved as part of the student’s program of study.
Total: 84 credit hours (including 9-hrs. core, 18-hrs. technical electives, 24 hours research/dissertation, 5-hrs. seminar, and 28 hours additional research/electives).

Students with MS degrees (either from ASU or elsewhere) may transfer up to 30 semester hours toward the Ph.D. degree with the approval of his/her supervisory committee as long as these courses have equivalent course requirements to those at ASU (students without Master’s degrees may be eligible to also transfer earned graduate-level hours. For the time limit on transfer hours, please see the following website: http://graduate.asu.edu/faculty_staff/policies/master's_degree_requirements). However, the specific requirements of the 84 credit hours of coursework described above must still be met. Hence, if a student transfers in 30 semester hours, but none of these credits fulfill the Chemical Engineering core requirements, that student will still need to take the appropriate coursework to fulfill these requirements. Students who transfer in 30 hours are required to complete a minimum of 54 hours after being admitted to the Ph.D. program at ASU. In some cases students transferring in 30 hours may need to take more than the minimum 54 to meet all of the requirements of the program.

Please see the Appendix for a worksheet and chart of degree requirements

B. Transition Program Requirements

Students without a bachelor’s degree in Chemical Engineering who are deficient in some skills needed for graduate study in Chemical Engineering may need to complete certain deficiency courses prior to taking the qualifying examination. In addition, the student's research faculty advisor may outline additional transition program requirements to ensure that the student is prepared for the qualifying and comprehensive examinations. These courses must be completed in addition to the required graduate coursework.

1) Mathematics and Basic Sciences

- **Mathematics**: Calculus through "Ordinary Differential Equations" (e.g. MAT 270, 271, 272 and 274; typically at least 15 semester hours of credit total).
- **Physics**: One year of calculus-based physics including laboratory (8 semester hours).
- **Chemistry**: Minimum of two courses in General, Basic or Inorganic Chemistry with laboratory (8 semester hours); two courses in Organic Chemistry with laboratory (8 semester hours); and one upper division course in Physical, Analytical, or Biochemistry (3 semester hours).

2) Chemical Engineering Fundamentals

CHE 231 Transport Phenomena I: Fluids (3 semester hours)
CHE 334 Transport Phenomena II: Heat and Mass Transfer (3 semester hours)
CHE 342 Applied Chemical Thermodynamics (3 semester hours)
CHE 442 Chemical Reactor Design (3 semester hours)

C. CHE Qualifying Examination Requirements

The qualifying exam is required to be taken immediately after two semesters* of RA or three semesters* of residence have been completed for students entering with regular admission to the Ph.D. program (* summer is counted as one semester).
For students admitted with deficiencies, the qualifying exam must be taken no later than the fourth semester of residence. **Failure to take the qualifying exam within the time period will normally be counted as a failed attempt. It is the student’s responsibility to complete this examination within the deadline.** Students enrolled in the M.S. program are permitted to take the qualifying exam before admission to the Ph.D. program, but must do so no later than the end of the fourth semester of residence. Please review the Qualifying Exam guidelines in Appendix I.

**D. Dissertation Prospectuses and Comprehensive Examination**

Once a Ph.D. student completes the coursework in his/her approved program of study (usually after 4 semesters in residence), listed the entire committee on the iPOS, and passed the qualifying exam, he/she can request permission to take the comprehensive exam and present the dissertation prospectus. The student’s dissertation committee will be responsible for overseeing the student’s dissertation prospectus presentation/comprehensive exam. The written dissertation prospectus must be submitted prior to the exam and presentation as discussed above (see heading VI, section M). During the exam, the student gives an oral presentation of the dissertation prospectus, which is evaluated by the dissertation committee. Immediately following the prospectus presentation, the oral comprehensive examination is administered by the committee. During the comprehensive exam, students will be asked questions about their proposed research as well as fundamental chemical engineering principles. If the student fails the comprehensive exam, a re-examination may be administered no sooner than three months and no later than one year after the date of the original examination. The student’s dissertation committee, the Graduate Program Chair, and the Dean of the Graduate College grant approval for this re-examination. A second failure is considered final and the student is dismissed from the program. It is the student’s responsibility to bring the “Results of the Doctoral Dissertation Proposal/Prospectus” and the “Report of the Doctoral Comprehensive Exams” forms to the defenses. The forms are found on following website: [http://engineering.asu.edu/semte/GradForms.html](http://engineering.asu.edu/semte/GradForms.html). After the defenses have successfully been completed and the forms have been signed by the entire committee, they need to be brought to the Graduate Advisor in ECG 202 for processing.

**E. Master's Degree in Passing (M.S., non-thesis track)**

Students who are enrolled in the Ph.D. degree program in Chemical Engineering, but who do not hold a previously earned Master's degree, can obtain the M.S., non-thesis degree ("Master's in Passing") upon completion of the requirements listed below. This degree is given so that students who wish to pursue the Ph.D. directly can still earn an appropriate Master's degree in Chemical Engineering.

The coursework requirements for M.S., non-thesis track are identical to those for the M.S., thesis-track, with the exception of the following differences:

- CHE 593 (applied project) may not be applied toward the Ph.D. degree. Note also that Master’s in passing candidates should take CHE 592 (research) rather than CHE 792 until the Master’s in Passing has been awarded.

In summary, the requirements for the M.S.E. (in passing) are:

- 9 hours of 500-level CHE core coursework
- 15 hours of technical electives
- 3 hours of CHE 592
viii. deadlines for the doctor of philosophy degree

It is the graduate student's responsibility to meet all graduate program deadlines and requirements. To aid the student in an efficient and timely progression through the doctoral program, the following list of required activities has been previously outlined in Sections VI and VII. Critical dates and deadlines that students should familiarize themselves can be found on the following website:

Academic Calendar: [http://students.asu.edu/academic-calendar](http://students.asu.edu/academic-calendar)
Graduation Deadlines: [http://graduate.asu.edu/progress/graduation_deadlines](http://graduate.asu.edu/progress/graduation_deadlines)
Graduate College Policies: [http://graduate.asu.edu/sites/default/files/Grad_Policies.pdf](http://graduate.asu.edu/sites/default/files/Grad_Policies.pdf)

A. Registration Advisement

Prior to the registration period for each semester, all graduate students must meet with their dissertation committee chairs/research advisors for assistance with course selection. The chair/advisor will sign the Graduate Advising and Registration form indicating which courses the student should take in the subsequent semester, and the student will return the form to the Graduate Advisor for registration clearance. The form may be dropped off at ECG 202 after all signatures have been obtained. Students may also submit the form electronically to the faculty member and have the faculty member approve the form via email to the Graduate Advisor. After the iPOS has been filed, the Graduate Advising and Registration Form no longer needs to be submitted unless the student is on academic probation.

ix. financial support

Financial support for graduate students in the Chemical Engineering Program is available from two primary sources. These include research assistantships and teaching assistantships. It is
departmental policy that supported students in the doctoral program are paid a stipend consistent with that of a research or teaching assistant until they pass the qualifying examination. Following passage of the qualifying examination, the doctoral student receives a stipend consistent with that of a research or teaching associate.

A. Teaching Assistantships
Some teaching assistantships may be available to qualified individuals. All teaching assistants whose native language is not English are required to take the SPEAK Test before they are allowed primary teaching responsibilities. The SPEAK test, offered on the ASU campus. Additional information, including registration information, on the SPEAK test can be found on their website at: http://global.asu.edu/aecp/speaktest.

Students receiving teaching assistantships may be assigned appointments which are half-time (20 hours per week) or quarter-time (10 hours per week). Assignments may include sole responsibility for the teaching of undergraduate laboratories, assistance in the teaching of undergraduate laboratory recitations, and assistance in grading of undergraduate homework. Students may additionally be asked to prepare lectures in undergraduate courses and administer examinations. Teaching responsibilities are in addition to the time spent on research for the graduate degree. Teaching assistantships often are also available in other departments at the university, such as Chemistry, Mathematics and Computer Science. Teaching assistantships may include insurance, tuition remission, and a stipend as benefits. Please see the Graduate College website regarding specific information on TA trainings, resources, benefits, and the TA handbook: http://graduate.asu.edu/financing/tara.

B. Research Assistantships
Research assistantship appointments pay the student a stipend for involvement in a particular faculty research project—this project usually also serves as the student’s dissertation research topic. In addition to a stipend, students receiving a research assistantship are generally given benefits similar to that of the TA. You may view benefit information on the Graduate College website: http://graduate.asu.edu/financing/tara. Students receiving stipends for research activity, which also constitutes the thesis research, spend considerably more time each week working on the project than is otherwise expected by the assistantship.

For more information regarding Teaching/Research Assistantship policies, please view the following link: http://graduate.asu.edu/financing/tara.

C. Policies Related to Financial Support of Graduate Students
It is the desire of the department to provide financial support for as many students as possible. Financial resources, however, are limited. For this reason, only a limited number of students receive written offers of financial aid prior to entering the program. Students who elect to enter the program without a written commitment of financial aid are responsible for providing their own financial support. Although it is the desire of the faculty to assist students by the aggressive pursuit of research grants, the faculty are not responsible for providing funding when a student enrolls in the program. All supported students are expected to complete their work assignments in a satisfactory manner as judged by the faculty. Additionally, supported students are required to register for at least 12 semester hours of coursework (4 courses) during each semester of
residence, which includes research hours. Any student not making satisfactory academic progress in their program may experience loss of financial support.

**X. ACCESS TO DEPARTMENTAL STAFF AND FACILITIES**

**A. Room and Building Access**

1) **Keys**
   Keys for offices and laboratories in the Fulton School of Engineering, Engineering Research Center (ERC), J.W. Schwada Classroom Office Building (SCOB), and Goldwater Center (GWC) are obtained by filling out an "Authorization for Key Request" form (available online at: [http://bf.asu.edu/facilities/key#request](http://bf.asu.edu/facilities/key#request)). The Graduate Program Chair and the student's research advisor must sign the form. Once you have the appropriate signatures, please submit the form to the SEMTE front office (ECG 302). All keys must be returned before graduation to the SEMTE office ECG 302.

2) **ISAAC**
   Depending on the room or building you need access to, you will need to fill out either an Isaac access form or Key form (see above). Isaac access is operated through a microchip in your ASU Sun Card (student ID), which you swipe at the entry of a room or building to which you have access. In order to receive access you must fill out an Isaac access form, available in the SEMTE Business Offices in ECG 302. You will need to have your faculty advisor sign the form and then submit the form to the SEMTE Business Offices.

3) **Copier**
   **The departmental copier is for faculty and staff use.** Faculty may authorize their students to use the copier for teaching duties or for research by issuing their copier access code to the student. Large jobs (greater than 100 copies) require approval by the School Business Operations Manager. Of course, no personal copying can be done on the departmental machine. Pay copiers are available at many locations on and off campus.

   Misuse of departmental copiers, supplies, and facilities is a serious offense which will lead to disciplinary action. At a minimum, students found to have used departmental resources for non-department approved purposes will be required to reimburse the department for such uses.

4) **Mailboxes**
   Mailboxes are only for TA/RAs are located across the hall from the Advising office (ECG 202) office. Mailboxes are established within two to three weeks after the semester begins. External mail addressed to students is transmitted to them via their mailboxes. Mail delivery occurs once per day. Please empty your mailboxes weekly.

**XI. SEMINAR REQUIREMENTS**

**A. Guidelines for the Graduate/Departmental Seminar -CHE 591**
   Full-time doctoral students in the Chemical Engineering program are required to register for CHE 591 every semester in residence. Please note that only 5 hours earned in seminar apply to the official program of study.
CHE 591 may consist of meetings of all graduate students together for a general seminar. Meetings are scheduled once per week. Grades are based on attendance or on additional requirements as stated by the seminar instructor. Attendance is usually verified by a sign up sheet. It is expected that student speakers be given immediate constructive oral and written feedback from the entire group. In addition to attending group graduate seminars, all graduates are required to attend the Chemical Engineering Seminar Series which hosts outside speakers from industry and academia.
GUIDELINES FOR THE CONDUCT
OF DOCTORAL PROGRAM
QUALIFYING EXAMINATIONS

The qualifying exam is designed to test a student’s ability to conduct and communicate original research like that required for a PhD dissertation. Each student will prepare a paper describing the student’s original research. The paper is limited to 10 pages of text, and 10 additional pages of references, figures, and calculations. It is expected that, after the exam, the paper will be further developed and submitted for publication with the student as first author. Students are encouraged to collaborate with their advisors and research group colleagues; however, the exam paper should describe research led by the student and the paper should be the student’s own work.

The qualifying exam is required to be taken immediately after two semesters* of RA or three semesters* of residence have been completed for students entering with regular admission to the Ph.D. program (*summer is counted as one semester). The qualifying exam is usually given at the middle of the fall and spring semesters. Thus, a student who entered the PhD program in a fall semester, was a Teaching Assistant in the fall, and was a Research Assistant in the spring and summer semesters, is expected to take the qualifying exam in the second fall semester. Failure to take the qualifying exam will be counted as a failed exam. Students enrolled in the M.S. program may take the qualifying exam before admission to the Ph.D. program provided they have completed the CHE graduate core classes, and spent at least two semesters as a Research Assistant.

Approximately two weeks after submission of the paper, the student will meet with the Chemical Engineering Qualifying Exam Committee for an oral examination. The student should present a 20-minute summary of the paper. After the presentation, the Committee will conduct an oral examination of the student on the research presented as well as related chemical engineering principles. After this examination, the student will be informed in writing whether he/she passed or failed the exam. Students who fail the exam may retake it at the next opportunity. Students who fail the exam twice will be removed from the PhD program for not making satisfactory academic progress; these students may be able to earn a M.S., non-thesis degree.

GUIDELINES FOR THE CONDUCT
OF THE DISSERTATION PROSPECTUS AND COMPREHENSIVE EXAM

All students in the doctoral program are required to prepare a written dissertation prospectus. This prospectus must be presented to the student's dissertation committee and orally defended. The oral defense of the dissertation prospectus is designed to test the student's overall comprehension of the problem selected for investigation and to identify weaknesses in the student’s background so that appropriate coursework might be suggested. Copies of the written dissertation prospectus must be distributed to all members of the student's dissertation committee no later than one week prior to the oral presentation. One copy of the dissertation
prospectus must be deposited in the departmental office and be available for review by department faculty.

In the oral examination, the student is expected to defend the prospectus and justify that the proposed research is consistent with quality doctoral education. Following the oral presentation of the research proposition, questions are welcomed from members of the departmental faculty. Following general questions, departmental faculty other than those on the student's dissertation committee are excused and the student's dissertation committee will remain to ask questions of the candidate regarding his proposed research. The oral discussion of the dissertation prospectus is usually scheduled for three hours. If necessary, however, the proceedings may be adjourned and rescheduled for a mutually convenient date within one week. Only one adjournment is permissible.

When all of the student's dissertation committee and other interested faculty in the student's major have completed their questions, the candidate is excused from the room while the research dissertation committee conducts its deliberations. The final decision regarding whether or not the dissertation prospectus is acceptable rests solely with the dissertation committee. The student's dissertation committee conveys its evaluation of the acceptability of the dissertation prospectus to the chair of the departmental graduate committee via the forms Report of Doctoral Comprehensive Examinations and Approval of the Ph.D. Dissertation Prospectus found on the website: http://engineering.asu.edu/semte/GradForms.html.

GUIDELINES FOR THE CONDUCT OF THE DISSERTATION DEFENSE

After completing their research, students are required to submit a written dissertation and orally defend the dissertation in an open meeting. The Graduate College requires that the oral defense of the dissertation be published on the Graduate College website and publically announced to ensure that the university community is invited to attend. The oral defense of the student's dissertation is a formal occasion and the student should treat it as such by dressing appropriately 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.

At the beginning of the examination, the student's research advisor introduces the student and the topic of the research to the general audience. The student is then expected to present a brief seminar on the most important results of the research. The presentation should be limited to 30 minutes. Following the presentation by the student, the general audience is invited to ask questions. Following this question and answer session, the general audience is excused and the student's dissertation committee continues to question the student in depth regarding his/her 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 dissertation is generally scheduled for three hours. If necessary, however, the proceedings may be adjourned and rescheduled for a mutually convenient date within one
week. Only one adjournment is permissible. When the dissertation committee completes its questioning, the student is asked to leave the room and the dissertation committee discusses whether or not the student successfully defended the research and whether or not the completed dissertation is acceptable. The results are transmitted to the Graduate College on the Report for Doctoral Defense form following the approval of the Head of the Academic Unit. Immediately after the defense, the student takes the form to the Graduate Advisor for academic unit processing. After the form has been processed at the academic unit level, the form will progress to the Graduate College.

LEVEL OF PASS OR FAIL

LEVEL OF PASS

Pass: No revisions. At the conclusion of the defense, 1) the committee chair should indicate “pass,” and 2) all committee members should report the examination results at the bottom of the form as pass and sign the form. 3) The form processes to the Graduate Advisor for unit processing.

Pass: Only minor format corrections need to be made (e.g., typographical errors, pagination). At the conclusion of the defense, 1) the committee chair should indicate, "pass," and briefly describe needed revisions, and 2) all committee members should report the examination results at the bottom of the form and sign the form. 3) The form processes to the Graduate Advisor for unit processing.

Pass with minor revisions: Significant format/editorial corrections and/or minor substantive changes need to be made (e.g., rewrite some text, correct grammatical errors). At the conclusion of the defense, 1) the committee chair should indicate, "pass with minor revisions," and briefly describe revisions, and 2) the committee members, not including the chairperson, should report the examination results at the bottom of the form and sign the form. 3) Provide a copy of the form to the Graduate Coordinator for processing and reporting to the Graduate College that the defense has occurred. 4) After revisions are made, the chairperson should report the exam results at the bottom of the form and sign the thesis approval page. 5) The form processes to the Graduate Advisor. The Graduate Advisor may hold on to the form until all revisions are made for safe keeping.

Pass with major revisions: Significant substantive changes need to be made (e.g., chapter rewrite). At the conclusion of the defense, 1) the committee chair should indicate, "pass with major revisions" and briefly describe revisions. 2) all committee members should report the examination results at the bottom of the form, and sign the form. 3) Provide a copy of the form to the Graduate Coordinator for processing and reporting to the Graduate College that the defense has occurred. 4) The form should go to the Graduate Advisor until all revisions are made. The Graduate Advisor will see that the Graduate College has notification that the defense occurred, however the student has up to one academic year in order to make all necessary revisions. The student must be enrolled in CHE 795 until all revisions are complete. 5) Once all revisions are made, the committee chair will sign off on the form in section D and the form will be processed at the academic unit level.

Fail: The basic design and/or overall execution of the study are flawed or the candidate's performance in the oral examination is seriously deficient. At the conclusion of the defense, 1) the committee chairperson should indicate, “fail”, and 2) all committee members should report the examination results at the bottom of the form. If the student fails, the supervisory committee in consultation with the chair of the committee (student's research advisor) formulates recommendations for future action and recommends them.
to the chair of the departmental graduate student affairs committee and the chair of the department. Two recommendations are possible: 1) a re-examination in the format of a new thesis defense may be scheduled following the completion of recommended activities, and a petition to the program, School, College, and Graduate College is approved 2) the research may be judged unacceptable and the student removed from the graduate program. The results of the oral defense are conveyed to the student by the chair of the supervisory committee. The form will still need to come to the Graduate Advisor for academic unit processing. The Graduate College will be notified of the defense failure.
APPENDIX II
PhD
Chemical Engineering

*only valid for those who do not have a previously awarded Master’s Degree

The required coursework for this degree is divided into the following categories:

A. 9 credit hours of CHE core credit
   1. CHE 533
   2. CHE 543
   3. CHE 544

B. 18 credit hours of Technical Electives
   (CHE courses must be 520 level or higher; courses both in and out of the CHE prefix and
   may not be 400 level or 590)
   a. CHE______ or Graduate Course outside CHE prefix 3 hours
   b. CHE______ or Graduate Course outside CHE prefix 3 hours
   c. CHE______ or Graduate Course outside CHE prefix 3 hours
   d. CHE______ or Graduate Course outside CHE prefix 3 hours
   e. CHE______ or Graduate Course outside CHE prefix 3 hours
   f. CHE______ or Graduate Course outside CHE prefix 3 hours

C. 24 credit hours of Research and Dissertation
   a. CHE 792: Research 12 hours
   b. CHE 799: Dissertation 12 hours

D. 5 credit hours maximum of Seminar
   a. CHE 591 1 hour
   b. CHE 591 1 hour
   c. CHE 591 1 hour
   d. CHE 591 1 hour
   e. CHE 591 1 hour

E. 28 credit hours Additional Research/Elective hours
   a. Either a blanket 30 credit hours from a previously awarded graduate degree or
   b. Any combination of additional research hours (CHE 792) and technical electives
      from the CHE prefix (above 520 level), CHE 590, or a maximum of 6 credit hours
      of 400 level credit to account for the additional credit hours

Total Hours 84 hours

**For more detailed information regarding course requirements, please see CHE Handbook.
ChE Ph.D. Credit Requirements

The Ph.D. degree in Chemical Engineering consists of 84 semester hours of graduate work, distributed as shown below. Students entering the program with a master's degree may apply up to 30 credits toward the Ph.D. program of study, but must still take a minimum of 54 hours after being admitted to the Ph.D. program. If the MS has not been completed, a maximum of 12 credits of graduate work may be applied.

<table>
<thead>
<tr>
<th>Credit count</th>
<th>Admitted with BS</th>
<th>Admitted with MS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master's Degree</td>
<td>0</td>
<td>blanket 30</td>
</tr>
<tr>
<td>Core</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Seminar (must register for 591 one-credit every semester in residence)</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Technical Electives</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>Technical Electives and/or additional Research (to meet 84 credits)</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Research ChE 792</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Dissertation ChE 799 (max 12 hours; after passing comp)</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td><strong>Total Credits</strong></td>
<td><strong>84</strong></td>
<td><strong>84</strong></td>
</tr>
</tbody>
</table>

*Students who have not completed a master's degree but have taken some graduate coursework, may apply up to 12 credits to the Ph.D. program of study.*
Master of Science Degree (M.S.), non-thesis track
Chemical Engineering
Master’s in Passing Option
*only valid for those who do not have a previously awarded Master’s Degree

The required coursework for this degree is divided into the following categories:

F. 9 semester hours of CHE core credit (Excluding 591, 501-505, 590, and 592/599)
   a. CHE _533__ 3 hours
   b. CHE _543__ 3 hours
   c. CHE _544__ 3 hours

G. Technical Electives (Excluding 591, 501-505, 590, and 592/599)
   a. CHE______ 3 hours
   b. CHE______ 3 hours
   c. CHE______ 3 hours
   d. CHE______ 3 hours
   e. Course outside CHE prefix 3 hours

H. Research
   a. CHE 592 3 hours

I. Applied Project
   a. CHE 593 3 hours

J. Seminar
   a. CHE 591 1 hour
   b. CHE 591 1 hour
   c. CHE 591 1 hour

Total Hours 33 hours

**For more detailed information regarding course requirements, please see CHE Handbook.**
APPENDIX III

CONTACT INFORMATION

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