Mechanical and Nuclear Engineering Graduate Student Handbook

Table of Contents (Click on title to jump to heading)

Mechanical and Nuclear Engineering Graduate Student Handbook .................1
K-State Mechanical and Nuclear Graduate Handbook........................................3
K-State Mechanical and Nuclear Engineering Graduate Program..................3
Graduate Program Accreditation...........................................................................3
Graduate Student Learning Outcomes .................................................................4
Degrees Offered .....................................................................................................5
Degree Requirements ............................................................................................5
  Requirements for Master's degree - Thesis Option ..............................................5
  Requirements for Master's degree - Report Option .............................................6
  Requirements for Master's degree - Course Work Option ..................................6
  Requirements for Doctoral (PhD - ME and NE) ..................................................7
PhD Examination Guidelines ................................................................................8
PhD Preliminary Examination Guidelines ............................................................8
ME and NE Graduate Course Rotation Schedule .............................................10
ME 800, Graduate Seminar/Research Paper .....................................................11
  Variable Credit Hour Enrollment ......................................................................11
  MS Program Requirements for ME 800 (thesis, report, and course work options) ....................................................................................................................11
  PhD Program Requirements for ME 800 ...........................................................11
  General Comments on ME 800 ........................................................................12
Program of Study ................................................................................................12
Academic Policies and Standards ........................................................................12
  Grades ..............................................................................................................13
  Grievances ......................................................................................................13
  Academic Probation and Dismissal .................................................................13
  Special Services ............................................................................................14
  Changing Advisors .........................................................................................14
Graduate Research Assistantships .....................................................................14
Graduate Teaching Assistantships .....................................................................14
Summer Assistantships .....................................................................................15
Workers’ Compensation .....................................................................................15
  What if I have an accident at work? ..............................................................15
  Where do I go for medical care? .................................................................15
Health Insurance for Students on Assistantship .............................................15
Mandatory Health Insurance for International Students Not on Assistantships  16
Being Employed as a Graduate Student in Your Final Semester ..................16
Fall Semester ........................................................................................................................... 17
Spring Semester ....................................................................................................................... 17
International students on assistantship in their last semester .................................................. 17
International Student & Scholar services .................................................................................. 18
Communications ....................................................................................................................... 18
Mail ............................................................................................................................................. 18
E-Mail and eID ........................................................................................................................... 18
Computer Accounts .................................................................................................................... 18
Software ....................................................................................................................................... 18
Remote account access ............................................................................................................. 19
KSIS .............................................................................................................................................. 19

Mechanical and Nuclear Engineering Faculty ........................................................................... 20
MECHANICAL AND NUCLEAR ENGINEERING GRADUATE PROGRAM

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K-STATE MECHANICAL AND NUCLEAR GRADUATE HANDBOOK
This handbook is up-to-date as 2/1/2019. For current information, please see the MNE website, http://www.mne.ksu.edu, or the Graduate Program Coordinator.

K-STATE MECHANICAL AND NUCLEAR ENGINEERING GRADUATE PROGRAM
The Alan Levin Department of Mechanical and Nuclear Engineering (MNE) at Kansas State University offers separate graduate programs in Mechanical Engineering and Nuclear Engineering both leading to M.S. and Ph.D. degrees. Our award-winning faculty are engaged in exciting and cutting-edge research projects in state-of-the-art laboratories and research facilities, while our graduate students are excelling inside and outside of the classroom. Research areas and courses include a broad range of both traditional and emerging fields of Mechanical Engineering and Nuclear Engineering. With over $5 million in research funding, almost every graduate student in our department receives a graduate research assistantship (GRA). Several of our students receive graduate teaching assistantships (GTAs) with 50-100 percent tuition waiver to help teach laboratory sections.

Applicants must have a bachelor’s degree from an accredited institution. Although students with bachelor’s degrees in Mechanical and/or Nuclear Engineering make up the bulk of our graduate student body, the department welcomes applicants from other fields including other engineering disciplines, mathematics, physics and chemistry.

Programs of study are flexible and tailored to the interests, backgrounds and career goals of each student. Courses from outside the department are often added to programs of study to enhance the student’s experience.

GRADUATE PROGRAM ACCREDITATION
Kansas State University is fully accredited by the North Central Accrediting Association (NCAA). All undergraduate engineering programs in the College of Engineering are accredited by the Accreditation Board for Engineering and Technology (ABET). The same K-State engineering faculty and departments that are associated with the accredited undergraduate programs offer the graduate programs, thereby maintaining the excellent accredited quality of instruction at the graduate level.

As part of NCAA’s university-level accreditation, the MNE Department has developed a self-assessment and evaluation plan for the MNE Graduate Program. At the heart of this plan is a list of Graduate Student Learning Outcomes which define the abilities, skills, attributes, etc. that MNE graduate students should have attained by the time of graduation. The faculty-approved list of MNE
Graduate Student Learning Outcomes is documented below. Additional information related to NCAA and the K-State Office of Assessment can be found at the following site: http://www.k-state.edu/assessment/.

GRADUATE PROGRAM MISSION STATEMENT

MS Program: The mission of the Masters program in Mechanical Engineering and in Nuclear Engineering is to provide: 1) an excellent education to the Masters student, 2) the opportunity to conduct research or generate new designs in mechanical and nuclear engineering (optional), and 3) training students to serve our professional communities, the state of Kansas, and Nation effectively.

Ph.D. Program: The mission of the Ph.D. program in Nuclear Engineering and in Mechanical Engineering is to provide: 1) an excellent education to the student, 2) conduct research that generates new knowledge in mechanical and nuclear engineering, and 3) provide opportunity to serve our professional communities, the state of Kansas, and Nation effectively.

GRADUATE STUDENT LEARNING OUTCOMES

Graduates of K-State’s Mechanical and Nuclear Engineering Graduate Program will possess the following traits:

1. Ability to solve engineering problems using advanced mathematical, scientific, computational, and analytical methods appropriate to the Mechanical (Nuclear) Engineering discipline. (All M.S.; Ph.D.)

2. Ability to synthesize and critically evaluate information pertinent to the Mechanical (Nuclear) Engineering discipline. (All M.S.; Ph.D.)

3. (a) Demonstration of advanced knowledge in one or more areas of specialization within the Mechanical (Nuclear) Engineering discipline. (All M.S.; Ph.D.)
   (b) Demonstration of expertise in one or more areas of specialization within the Mechanical (Nuclear) Engineering discipline. (Ph.D.).

4. (a) Ability to plan and conduct scholarly activities in one or more areas of specialization within the Mechanical (Nuclear) Engineering discipline. (M.S. Thesis and M.S. Report; Ph.D.)
   (b) Ability to plan and conduct scholarly activities that make original contributions to the knowledge base in one or more areas of specialization within the Mechanical (Nuclear) Engineering discipline. (Ph.D.)

5. Preparation for leadership and teamwork through enhanced independence, initiative, and responsibility. (All M.S.; Ph.D.)

6. Ability to communicate effectively both in written and oral forms. (All M.S.; Ph.D.)

7. Understanding of the importance of the ethical, safety, socio-economic, and environmental issues related to the Mechanical (Nuclear) Engineering profession. (All M.S.; Ph.D.)

8. Recognition of the importance of life-long learning and professional service to the Mechanical (Nuclear) Engineering profession. (All M.S.; Ph.D.)
**DEGREES OFFERED**
The department currently offers the following graduate degrees:

### Mechanical Engineering
- Doctoral (PhD - ME)
- Master of Science (MSME) - Thesis Option
- Master of Science (MSME) - Report Option
- Master of Science (MSME) - Course Work Option

### Nuclear Engineering
- Doctoral (PhD - NE)
- Master of Science (MSNE) - Thesis Option
- Master of Science (MSNE) - Report Option
- Master of Science (MSNE) - Course Work Option

**DEGREE REQUIREMENTS**

*Requirements for Master's degree - Thesis Option*
The Program of Study (POS) should include a minimum of 30 credit hours, with the following additional requirements:

1. All MS students must formulate their POS in consultation with their major professor and their supervisory committee. Full-time students **must** file their programs **before the end of their second semester of graduate study**, and part-time students must do so upon the completion of 9 credit hours.

2. A minimum of 18 credit hours of graded coursework (i.e., courses in which a letter grade is assigned).

3. The graded coursework should include at least one 3 credit hour course in engineering mathematics or applied mathematical analysis. Courses that may be used to meet this requirement are: ME 760, ME 860, MATH 616, MATH 632, MATH 713, MATH 740, MATH 745, MATH 855, MATH 856, MATH 864, MATH 865, MATH 866, MATH 867, PHYS 801, PHYS 802.

4. The candidate should earn credit for at least 6 credit hours of Master's Thesis Research (ME 899 or NE 899) culminating in a successfully defended thesis.

5. At least 18 hours, of the required minimum of 30 hours, should be at the 700 level and above, including ME 800 Graduate Seminar/Research Paper, and the thesis/research and the report/problems hours required by the thesis and report options.

6. Courses at the 600-level may be included in the POS, but 500-level courses in the student's major area are expected to have been completed as undergraduate prerequisites to graduate study or as undergraduate deficiency courses assigned upon admission. The use of 500-level supporting courses in master's programs is therefore restricted as follows: (1) no course in the student's major area may be at the 500 level, and (2) normally no more than 6 credit hours may be at the 500 level.
7. The MS candidate must satisfy the 75% attendance requirement (0 credit hour) in at least two semesters of ME 800 Graduate Seminar/Research Paper, (refer to ME 800 course requirements).

8. In addition to the minimum graded coursework requirement (18 credit hours) and the minimum Master's Thesis Research requirement (6 credit hours), the candidate must complete 6 more credit hours to meet the minimum credit requirement of 30 credit hours. This can be done through any combination of the following:
   - Up to 2 additional credit hours of Master's Thesis Research (ME 899 or NE 899)
   - Up to 3 credit hours of ME 800 Seminar/Research Paper (refer to ME 800 course requirements)
   - Up to 3 credit hours of independent study
   - Up to 6 credit hours of additional coursework

Requirements for Master's degree - Report Option

The POS should include a minimum of 30 credit hours, including 28 credit hours of graded coursework and 2 credit hours of Master’s Report. One credit hour of ME 800 Seminar/Research Paper (earned by giving a successful seminar presentation) may be included in the 28 credit hours of required coursework. In addition, items (3), (5), (6), and (7) from the MS Thesis requirements above apply directly to the MS Report Option POS. The MS Report Option must culminate in a successfully defended report.

Requirements for Master's degree - Course Work Option

The POS should include a total of 30 credit hours of graded coursework. In addition, items (3), (5), and (6) from the MS Thesis requirements above apply directly to the MS Course Work Option POS. The MS Course Work Option must culminate in a final oral examination.
**Requirements for Doctoral (PhD - ME and NE)**

The Ph.D. requires at least three years of full-time study beyond the bachelor's degree, equivalent to at least 90 semester hours, including a dissertation representing at least 30 hours of research credit. Students who hold a master's degree may request transfer of up to 30 hours of that degree toward a Ph.D.

The Ph.D. is awarded to candidates who have demonstrated unique ability as scholars and researchers as well as proficiency in communication. The degree also certifies that the candidate has displayed familiarity and understanding of the subject matter in the discipline and possesses the ability to make original contributions to knowledge.

1) All doctoral students must formulate their Program of Study (POS) in consultation with their major professor and their supervisory committee. Full-time students must file their programs before the end of their second semester of graduate study, and part-time students must do so upon the completion of 9 credit hours.

2) The doctoral student is required to complete a total of 90 credit hours of work beyond the Bachelor's degree. Up to 30 credits from a Master's program can be applied towards the Ph.D. degree. The Doctoral Program of Study must include:

   a) a minimum of 15 hours of graded coursework beyond the Master’s degree (all 15 hours MUST be at the 800 level or above, in addition to doctoral research credit hours) for candidates entering the Ph.D. program with a Master's degree.

   OR

   a minimum of 30 hours of graded coursework beyond the Bachelor’s degree (including at least 15 hours at the 800 level or above, in addition to doctoral research credit hours) for students who bypass the master's degree.

   b) no more than 12 credit hours of 500 level courses are permitted in a doctoral program. No 500-level course taken in the student's department may appear on the POS.

   c) a minimum of 30 hours of doctoral research credit.

   d) the Ph.D. candidate must satisfy the 75% attendance requirement (0 credit hour) in at least four semesters of ME 800 Graduate Seminar/Research Paper, (refer to ME 800 course requirements).
PhD Examination Guidelines

All doctoral students in the MNE Graduate program are required to successfully pass the following examinations:

<table>
<thead>
<tr>
<th>Examination</th>
<th>Time Period</th>
<th>Format</th>
<th>Responsible Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>PhD Preliminary Examination</td>
<td>After submittal of the Doctoral Program of Study and before the end of the student’s third semester as a PhD student</td>
<td>Written* and Oral</td>
<td>Graduate faculty identified on the approved Doctoral Program of Study</td>
</tr>
<tr>
<td>Final Dissertation Defense**</td>
<td>At the completion of the doctoral research project</td>
<td>Written (dissertation document) and Oral (dissertation defense)</td>
<td>Doctoral Supervisory Committee</td>
</tr>
</tbody>
</table>

* this will satisfy the KSU Graduate School’s “written preliminary examination” requirement. All doctoral students must satisfy all Doctoral Program requirements as defined in the Graduate Handbook (http://www.k-state.edu/grad/graduate-handbook/).

** this will satisfy the KSU Graduate School’s “Dissertation” and “Final Examination” requirements. All doctoral students must satisfy all Doctoral Program requirements as defined in the Graduate Handbook (http://www.k-state.edu/grad/graduate-handbook/).

PhD Preliminary Examination Guidelines

1) The Preliminary Examination is designed to test the student's breadth and depth of knowledge in the proposed field of specialization, as well as the student's ability to explore problems on the boundaries of knowledge. Satisfactory performance in the examination is an indication that the student is prepared to perform independent work toward the doctoral degree and results in the student being classified as a doctoral candidate upon affirmative recommendation by the supervisory committee.

2) The Preliminary Examination should be completed as soon as the supervisory committee and the Ph.D. student feel that it is practical and no later than the end of the Ph.D. student’s third semester in the Ph.D. program. The Doctoral Program of Study must be completed and approved prior to the preliminary examination.

3) Once the supervisory committee and the student decide when the Preliminary Examination is to be taken, the student should notify the Graduate School at least one month before the scheduled date, by completing and submitting a “Request for Preliminary Examination Ballot” form. A ballot will then be sent to the major professor by the Graduate School.

4) Once the student’s Preliminary Examination date has been set, it is expected that the supervisory committee, led by the student’s major professor, will meet privately to discuss
the student’s field of research, as well as the student’s completed coursework, and to agree upon the one or more research problem(s) that will be presented to the student. Although it is expected that the research problems presented to the student will be in his/her general field of study, the research problems will not be directly related to the student’s specific area of Ph.D. research.

5) On the pre-determined Preliminary Examination date, the supervisory committee will present the Ph.D. student with one or more research problem(s). These problem statements will each be brief and will be presented in written format with oral discussion to ensure that the Ph.D. student thoroughly understands the problem(s) to be addressed.

6) The Ph.D. student will select one (if presented with more than one) of the problems presented by the supervisory committee and will be given an appropriate amount of time (as determined by the supervisory committee, but typically 1-2 weeks) to formulate a research strategy with which to solve the selected research problem. This problem formulation will be summarized in the form of a written report and will be submitted to the supervisory committee before the end of the pre-determined time period.

7) Within one week of the submission of the written document, the Ph.D. student will give an oral presentation to the supervisory committee outlining and describing the formulation to the research problem. During this oral component of the Preliminary Examination, the supervisory committee may ask the Ph.D. student questions pertaining to the original research problem statement, the written report, and the oral presentation.

8) This oral component of the Preliminary Examination will be administered in the same manner in which a traditional Master’s or Doctoral final oral defense is conducted. At the conclusion of the oral component of the Preliminary Examination the supervisory committee will ask the Ph.D. student and all visitors to leave the room. The supervisory committee will then discuss the student’s performance associated with the written report and the oral examination. Based on this discussion, the supervisory committee will take the appropriate actions regarding the disposition of the Preliminary Examination ballot.

9) The results of the Preliminary Examination are indicated on the ballot by the signatures of the members of the supervisory committee. The student is considered to have passed the Preliminary Examination and to be recommended to candidacy if at least three fourths of the supervisory committee votes to approve candidacy.

10) In case of failure of the first Preliminary Examination, the supervisory committee may approve a second examination with no more than one dissenting vote. A second Preliminary Examination can be taken no sooner than three months following the initial failure and no later than six months following the initial failure. Once the supervisory committee and the student decide when the second Preliminary Examination is to be taken, the student should notify the Graduate School one month before the scheduled date. The composition of the supervisory committee shall not be changed before a final decision is reached on admission to candidacy. A second failure constitutes denial of admission to candidacy for the doctoral degree in the field of study of the graduate program.

11) Copies of the original problem statement and the student’s written report will be filed with the MNE Academic Program Coordinator and made available on request to any graduate faculty member for a period of two years from the date of Preliminary Examination.
## ME AND NE GRADUATE COURSE ROTATION SCHEDULE

<table>
<thead>
<tr>
<th>Typically Fall – Odd Year</th>
<th>Typically Spring – Even Year</th>
<th>Typically Fall – Even Year</th>
<th>Typically Spring – Odd Year</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GENERAL</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME 760 Engg. Analysis I</td>
<td>ME 777 Monte Carlo Methods</td>
<td>ME 760 Engg. Analysis I</td>
<td>ME 800 Grad Seminar/Paper</td>
</tr>
<tr>
<td>ME 800 Grad Seminar/Paper</td>
<td>ME 800 Grad Seminar/Paper</td>
<td>ME 800 Grad Seminar/Paper</td>
<td>ME 800 Grad Seminar/Paper</td>
</tr>
<tr>
<td></td>
<td>ME 800 Engg. Analysis II</td>
<td></td>
<td>ME 800 Grad Seminar/Paper</td>
</tr>
<tr>
<td><strong>THERMAL/FLUID SYSTEMS</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>ME 620 IC Engines</td>
<td>ME 622 Indoor Env Eng I</td>
<td>ME 620 IC Engines</td>
<td>ME 622 Indoor Env Eng I</td>
</tr>
<tr>
<td>ME 628 Aerodynamics I</td>
<td>ME 631 Aircraft Propulsion</td>
<td>ME 628 Aerodynamics I</td>
<td>ME 631 Aircraft Propulsion</td>
</tr>
<tr>
<td>ME 720 Int. Fluids</td>
<td>ME 723 Int. Fluids</td>
<td>ME 720 Int. Fluids</td>
<td>ME 723 Int. Fluids</td>
</tr>
<tr>
<td>ME 721 Therm. Systems Design</td>
<td>ME 824 Computational Fluid Dynamics</td>
<td>ME 721 Therm. Systems Design</td>
<td>ME 824 Computational Fluid Dynamics</td>
</tr>
<tr>
<td>ME 722 Human Thermal Engg</td>
<td>ME 811 Thermo Analysis</td>
<td>ME 631 Boundary Layer</td>
<td>ME 921 Therm Sys Analysis</td>
</tr>
<tr>
<td>ME 947 Boiling Heat Transfer</td>
<td>ME 935 Heat Cond. in Solids</td>
<td>ME 943 Rad Heat Transfer</td>
<td>ME 942 Conv Heat Transfer</td>
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<tr>
<td><strong>DYNAMIC SYSTEMS AND CONTROLS</strong></td>
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<tr>
<td>ME 640 Con of Mech. Sys II</td>
<td>ME 615 Apps in Mechatronics</td>
<td>ME 640 Con of Mech. Sys II</td>
<td>ME 615 Apps in Mechatronics</td>
</tr>
<tr>
<td>ME 728 Comp Control of E-M Sys</td>
<td>ME 730 Control Sys Analysis and Design</td>
<td>ME 728 Comp Control of E-M Sys</td>
<td>ME 730 Control Sys Analysis and Design</td>
</tr>
<tr>
<td><strong>MECHANICS, MATERIALS, AND DESIGN</strong></td>
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<tr>
<td>ME 610 Finite Element Applications</td>
<td>ME 610 Finite Element Applications</td>
<td>ME 610 Finite Element Applications</td>
<td>ME 610 Finite Element Applications</td>
</tr>
<tr>
<td>ME 651 Intro to Composites</td>
<td>ME 656 Vibrations</td>
<td>ME 651 Intro to Composites</td>
<td>ME 656 Vibrations</td>
</tr>
<tr>
<td>ME 701 Dev. of Comp. Apps in ME</td>
<td>ME 716 Intermed Dynamics</td>
<td>ME 701 Dev. of Comp. Apps in ME</td>
<td>ME 716 Intermed Dynamics</td>
</tr>
<tr>
<td>ME 836 Introduction to Fracture Mechanics</td>
<td>ME 862 Finite Elements</td>
<td>ME 738 Experimental Stress Analysis</td>
<td>ME 862 Finite Elements</td>
</tr>
<tr>
<td><strong>NUCLEAR ENGINEERING</strong></td>
<td></td>
<td></td>
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<tr>
<td>NE 630 Nuc Reactor Theory</td>
<td>NE 612 Princ. Of Radiation Det</td>
<td>NE 630 Nuc Reactor Theory</td>
<td>NE 612 Principles Of Radiation Det</td>
</tr>
<tr>
<td>NE 690 Rad Protection and Shielding</td>
<td>NE 635 Gen IV Reactor Design</td>
<td>NE 690 Rad Protection and Shielding</td>
<td>NE 635 Gen IV Reactor Design</td>
</tr>
<tr>
<td>NE 761 Radiation Measurement Systems</td>
<td>NE 640 - Nuclear Reactor Thermalhydraulics</td>
<td>NE 640 - Nuclear Reactor Thermalhydraulics</td>
<td>NE 640 - Nuclear Reactor Thermalhydraulics</td>
</tr>
<tr>
<td>NE 806 Neutronics</td>
<td>NE 648 Nuclear Reactor Lab</td>
<td>NE 806 Neutronics</td>
<td>NE 648 Nuclear Reactor Lab</td>
</tr>
<tr>
<td></td>
<td>NE 651 Principles of Radiation and Human Health</td>
<td></td>
<td>NE 737 Int Rad Mes Apps</td>
</tr>
</tbody>
</table>

*Note: Course offerings can vary by semester. For a current course listing, please see the K-State Course Schedule at [https://www.k-state.edu/academics/courses/schedules.html](https://www.k-state.edu/academics/courses/schedules.html)*

*Note: “Topics” and “Problems” courses are not listed above; these courses are offered “On Demand”*

*Note: NE 851, Nuclear Engineering Lab offered ‘On Demand’*

*Note: Fall “Even” Year = Fall of an “Even” calendar year; Spring “Even” Year = Spring of an “Even” calendar year, etc.*
ME 800, GRADUATE SEMINAR/RESEARCH PAPER
ME 800 is the presentation (oral and written) and discussion of progress in research. Preparing and/or presenting publication quality papers can earn credit hours. Topics may be drawn from any current research area in mechanical and nuclear engineering, and the course may be repeated with change in subject matter.

Variable Credit Hour Enrollment

<table>
<thead>
<tr>
<th>Cr Hrs</th>
<th>Requirements</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>During the given semester, the student must attend at least 75% of all regular scheduled ME 800 Seminars.</td>
<td>Round UP if 75% of total number of seminars is not integer. (e.g., 6 seminars scheduled * 0.75 = 4.5; therefore the student must attend at least <strong>5 seminars</strong> to satisfy attendance requirement)</td>
</tr>
<tr>
<td>1</td>
<td>During the given semester, the student must give a quality seminar presentation during one of the regular scheduled ME 800 Seminars.</td>
<td>Presentation does NOT have to be a COMPLETED research project. It may be a snapshot of research progress, as long as there is sufficient content to support a quality presentation. Seminar topic does NOT have to be related to the student’s thesis research, as long as there is sufficient content to support a quality presentation.</td>
</tr>
<tr>
<td>2</td>
<td>During the given semester, the student must write and submit a peer reviewed research paper to an engineering journal or <strong>similar venue</strong>.</td>
<td>Paper topic does NOT have to be related to the student’s research, as long as there is sufficient content to support a quality paper. It is the responsibility of the STUDENT to request the ADVISOR to send an email or memo to the Grad Program Coordinator verifying the completion of these requirements.</td>
</tr>
<tr>
<td>3</td>
<td>During the given semester, the student must give a quality presentation during one of the regular scheduled ME 800 Seminars <strong>AND</strong> must write and submit a peer reviewed research paper to an engineering journal or <strong>similar venue</strong>.</td>
<td>See comments above.</td>
</tr>
</tbody>
</table>

**MS Program Requirements for ME 800 (thesis, report, and course work options)**
The MS candidate must satisfy the 75% attendance requirement (0 credit hour) in at least **two semesters** of ME 800 Graduate Seminar/Research Paper.

**PhD Program Requirements for ME 800**
The PhD candidate must satisfy the 75% attendance requirement (0 credit hour) in at least **four semesters** of ME 800 Graduate Seminar/Research Paper. (Semesters applied toward MS degree cannot also be applied toward PhD requirements.)
General Comments on ME 800

- A student is not required to give a presentation (1 credit hour) nor submit a peer-reviewed paper (2 credit hours) to satisfy the ME 800 Degree Program requirements.
- It should be noted that presenting a ME 800 seminar (1 credit hour) and/or submitting a peer-reviewed paper (2 credit hours) during a semester without ALSO satisfying the 75% attendance requirement does NOT constitute successful completion of one of the required semesters in the degree program requirements.
- If a student has already satisfied the degree program requirements (2 semester for MS; 4 semesters for PhD) at the 0 credit hour level, then he/she may enroll in 1 credit hour and give a presentation and/or 2 credit hours and prepare a peer-reviewed paper during a given semester without being required to satisfy the 75% attendance requirement during that semester.
- If a student enrolls in 0 credit hours of ME 800 Graduate Seminar/Research Paper and fails to attend 75% of all regular scheduled seminars, then that student will receive a grade of NC (No Credit) for that semester.
- If a student enrolls in 1 credit hour (presentation) and/or 2 credit hours (paper) in a given semester and fails to successfully complete the requirements listed in the table above, then that student will receive a grade of INC (Incomplete) for that semester.
- No more than 3 credit hours of ME 800 can be applied toward a student’s Program of Study.

PROGRAM OF STUDY

Every graduate student must file with the Graduate School a Program of Study (POS), a formal list of the courses the student intends to take to fulfill the requirements of the degree. The program of study should consist solely of courses directly related to the student’s graduate degree (MS or PhD). Full-time students must file their programs before the end of their second semester of graduate study, and part-time students must do so upon the completion of 9 credit hours. The student should prepare the POS in consultation with the supervisory committee, all members of which must indicate their approval by signing the POS form provided by the Graduate School. The head of the academic unit must then endorse the POS and forward it to the Dean of the Graduate School, whose approval must be received within the first two semesters of graduate work. Subsequent changes in the POS require approval of all members of the supervisory committee, and if changes are made, a Program/Committee Change form should be submitted to the Graduate School before graduation. To find the POS forms, see https://www.k-state.edu/grad/about/forms/.

ACADEMIC POLICIES AND STANDARDS

Academic policies and standards affecting MNE graduate students are developed by the Program, the Department, the College, the University and the Graduate School. Those described in this section reflect Program, Departmental and College requirements. A few policies and standards of the other administrative units are repeated here. Others are outlined in the K-State Graduate Catalog, the K-State Graduate Handbook and the information sheets published by the Graduate School. See https://www.k-state.edu/grad/about/forms/.
Grades
The following grades are used in the Graduate School: A, B, C, D, F, Credit, No Credit, Incomplete, and Withdrawn. A candidate for an advanced degree must have a 3.0 cumulative grade point average and a 3.0 on course work on the POS. To count for graduate credit the grade in a course must be C or better and no course may be counted more than once in a program. Retaken courses remain on the transcript and are considered as part of the record. A graduate student's record will be reviewed after the completion of each session.

The grade of Incomplete (I) is given in regular courses (except for theses, dissertations and directed research courses) upon request of the student for personal emergencies that are verifiable. The faculty member has the responsibility to provide written notification to the student of the work required to remove the incomplete. The student has the responsibility to take the initiative in completing the work and is expected to make up the I during the next semester (Fall or Spring) after receiving the grade (except for dissertations and directed research courses). If the student does not make up the I during the semester after receiving it, a grade may be given by the faculty member without further consultation with the student.

If at the end of the next semester the I remains on the record, it will be designated as F (previously IX) for record keeping and will be computed in the student's GPA, weighted at 0 points per credit. A grade of NR will be treated in a like manner.

Grievances
If a student feels he or she has been unjustly treated in some aspect of academic work, the student should first meet informally with the faculty involved to resolve the grievance. The student should be prepared to discuss the nature of the grievance, why they believe it is a legitimate grievance and to propose a remedy. If the informal meeting does not lead to a solution acceptable to both parties and the student wishes to pursue the grievance further, the student should follow the university’s grievance procedures as stated in the Graduate Catalog and Graduate Handbook.

Academic Probation and Dismissal
Admission to and continuation in the Graduate School depends upon a high level of achievement. Students may be placed on probation as a condition of their admission to graduate programs, if warranted by their prior academic record. In addition, students who fail to make satisfactory progress in their graduate programs will be placed on probation. Either of the following conditions will warrant probation: (a) a grade point average lower than 3.0; (b) the recommendation of the major professor or student's committee that the student's progress is unsatisfactory.

Students on probation as a condition of admission will acquire good standing if they achieve a cumulative GPA of at least 3.0 in the first 9 credit hours of graduate course work. Students placed on probation for deficient grades will be restored to good standing if they achieve a cumulative GPA of 3.0. Normally, this must be done within two semesters for full-time students and within 12 credit hours for part-time students. If the student received less than 3.0 in a course listed on the program of study, the student's major professor and the student's supervisory committee may require that the student retake the course. If the course is retaken by the direction of the major professor and the supervisory committee, the original grade is noted as retaken and removed from the grade point average. The retake grade will always be used in computing the grade point average regardless of
whether it is higher or lower than the original grade. A student may retake a course with subsequent removal of the prior grade only once for each course and for a total of two courses in a degree program. The Request to Retake a Graduate Course is available in the Graduate School and should be submitted to the Graduate School by the specified deadline.

A graduate student will be denied continued enrollment in the University for any of the following reasons: (a) failure of a student on probation as a condition of admission to achieve a minimum cumulative GPA of 3.0 in the first 9 hours of graduate level course work; (b) failure of a student placed on probation for deficient grades to achieve a cumulative GPA of at least 3.0 within two semesters for full-time students and within 12 credit hours for part-time students; (c) failure to meet published departmental or university requirements; (d) failure to maintain satisfactory progress toward a graduate degree; (e) failure in the preliminary examination (doctoral students only) or the final examination; (f) failure to acquire mastery of the methodology and content in a field sufficient to complete a successful thesis or dissertation; (g) qualifying for placement on probation a second time, except when the first period of probation is a condition of admission or when the second period is a condition of reinstatement.

A student denied the privilege of continued enrollment may petition the graduate dean for reinstatement to the same curriculum or for admission to a different curriculum.

**Special Services**

If you are a student who will benefit from special accommodations for physical or learning disabilities and/or attention deficit disorder, you may seek assistance from the K-State Student Access Center (www.k-state.edu/accesscenter/). It is the student's responsibility to provide documentation of a disability and request appropriate accommodations. Such requests should be made during the first two weeks of each semester.

**Changing Advisors**

If you would like to change advisors, please see the Graduate Program Coordinator in Rathbone 3014.

**GRADUATE RESEARCH ASSISTANTSHIPS**

Graduate Research Assistantships (GRAs) are available through research conducted by the MNE faculty. GRA positions are dependent upon external funding acquired by individual faculty members. These positions provide graduate students with opportunities to assist with research projects that support their academic interests. Selection criteria for GRA positions are developed by the primary investigator(s) of each research project.

A GRA receives a stipend and resident tuition rates, but it does not support the full cost of attending Kansas State University.

**GRADUATE TEACHING ASSISTANTSHIPS**

The MNE department offers a few teaching assistantships. A graduate teaching assistantship (GTA) receives a stipend and, in most cases, a reduction or waiver of tuition, but it does not support the full cost of attending Kansas State University. Appointments are generally made for one year but sometimes for one semester only. GTA positions are awarded to students to assist faculty with teaching, help sessions, labs, and grading.
There are fewer GTA positions available than qualified applicants and selection is competitive. These positions contribute to the instructional needs of the department as well as helping to support the best qualified students pursuing graduate degrees within the department. The MNE department generally awards GTA appointments based on demonstrated knowledge of subject matter to be taught, degree of satisfactory completion of the degree program and specific needs of available positions. Appointment to a GTA position in a given year does not guarantee that the graduate student will be reappointed for a second year. Factors considered for reappointment include satisfactory performance both in the teaching assignment and in the student's program of study, the availability of funding, the teaching needs of the department, and the qualifications of other applicants. The GTA may be required to adjust his or her schedule of classes to conform to the assigned teaching schedule.

SUMMER ASSISTANTSHIPS
Students who are on assistantships in the summer are required to be enrolled in a minimum of one credit hour. Additional taxes will be withheld from paychecks if not enrolled in three or more hours.

WORKERS’ COMPENSATION

What if I have an accident at work?
All accidents must be reported to your supervisor as soon as possible so the accident may be investigated to prevent recurrence of the event. Failure to report an accident could jeopardize a claim for benefits, so report any accident to your supervisor regardless of its severity. You must also notify the department Business Manager in Rathbone 3002 within 3 working days of the accident.

Where do I go for medical care?
For non-life threatening injuries or illnesses occurring on other days of the week or times of day
   Call the State Self Insurance Fund
   785-296-2364
   They will direct you where to go for treatment.

Life threatening injury or illness
   Call 911 or report directly to the Emergency Room-
   Via Christi Hospital in Manhattan
   1823 College Avenue

HEALTH INSURANCE FOR STUDENTS ON ASSISTANTSHIP
GRAs and GTAs who are on half-time assistantships are eligible to enroll in the university sponsored health insurance plan. Enrollment for international students is mandatory. Premiums are reduced for students enrolled in the program, with the university contributing 75% of the cost. Eligible full-time students who enroll in the insurance plan may also purchase insurance for family members (spouse and unmarried children under 19 years). For more information refer to http://www.k-state.edu/hcs/benefits/health/gradhealth.html
MANDATORY HEALTH INSURANCE FOR INTERNATIONAL STUDENTS NOT ON ASSISTANTSHIPS
Health insurance coverage is automatically included in international student tuition bills, and students will no longer be required to make separate payment arrangements. Students will still be free to choose alternative insurance so long as their plan's coverage meets or exceeds the minimum requirements listed by the ISSC. In order to use alternate insurance, students must complete and submit the Student Health Insurance Waiver form no later than the 20th day of classes each semester. Once a waiver request is submitted and approved, the insurance charge will be removed from the tuition bill.

To learn more about the mandatory health insurance, visit the ISSS’s website at: http://www.k-state.edu/isss/students/health_insurance/.

If you have questions regarding health insurance, contact the department Business Manager in Rathbone 3002.

BEING EMPLOYED AS A GRADUATE STUDENT IN YOUR FINAL SEMESTER
Graduate students are required to be enrolled in at least six credit hours to be hired into a graduate student position, either as a Graduate Teaching Assistant, Graduate Research Assistant or a Graduate Assistant. However, an exception may be made by the Graduate School during your final semester to allow you to be enrolled in less than the six hour requirement.

During your final semester you may be employed on a graduate student appointment, however, if you enroll in less than six hours you cannot be employed on a graduate student appointment beyond November 17 (fall semester) or April 17 (spring semester). The number of hours enrolled determines the length of employment on a graduate student appointment during your final semester. Please refer to the “Last Semester GTA/GRA/GA Employment: Hours Based on Length of Appointment” table that follows.

Procedures:
1. Business Manager submits appropriate appointment form to Human Resources prior to the beginning of semester.
2. Major professor sends an email or memorandum to Associate Dean of Graduate School indicating termination date of assistantship during the resident enrollment time frame and a statement that the student will complete degree requirements by the end of the semester and that the student is enrolled in the designated number of hours in “Last Semester GTA/GRA/GA Employment: Hours Based on Length of Appointment” table.
3. Associate Dean of Graduate School prepares memorandum to Enrollment Center requesting that the student receive resident tuition benefits based on employment and verifying termination and completion dates. The correspondence also indicates that the student is aware that if they do not graduate they will be assessed non-residence fees. The major professor and the student are informed of the consequences of not graduating.

<table>
<thead>
<tr>
<th>LAST SEMESTER GTA/GRA/GA EMPLOYMENT: HOURS BASED ON LENGTH OF APPOINTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall Semester</strong></td>
</tr>
<tr>
<td>6 hours Appointment entire semester (Sept. 1- Nov. 17)</td>
</tr>
<tr>
<td>5 hours Appointment ends between Nov. 1 &amp; Nov. 17</td>
</tr>
<tr>
<td>4 hours Appointment ends between Oct. 16 &amp; Oct. 31</td>
</tr>
<tr>
<td>3 hours Appointment ends between Oct. 1 &amp; Oct. 15</td>
</tr>
<tr>
<td>2 hours Appointment ends between Sept. 15 &amp; Sept. 30</td>
</tr>
<tr>
<td>1 hour Appointment ends between Sept. 1 &amp; Sept. 14</td>
</tr>
</tbody>
</table>

| **Spring Semester**                                           |
| 6 hours Appointment entire semester (Feb. 1 - April 17)       |
| 5 hours Appointment ends between April 1 & April 17          |
| 4 hours Appointment ends between March 15 & March 30          |
| 3 hours Appointment ends between March 1 & March 14           |
| 2 hours Appointment ends between Feb. 15 & Feb. 28/29         |
| 1 hour Appointment ends between Feb. 1 & Feb. 14              |

*International students on assistantship in their last semester*

International students need to also receive authorization from International Student and Scholar Services if they are enrolling in less than 6 hours. This entails submitting a letter from your advisor requesting approval and stating that it is your last semester and specifying the number of credits needed for you to graduate. The letter should be the original, on department letterhead and sent or brought to International Student and Scholar Services.
INTERNATIONAL STUDENT & SCHOLAR SERVICES

International Student and Scholar Services (ISSS) provide immigration services for K-State’s international students and scholars. They are located at the International Student Center. Their phone number is 785-532-6448 and their email is isss@k-state.edu. Detailed information can be found at their website at: http://www.k-state.edu/isss/.

COMMUNICATIONS

Mail
MNE student mailboxes are located in Rathbone 3008. The mailboxes are for business related mail only, not personal mail. Please check your box frequently.

E-Mail and eID
All students and faculty have e-mail addresses and communicate by electronic mail. Students must use their official K-State e-mail address and eID (electronic ID) for access to the network and university on-line resources. In order to save paper, many announcements from university college and department offices will arrive in your electronic INBOX. Please check your INBOX frequently.

Computer Accounts
Please refrain from putting large media files on your account. This includes not only downloaded music and videos, but course lectures as well. Also beware that some software packages generate large data files. An example of this is Ansys – the files it generates can get very large (over 1GB).

Graduate students are limited to 200 prints per week. In addition, you should keep your account space below 1000MB.

Software
The software installed in the majority of the labs is listed below:

Mathcad
Matlab
Microsoft Office
Microsoft Project
Microsoft Visual Studio
Solidworks
Visio
Remote account access

Please refer to: https://intranet.mne.ksu.edu/

KSIS
To enroll in courses, view your semester schedule, look up semester grades, view your student account and check the status of your financial aid go to https://ksis.k-state.edu. Use your eID and password to log-in.
Mechanical and Nuclear Engineering Faculty

Steven J. Eckels: Department Head; Professor; Ph.D. Iowa State University; teaches thermodynamics and fluids; research in heat transfer, fluid mechanics and two-phase flow. eckels@ksu.edu

Amir Bahadori: Associate Professor; Ph.D. University of Florida; teaches courses related to nuclear/radiological engineering and engineering ethics; research in characterizing radiation environments and mitigating radiation-related risks. bahadori@ksu.edu

B. Terry Beck: Professor; Ph.D. Oakland University; teaches thermodynamics and fluids; research in fluid flow and testing. tbeck@ksu.edu

Amy R. Betz: Assistant Professor; Ph.D. Columbia University School of Engineering and Applied Science; teaches thermodynamics and fluids; research in heat transfer, fluid mechanics and two-phase flow. arbetz@ksu.edu

Ron Brockhoff: Instructor; Ph.D. Kansas State University; Nuclear Engineering; teaches computer applications, measurements and instrumentations, mechatronics and nuclear engineering; research rcb7777@ksu.edu

Liang-Wu Cai: Associate Professor; Ph.D. University of Tennessee, Sc.D. Massachusetts Institute of Technology; teaches dynamics and solid mechanics; research in composite materials and nondestructive evaluation of materials. cai@ksu.edu

Melanie M. Derby: Assistant Professor; Ph.D. Rensselaer Polytechnic Institute; teaches thermodynamics and fluids, research in multi-phase flow, heat transfer, and energy. derbym@ksu.edu

Alexander Gibson: Instructor

Shih-Kang Fan: Professor; Ph.D. University of California-Los Angeles; teaches fluids, MEMS, BioMEMs; research in microfluidics, in vitro diagnosis, cell- or tissue-on-a-chip; skfan@ksu.edu

M. Hosein Ghasemi Baboly: Teaching Assistant Professor; Ph.D. University of Mexico; teaches

Jared Hobeck: Assistant Professor; Ph.D. University of Michigan; teaches experimental mechanics, vibrations and machine design; research in multifunctional structures, smart materials, structural health monitoring, structural dynamics and energy harvesting. jdhobeck@ksu.edu

Mohammad H. Hosni: Professor; Ph.D. Mississippi State University; teaches thermodynamics and fluids; research in human comfort and fluid flow. hosni@ksu.edu
Constance Lare: Instructor; Ph.D, Kansas State University; teaches controls. cthooft@ksu.edu

Douglas S. McGregor: University Distinguished Professor; Ph.D. University of Michigan; teaches nuclear engineering; research in radiation detectors and detection systems, ionizing and non-ionizing radiation, semiconductor device physics, design and fabrication. mcgregor@ksu.edu

Walter McNeil: Assistant Professor; Ph.D. Kansas State University; Nuclear Engineering; wmcneil@ksu.edu

Raj Kumar Pal: Assistant Professor; Ph. D. University of Illinois-Urbana Champaign; teaches machine design; research in dynamics, vibrations and finite element methods. rkpal@ksu.edu

Jeremy Roberts: Assistant Professor; Ph.D. Massachusetts Institute of Technology; teaches nuclear engineering; research in computational reactor physics, advanced solvers for neutron transport, and optimization methods. jaroberts@ksu.edu

Gurpreet Singh: Associate Professor; Ph.D. University of Colorado at Boulder; teaches nanotechnology and materials science; research in nanomechanics, nanoelectronics, nanobiotechnology, and heat transfer. gurpreet@ksu.edu

Greg Spaulding, PE: Assistant Professor; MS. Kansas State University; teaches mechanical design and dynamics; research in design, control and analysis of mechanical components and systems. gspauld@ksu.edu

Scott Thompson: Associate Professor; Ph.D. University of Missouri; teaches boiling heat transfer, intermediate heat transfer, additive manufacturing, industrial design projects; research in additive manufacturing, heat transfer, high heat flux thermal management, heat pipes, energy harvesting. smthompson@ksu.edu

Youqi Wang: Professor; Ph.D. Shanghai Jiao Tong University; teaches mechanical design and structures; research in braided composites and finite elements. wang@ksu.edu

Kevin M. Wanklyn: Teaching Associate Professor; Ph.D. Kansas State University; teaches thermodynamics and fluids. kwanklyn@ksu.edu

Mingjun Wei: Graduate Program Director; Associate Professor; Ph.D. University of Illinois at Urbana-Champaign; teaches fluid mechanics and computational fluid dynamics; research in computational fluid dynamics, flow control and optimization, reduced-order modeling, computational aero-acoustics. mjwei@ksu.edu

X. J. (Jack) Xin: Associate Professor; Ph.D. University of Sheffield; teaches mechanical design and