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PREFACE

This handbook describes the policies and procedures of the Nuclear Engineering Program at The University of Idaho and supplements the information in the current University of Idaho General Catalog. It includes discussions of academic and examination requirements for both Masters and Doctoral programs. An undergraduate nuclear engineering program is not offered at this time. The Masters and Doctoral program requirements are, at a minimum, consistent with those of the College of Graduate Studies. A summary of the University requirements for graduate degrees can be found at the Registrar’s Office under the catalog link. Competitive research and teaching assistantships may be available. Early application to the degree program is encouraged. A listing of Nuclear Engineering Faculty with their current areas of interest can be found in Appendix A. Information in this handbook is offered as a guide for advising and is subject to change without notice. The General Catalog and university policies and regulations supersede materials in this handbook. This handbook supersedes any previous versions of the handbook.

January 2015
1.0 Introduction

1.1 Purpose of Handbook

This handbook describes the policies, rules, and procedures of the Nuclear Engineering (NE) Program of The University of Idaho. The College of Graduate Studies website provides the rules and policies governing graduate programs and offers a multitude of resources designed to encourage a successful graduate experience.

Any waivers or revisions concerning the policies and requirements set forth in this handbook must be approved by the NE Program Director and in some cases the College of Graduate Studies. However, it should be stressed that the NE graduate program is flexible and can be adapted to the student's needs when appropriate.

If you have questions concerning the policies and procedures outlined in this handbook please contact the Director or Academic Program Coordinator.

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www.uidaho.edu/idahofalls/nuclearengineering
1.2 **Educational Philosophy of the Nuclear Engineering Faculty**

The Nuclear Engineering Faculty believe that a graduate degree is more than additional coursework. Adjusting from undergraduate to graduate work involves a transition in the way the student approaches studies. Graduate education is a transition period from being a student to that of a professional engineer and researcher. It is a time for the graduate student to grow intellectually and personally, create new knowledge, learn to work independently, and gain experience in performing research and development. Graduate studies provide the opportunity to broaden the individual’s knowledge base, to obtain a depth of understanding in a chosen field and to prepare oneself for an increasingly competitive job market. The faculty values student success and are available to assist in your growth and development as an engineer and as a professional.

The Nuclear Engineering faculty at the University of Idaho believes that it is a privilege to work and study in collaboration with leaders in the field of nuclear engineering and recruit only the most capable students. The UI Nuclear Engineering program’s ideal location to, and partnership with, the [Idaho National Laboratory (INL)](https://www.inl.gov) creates opportunities for students to interact with the researchers at the lead nuclear research facility in the U.S. Students can work and study at the [Center for Advanced Energy Studies (CAES)](https://www.caes.ornl.gov), a research facility that is operated collaboratively with the INL. We believe that students are an important part of this collaboration and in support of that, every effort is made to foster a world-class research and education environment.

1.3 **Graduate Student Code of Research and Scholarly Conduct**

The University of Idaho expects that students will engage in academic activity with high standards of honesty and integrity. The academic enterprise is dependent upon such behavior. These values are central to the educational process and are also cornerstone values for citizenship and professional conduct after you leave the University. Graduate students are responsible for learning about appropriate standards for ethical research and scholarly conduct and for following all university policies related to ethical research and scholarly conduct.

The University of Idaho has specific academic honesty expectations described in the [Student Code of Conduct](https://www.uidaho.edu/student-life/honor-code). These are minimum standards that are generally applied across the University. However, professors may more specifically define standards for their courses through information described in the course syllabus or other documents. You must learn the expectations of each instructor since learning environments do vary both in content and teaching style. Sometimes the issues of academic integrity are obvious but other times you may struggle with issues that appear to be less clear. Talk with your instructor if you have a concern about what is expected of you.
1.4 Nuclear Engineering Program Learning Outcomes

In alignment with the University of Idaho Learning Outcomes, the faculty of the Nuclear Engineering Program have developed outcomes for the masters and doctoral students. Learning outcomes both direct and assess programs and allow for continuous improvement. As such, the outcomes and assessments at each level can change from year to year in order to maintain a high standard of teaching and learning.

The outcomes for the masters and doctoral students are listed in Appendix C.

1.5 Other Expectations

Students are expected to know and comply with UI rules and regulations including College of Graduate Studies (CoGS), University Research Office, and College of Engineering NE Program. In addition students are expected to make academic progress each semester. An annual Graduate Progress Report will be required for all graduate students.

1.6 Communication

Communication is key to success as a graduate student. Communication includes Vandal Mail, BBLearn, Major Professor, deadlines, etc.

2.0 GRADUATE STUDIES ADMISSION POLICY

Admission to the College of Graduate Studies (CoGS) is open to any student who holds a baccalaureate degree and who presents a scholastic record indicating probable success in graduate work. The General Catalog and Graduate Admission lists the University’s GPA admission requirements.

3.0 ADMISSION TO THE NUCLEAR ENGINEERING GRADUATE PROGRAM

3.1 Admission with Nuclear or Mechanical Engineering Undergraduate Degree

Admission to the Nuclear Engineering Graduate Program is open to any student who is admissible to CoGS if his or her baccalaureate degree is in mechanical or nuclear engineering from an ABET accredited U.S. program. Admission is subject to enrollment limits.
3.2 Admission with Undergraduate Degree in Non-Nuclear/Mechanical Engineering Field

Students with a baccalaureate degree from an accredited U.S. engineering program with a major other than nuclear or mechanical engineering may also be admitted to the Nuclear Engineering Graduate Program, subject to enrollment limits. However, such students must demonstrate a basic proficiency in the areas of chemistry, mathematics, physics and energy. This may require the student to include courses, in addition to the 30 credits of graduate courses required for the Master's degree. These are assigned as a part of the student's study plan as undergraduate deficiencies. The subjects included in the following list define the areas for which proficiency is expected as an entrance requirement.

**Energy:**
- Thermodynamics (Engr 320)
- Fluid Dynamics (Engr 335)
- Heat Transfer (ME 345)

**Chemistry and Physics:**
- Principles of Chemistry II (Chem 112)
- Modern Physics (PHYS 305)

**Mathematics:**
- Numerical Methods
- Computer Programming Language(s)

Each applicant to the program is evaluated individually. Exceptions and/or substitutions may be made to the above requirements.

3.3 Admission with a Non-Engineering Undergraduate Degree

Students who do not have a U.S. engineering baccalaureate degree but are admissible to CoGS may also be admitted to the Nuclear Engineering Graduate Program. However, such students must demonstrate a proficiency in the basic subjects included in an undergraduate engineering program. This may require the student to include courses, in addition to the 30 credits of graduate courses required for the Master's degree, which are assigned as a part of the student's study plan as undergraduate deficiencies. The subjects included in the following list define the areas for which proficiency is expected as an entrance requirement.

1. An appropriate combination of mathematics and basic science including:
   - Multivariable Calculus (Math 275)
   - Ordinary Differential Equations (Math 310)
   - Probability and Statistics (Stat 301)
   - Chemistry (Chem 111 & 112)
   - Calculus based physics (Phys 211, 212, 213).
2. Sixteen credits of humanities and social sciences including both breadth and depth.

3. Forty-eight credits of engineering topics which include engineering science and engineering design.

**Engineering science will include:**
- Mechanics (Engr 210, Engr 220, Engr 350)
- Thermodynamics (Engr 320)
- Electrical Circuits (Engr 240)
- Materials Science (MSE 201)
- Transport Phenomena (Engr 335, ME 345)

**Engineering design must include:**
- ✓ A meaningful, major engineering design experience that was built upon the fundamental concepts of mathematics
- ✓ Basic science, humanities and social science, engineering topics and communication skills
- ✓ A capstone design experience such as ME 424/426 is required

4. Appropriate laboratory experience such that the student is competent to conduct experimental work (laboratory courses are required which include an instrumentation class such as ME 330).

5. Appropriate computer-based experience including the computational techniques needed to solve specific engineering problems (classes such as ME 123/223 are required along with other courses where computers were used to solve specific engineering problems).

6. Competence in written and oral English communication, including both English composition (e.g. - Eng 102) and English technical writing (e.g. - Eng 317).

7. An understanding of the ethical, social, economic, and safety considerations in engineering practice (see engineering design under item 3 above).

The evaluation of equivalent courses will be done on an individual basis. If a student does not have the equivalent of one of the above courses (except capstone design), the student may enroll in the course.

### 3.4 International Student Admissions

International students without a U.S. baccalaureate degree must meet university and CoGS requirements for admission, as well as program requirements listed above.
### 3.5 Graduate Record Examination and GPA

Graduate Record Examination (GRE) test results are recommended but not required for applicants with an engineering baccalaureate degree from a U.S. ABET accredited program. For all other applicants, GRE general test results are required. These GRE scores and the applicant's grade point average (GPA) aid the faculty in estimating the applicant's scholastic abilities, which are suggestive of probable success in graduate work and are helpful in counseling students in their courses of graduate study.

For more details on the exam please visit [www.gre.org](http://www.gre.org).

### 3.6 Proof of English Competency (TOEFL)

For Graduate Admission purposes, all students must meet Academic and Language Requirements. The most common and widely accepted test is the TOEFL ([Test of English as a Foreign Language](https://www.toefl.org)).

The institution code for the TOEFL is 4843.

**Minimum Required Test Scores**

- Internet Based: 83
- Paper Based: 560

*All tests must have been taken within 2 years of the semester you are applying.

### 4.0 M.ENG. DEGREE REQUIREMENTS & PROCEDURES (NON-THESIS OPTION)

Thirty credits are required for the M.Eng. (non-thesis) degree in Nuclear Engineering.

- At least 18 credits must be at the 500 level.
- Up to 12 credits may be at 400 level.
- No classes required for the undergraduate degree can be used as part of the graduate program.

The University of Idaho - Idaho Falls maintains a [Three Year Plan](http://www.uidaho.edu) for the rotation of courses. University of Idaho reserves the right to change the Three Year Plan at any time due to enrollment requirements or other course scheduling issues.

The combined total of transfer credits, non-degree seeking credits, and approved credits more than eight years old at the time the degree is awarded shall not exceed 12 credits for master’s programs. It is advisable for students to apply for admission prior to, or early in, their coursework.
Credits earned at an institution that does not grant graduate degrees cannot be transferred to University of Idaho for graduate credit. For questions about the transferability of a course, contact the NE Director, Program Coordinator or CoGs.

All other credits submitted to meet the requirements for a Master's degree must have been earned within the eight consecutive years that immediately precede the academic session in which the degree is completed.

### 4.1 Program

Students interested in the program should contact the Program Director well in advance of the first registration for a tentative evaluation of educational preparation. Deficiencies in undergraduate course preparation for the graduate program will be identified.

### 4.2 Nomination of Major Professor

The student, Program Director, and potential Major Professor should discuss and formalize the nomination of the Major Professor by the end of the first semester of enrollment. The nominated Major Professor, in conjunction with the student must submit the Appointment of Major Professor and/or Committee Form to the College of Graduate Studies.

### 4.3 Study Plan

A Study Plan should be prepared by the end of the second semester of enrollment. The Major Professor, department and Graduate Dean approve the study plan submitted by the student through the university’s VandalWeb. The Major Professor must be listed on VandalWeb, before the plan can be approved. Students are encouraged to create a draft prior to this.

### 4.4 Committee

A supervisory committee is not required for the M.Engr. non-thesis degree.

### 4.5 Capstone Requirement

A Capstone that demonstrates mastery and application of the subject matter must be completed. Students should meet with their Major Professor to discuss options for the capstone. A comprehensive exam, paper submitted for publication, and other scholarly activities may be considered for this requirement. After the capstone is completed, the Non-Thesis Requirement Report must be completed by the major professor and submitted to the College of Graduate Studies.
4.6  Application for Advanced Degree

The application is submitted on-line through VandalWeb before the end of the semester prior to the semester in which the student intends to graduate.

4.7  Information

Further information on university and general regulations may be obtained from the University of Idaho College of Graduate Studies and the Office of the Registrar.

5.0  M.S. DEGREE REQUIREMENTS & PROCEDURES (THESIS OPTION)

Thirty credits are required for the M.S. (thesis) degree in Nuclear Engineering.

- At least 18 credits must be at the 500 level.
- Up to 12 credits may be at 400 level. No classes required for the undergraduate degree can be used as part of the graduate program.

The University of Idaho - Idaho Falls maintains a Three Year Plan for the rotation of courses. University of Idaho reserves the right to change the Three Year Plan at any time due to enrollment requirements or other course scheduling issues.

The combined total of transfer credits, non-degree seeking credits, and approved credits more than eight years old at the time the degree is awarded shall not exceed 12 credits for master’s programs. It is advisable for students to apply for admission prior to, or early in, their coursework.

Credits earned at an institution that does not grant graduate degrees cannot be transferred to University of Idaho for graduate credit. For questions about the transferability of a course, contact the NE Director, Program Coordinator or CoGs.

All other credits submitted to meet the requirements for a Master's degree must have been earned within the eight consecutive years that immediately precede the academic session in which the degree is completed.

5.1  Program

Students interested in the program should contact the Program Director well in advance of the first registration for a tentative evaluation of educational preparation. Deficiencies in undergraduate course preparation for the graduate program will be identified. Students should review Appendix A and contact faculty with mutual research interests as well as the Program Director.
5.2 Nomination of Major Professor

The student, Program Director, and potential Major Professor should discuss and formalize the nomination of the Major Professor by the end of the first semester of enrollment. The nominated Major Professor in conjunction with the student must submit the Appointment of Major Professor and/or Committee Form to the College of Graduate Studies.

5.3 Study Plan

Your Study Plan should be prepared by the end of the second semester of enrollment. The Major Professor, department and Graduate Dean approve the study plan submitted by the student through VandalWeb. The major professor must be listed on VandalWeb, before the plan can be approved. Students are encouraged to create a draft prior to this. Faculty members on the committee are expected to have input on the study plan development.

5.4 Committee

The Committee will be discussed by the student and the Major Professor in consultation with the Program Director. Your committee must include:

- Major Professor (Chair)
- Other committee members should provide breadth and depth to a student’s program. The depth and breadth are determined by the student’s administrative unit.

The Chair must be UI Graduate Faculty. At least one other member must be UI graduate faculty. A member from another institution may be approved if graduate faculty at that institution and if the department determines that he or she is appropriate for the student’s committee. At least fifty percent (50%) of the committee members must be members of the UI graduate faculty. See the CoGS guidelines for more details.

Any faculty member in the Nuclear Engineering program may initiate a request for an approval of Adjunct status for an individual currently not affiliated with the University. Typically, such requests are initiated by a Major Professor for the individual to serve on the thesis/dissertation committees of multiple students. The initiating faculty member must submit a current vita of the individual along with a memo of justification for approval to the Program Director. The Program Director will provide these materials to the faculty within the program, and the adjunct status will be approved with a majority vote of the faculty. Requests for adjunct status should be submitted as soon as the individual is identified and generally no later than the semester before a student intends to defend the thesis. Individuals approved by the program must also be approved through the university processes before they can be formally added to the committee. No more than 1 adjunct faculty member can be added to the committee. The committee formed must comply with university and College of Graduate Studies requirements.
Approved adjunct faculty can begin service on the committee during the academic semester immediately following the semester approval was gained.

5.5 Application for Advanced Degree

The application is submitted on-line through VandalWeb before the end of the semester prior to the semester in which the student intends to graduate.

5.6 Request to Proceed to Final Defense

After detailed consultations with the Major Professor, the student provides each committee member with a copy of the thesis that will be defended. It is recommended that the committee be given 3-4 weeks to review the study.

Students must schedule the defense meeting with the committee members and then collect each member’s signature on the Request to Proceed with Final Defense Form. The student must submit the signed form to the College of Graduate Studies prior to the defense meeting. It is recommended that the form be in the CoGS Dean’s Office at least a week prior to the defense date. The entire committee must participate in the thesis defense.

5.7 Thesis Defense

The defense consists of 20-30 minutes of presentation with professional scholarly slides. After the candidate’s presentation, the Major Professor will facilitate questioning of the candidate by the committee. The committee will then deliberate in a private session to determine the outcome of the defense. Upon completion of the deliberation, the candidate will meet with the committee in a private session to learn the committee’s decisions on further research or edits needed. If the defense is not acceptable to the majority of the committee, a new defense must be scheduled after the changes are made.

Thesis defenses are open to the public.

It is imperative that students follow the guidelines and instructions set forth for Thesis Defense. Please review the following prior to beginning the thesis to ensure compliance with all requirements.

- Deadlines to submit Thesis, Dissertations and Non-Thesis Report Forms
- Tips for Starting (And Finishing!) Your Thesis or Dissertation
- Master’s Thesis Proposal Instructions
- Handbook for Writing Thesis & Dissertations

The student who is defending the thesis (change to “dissertation” for 7.12) must arrange for a videoconference connection between the Idaho Falls and Moscow campuses. The student must
provide an abstract, copy of the thesis (change to “dissertation” for 7.12), date/time/location of the defense to the Program Director no later than 10 business days before the meeting. The Program Director will provide this information to the NE faculty. Any exceptions to these requirements must be approved by the Program Director.

Further information on university and general regulations, including required forms and Graduate Handbook for Theses and Dissertations, is available from the University of Idaho, College of Graduate Studies and the Registrar.

5.8 Submission of Final Thesis

Complete instructions for formatting and submission are found in the Graduate Handbook for Theses and Dissertations. It is important to follow the instructions to the letter. Electronic Thesis Submission rules can be found on the ETD website.

Failure to submit in the correct format or by the deadlines may result in the need to register and pay for additional credits.
6.0 PH.D. DEGREE REQUIREMENTS & PROCEDURES

The applicant must satisfy the general requirements for the M.Engr. or M.S. degree in Nuclear Engineering. The additional details of the individual program for the doctoral degree are established by each student’s committee in consultation with the student. The general university guidelines require:

- A minimum of 78 credit hours beyond the Bachelor's degree
- At least 52 graduate credit hours (500 and above)
- Up to 45 credits can be 600 - Doctoral Research and Dissertation
- At least 39 of the 78 required credits must be after admission to the UI graduate program and be UI courses
- Of the 78 credits submitted to satisfy the degree requirements, a maximum of 30 credits may be more than eight (8) years old when the degree is conferred, provided the supervisory committee determines that the student has kept current in the subjects concerned.
- All other degree requirements must be completed no later than five (5) years after the date on which the candidate passed his/her preliminary examination.

Two examples of the requirements are given below. One example assumes the student completed a Master's thesis option and the other assumes the student completed a non-thesis Masters’s option.

**Completed Master’s Thesis**

**Course Work = 48 Credit Hours**
- 24 credits – M.S. course work
- 24 credits – Ph.D. course work

**Research = 30 Credit Hours**
- 6 credits - M.S. research & thesis
- 24 credits - Ph.D. research & dissertation

**Total Credit Hours = 78**

**Non-Thesis Masters**

**Course Work = 51 Credit Hours**
- 30 credits – M.Engr. course work
- 21 credits – Ph.D. course work

**Research = 27 Credit Hours**
- 27 credits - Ph.D. research & dissertation

**Total Credit Hours = 78**

6.1 Ph.D. Program

Students interested in the program should contact the Program Director well in advance of the first registration for a tentative evaluation of educational preparation. Deficiencies in undergraduate course preparation for the graduate program will be identified. Students should review the Faculty Research Areas table and contact faculty with mutual research interests as well as the Program Director. (Appendix A)
6.2 **Major Professor**

A Major Professor will be suggested by the department faculty at the time of the admissions file review. Matches will be based on the student’s requests, academic background and research interests as well as the research initiatives and needs of the faculty. The Major Professor should be formally appointed during the first semester of doctoral work. Click [here](#) to go to form.

6.3 **Study Plan**

Your study plan should be prepared by the end of the second semester of enrollment. The Major Professor, department and Graduate Dean approve the study plan and it is then submitted by the student through VandalWeb. The Major Professor must be listed on VandalWeb, before the plan can be approved. Students are encouraged to create a draft prior to this. Faculty members on the committee are expected to have input on the study plan development.

6.4 **Application for Advanced Degree**

The application is submitted on-line through VandalWeb before the end of the semester prior to the semester in which the student intends to graduate.

6.5 **Doctoral Committee**

The student’s doctoral committee will be discussed by the student and major professor in consultation with the program director. The Committee must include:

- Major professor (Chair)
- Other committee members should provide breadth and depth to a student’s program. The depth and breadth are determined by the student’s administrative unit.

The Chair must be UI graduate faculty. It is recommended that students have only 4 members. An outside member from another institution may be approved if graduate faculty at that institution and if the department determines that he or she is appropriate for the student’s committee. At least fifty percent (50%) of the committee members must be members of the UI graduate faculty. See the College of Graduate Studies (CoGS) website.

Any faculty member in the Nuclear Engineering program may initiate a request for an approval of Adjunct status for an individual currently not affiliated with the University. Typically, such requests are initiated by a Major Professor for the individual to serve on the thesis/dissertation committees of multiple students. The initiating faculty member must submit a current vita of the individual along with a memo of justification for approval to the Program Director. The
Program Director will provide these materials to the faculty within the program, and the adjunct status will be approved with a majority vote of the faculty. Requests for adjunct status should be submitted as soon as the individual is identified and generally no later than the semester before a student intends to defend the thesis. Individuals approved by the program must also be approved through the university processes before they can be formally added to the committee. No more than 1 adjunct faculty member can be added to the committee. The committee formed must comply with university and College of Graduate Studies requirements. Approved adjunct faculty can begin service on the committee during the academic semester immediately following the semester approval was gained.

6.6 Qualifying Examination

The Ph.D. qualifying examination is administered twice a year (typically October and February). Students who have completed a significant amount of doctoral coursework may, after consultation with the Major Professor, request to take the exam. The NE Program Director, in coordination with NE Program Staff, announce the exam about one month prior to the exam. The student should declare his/her intention to take the exam per email. The amount of time from admission to exam will vary based on credit load of the student and prior academic preparation. The exam is designed to evaluate preparation coursework, and provide guidance in planning the Ph.D. program. It primarily tests nuclear engineering knowledge expected of a student degreed from an accredited undergraduate program. The exam is administered in written form and can have an oral component.

The review committee will consist of at least three persons (UI faculty or adjunct faculty) qualified to examine the student on traditional nuclear engineering curricular topics as well as at the advanced undergraduate level of achievement in the following areas:

**ENERGY**
1. Thermodynamics, Heat Transfer, and Fluid Mechanics
2. Course preparation
   a) Engr 320, ME 345
   b) Engr 335 or equivalent

**CHEMISTRY & PHYSICS**
3. Principles of Chemistry and Modern Physics
4. Course preparation
   a) CHEM 112
   b) PHYS 305 or equivalent

**MATHEMATICS**
5. Numerical Methods and Computer Programming Language(s)
6. Course preparation
   a) Math 310
   b) Math 275
   c) Additional computer and mathematics experience
The Program Director, in consultation with the Major Professor, will appoint the examiner(s) in each area. The examining committee can recommend additional courses, for credit or audit, to make up for deficiencies and weaknesses demonstrated. This may necessitate a change to the study plan.

The dates for the examination are determined by the Nuclear Engineering Program Director. Exams dates are usually prior to the midterm of the Fall and Spring semesters.

The results of the Qualifying Examination must be communicated to the Program Director from each examiner. Each student will then be formally notified of the results of his/her exam.

6.7 Preliminary Examination

When a majority of the course requirements on the study plan have been completed, a preliminary exam, oral and/or written, will be given under the direction of the student’s Major Professor. In Nuclear Engineering, the Committee administers this examination with emphasis on the course work in the major area and the student’s research proposal. All committee members must participate in the examination.

The student may also be required to complete an 8 hour written examination on graduate level concepts in either open or closed book form at the discretion of the supervisory committee or a two-hour oral examination may be taken. Broad areas to be covered are those listed in the study plan and any deficiencies or weaknesses determined by the qualifying exam. Upon successful completion of the exam, the student is advanced to candidacy.

6.8 Dissertation Proposal Meeting

The meeting includes an oral presentation of a written dissertation proposal and/or progress report to the committee. Committee members will sign and date the front page of the proposal, indicating acceptance. The proposal at a minimum needs to address research objectives, timeline and issues and challenges.

The presentation of the doctoral proposal and the preliminary examination may, at the committee’s discretion, occur at the same time and in a condensed time frame. The entire committee must participate in the dissertation proposal meeting.

6.9 Application for Degree

The application is submitted on-line through VandalWeb before the end of the semester prior to the semester in which the student intends to graduate.
6.10 Report of Preliminary Examination & Advancement to Candidacy Form

This form will be completed and submitted to the College of Graduate Studies by the Major Professor on completion of the exam and proposal meeting.

6.11 Request to Proceed to Final Defense

After detailed consultations with the major professor and the committee, the candidate provides each committee member with a copy of the dissertation that will be defended. It is recommended that the committee be given 4-6 weeks to review the study.

Students must schedule the defense meeting with the committee members and then collect each member’s signature on the Request to Proceed with Final Defense Form. The student must submit the signed form to the College of Graduate Studies 10 business days prior to the defense meeting. The entire committee must participate in the dissertation defense.

6.12 Doctoral Dissertation Defense

The defense consists of 20-30 minutes of presentation with professional scholarly slides. After the candidate’s presentation, the Major Professor will facilitate the questioning of the candidate by the committee. The committee will then deliberate in a private session to determine the outcome of the defense. Upon completion of the deliberation, the candidate will meet with the committee in a private session to learn the committee’s decisions on further research or edits needed. If the defense is not acceptable to the majority of the committee, a new defense must be scheduled after the changes are made.

Dissertation defenses are open to the public including other faculty and students.

It is imperative that students follow the guidelines and instructions set forth for Dissertation Defense. Please review the following prior to beginning the dissertation to ensure compliance with all requirements.

✓ Deadlines to submit Thesis, Dissertations and Non-Thesis Report Forms
✓ Tips for Starting (And Finishing!) Your Thesis or Dissertation
✓ Dissertation Proposal Instructions
✓ Handbook for Writing Thesis & Dissertations

The student who is defending the thesis (change to “dissertation” for 7.12) must arrange for a videoconference connection between the Idaho Falls and Moscow campuses. The student must provide an abstract, copy of the thesis (change to “dissertation” for 7.12), date/time/location of the defense to the Program Director no later than 10 business days before the meeting. The Program Director will provide this information to the NE faculty. Any exceptions to these requirements must be approved by the Program Director.
Further information on university and general regulations, including required forms and Graduate Handbook for Theses and Dissertations, is available from the University of Idaho, College of Graduate Studies and the Registrar.

### 6.13 Submission of Final Dissertation

Complete instructions for formatting and submission are found in the Graduate Handbook for Theses and Dissertations. It is important to follow the instructions to the letter. Electronic Thesis Submission rules can be found on the ETD website.

Failure to submit in the correct format or by the deadlines may result in the need to register and pay for additional credits.
7.0 INTERNATIONAL STUDENTS

International graduate students must carry nine (9) credit hours per semester to be in compliance with the rules and regulations of the U.S. Immigration Service. The University of Idaho International Programs Office is available to answer questions about this requirement.

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International Student, Scholar and Faculty Services Coordinator
(208) 885-8945
888-884-3246 (toll free from within the U.S.)
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Huiran (Ashley) Ding
Program Coordinator
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8.0 GRADUATE COURSE OFFERINGS

University of Idaho (UI) and Idaho State University (ISU) cooperate in supporting the graduate degree programs and course offerings at both institutions. UI graduate students may enroll in ISU nuclear engineering courses for which they have met prerequisites. Students should gain approval of their major professor prior to enrolling in a course and then contact student services for instructions.

Most courses offered at the University of Idaho in Idaho Falls are in the evening and are held in the Center for Higher Education (CHE) or the Tingey Administration Building (TAB). Courses may be offered as live, web based, hybrid or through Engineering Outreach.

University of Idaho Class Schedule

University of Idaho Three-Year Plan
9.0 RESEARCH & TEACHING ASSISTANTSHIPS

Competitive research and instructional assistantships may be available to fully admitted full-time students. Funding is limited and varies from semester to semester. Early application for admission is strongly recommended. After admission contact the Program Director for application details. Students must meet milestone performance expectations and make academic progress in order for funding to continue.

Assistantships are very competitive at the University of Idaho. Funding for projects is very limited. Assistantships can only be offered to admitted students. It is important to stay in close contact with the Program Director if you have interest in an assistantship. Graduate assistants are paid hourly for hours worked and in most cases tuition, fees and health insurance are paid for the student as well. This compensation is intended to allow the student to maintain a basic standard of living while completing their graduate studies.

Students on assistantship must be enrolled in a minimum of 9 credit hours during the Fall and Spring semesters and work 20 hrs per week on their funded research project. Assistantships are a job and hours are separate for coursework and thesis/dissertation research. During the Summer session graduate assistants may be hired as temporary help and may be eligible to work up to a full 40 hours per week. Summer registration for Master's Research and Thesis (500) or Doctoral Research and Dissertation (600) is expected of all graduate students who are working on the thesis or dissertation. International students should consult with their advisor and International Programs regarding the number of credits required for summer registration.
9.1 Center for Advanced Energy Studies (CAES)

The Center for Advanced Energy Studies (CAES) is a public/private partnership between the State of Idaho through its academic research institutions, Boise State University (BSU), Idaho State University (ISU), the University of Idaho (UI), and the federal government through the Department of Energy and its Idaho National Laboratory (INL), which is managed by a private entity, Battelle Energy Alliance (BEA). Through its collaborative structure, CAES combines the efforts of these four research institutions to provide timely research support on both technical and policy issues.

CAES partners leverage their resources, capabilities, and expertise in collaboration with others to provide:

Research
Deliver innovative, cost-effective, credible research that meets the demands of a carbon-constrained world.

Education
Educate the next generation of energy scientists, policy makers and the public while accepting and leveraging the values of those groups.

Policy
Facilitate an informed dialogue involving the scientific community, the public, and government; leading to energy policy at a national, regional and State level.
APPENDIX A

Nuclear Engineering Program Faculty Research Areas

Idaho Falls Faculty

Aydogan, Fatih, Ph.D. – Assistant Professor, Mechanical Engineering  
(208) 533-8107 fatih@uidaho.edu  
Small modular and advanced reactors, system design and analysis, nuclear safety, computational and experimental thermal hydraulics

Donald McEligot Ph.D., - Adjunct Faculty, Mechanical Engineering  
(208) 533-8120 donaldm@uidaho.edu  
Thermal science: convective heat transfer, fluid mechanics, turbulent, laminar and transitional shear flow: experimental, analytical and computational.

Moscow Faculty

Thomas E. Bitterwolf Ph.D., - Professor, Chemistry  
bitterte@uidaho.edu  
Hydrogen production, development of novel catalytic materials for the electrolysis of water, generation of ammonia from hydrogen as transportable hydrogen material.

Indrajit Charit Ph.D., - Assistant Professor, Materials Science & Engineering  
(208) 885-5964 icharit@uidaho.edu  

John Crepeau Ph.D., Mechanical Engineering Chair, Professor, Mechanical Engineering  
(208) 885-5228 crepeau@uidaho.edu  
Transition to turbulence in fluid flow and fluid stability; flow visualization; experimental and theoretical studies of drying and drying processes. Solidification of materials with internal heat generation.

Ruprecht Machleidt Ph.D., - Professor, Physics  
(208) 885-8951 machleid@uidaho.edu  
Theoretical nuclear physics, theory of nuclear forces and nuclear matter, theoretical modeling of any kind.

Gabriel (Gabe) Potirniche Ph.D., - Assistant Professor. Mechanical Engineering  
(208) 885-4049 gabrielp@uidaho.edu  
Fatigue and fracture, constitutive modeling for metals and polymers, dynamic and impact loading, atomistic simulations, crystal plasticity, anisotropic plasticity, finite element method, solid mechanics.
Vivek Utgikar Ph.D., Associate Professor, Chemical Engineering
(208) 885-6970 vutgikar@uidaho.edu
Development of energy utilization systems - nuclear hydrogen production, utilization and safety; reactor-hydrogen production interface; energy analysis; electrochemical engineering and fuel cells.

Chien Wai Ph.D., Professor, Chemistry
cwai@uidaho.edu
Supercritical fluid extraction; nanomaterials synthesis; environmental chemistry; separation chemistry.

Boise Faculty

Ralph Budwig, Mechanical Engineering, Professor
rbudwig@uidaho.edu
Experimental and theoretical fluid dynamics; turbulence; optical, acoustic, and thermal measurements techniques and experimental methods; laboratory pedagogy.
# APPENDIX B
Forms, Handbooks & Links

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APPENDIX C
Learning Outcomes of the Nuclear Engineering Program

1. Graduates of the program will communicate professionally and effectively in written and oral presentations to a technical audience.

2. Graduates of the program will be able to identify and analyze engineering problems through multidisciplinary approaches. Graduates of the program will be collaborative problem solvers who can synthesize and apply advanced mathematics, science and engineering.

3. Graduates of the program will be effective nuclear engineers capable of utilizing existing research as the basis for making sound decisions to carry an engineering project through the conceptual, design and implementation phases. They will be capable of performing original scholarly work and consider the impact of the application of both new and existing research on society.

4. Graduates of the program will demonstrate awareness of the global nature of the practice of nuclear engineering and be responsible for the role that they play in enhancing the quality of life of the global community. They will continually strive for an openness to lifelong learning.

5. Graduates of the program will practice ethical leadership in seeking collaborative Solutions and fostering respect for diversity of thought. They will actively participate in initiatives that add to the body of knowledge and practice and engage the future generations of engineers.
# APPENDIX D: NE Program Course Schedule

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**Faculty**

**NE: Director, Aydogan, New Fuel Cycle Faculty**

**ChE/MSE: Charit, Utgikar, Zhao**

**Adjunct: Khalaf**

**ME: Budwig, Crepeau, Potirniche**

**Industrial Technology: Kanakala**

**Courses**

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### APPENDIX E: Typical Study Plans for Various Tracts

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