

GRADUATE STUDENT HANDBOOK*

DEPARTMENT OF MECHANICAL ENGINEERING

University of Idaho
College of Engineering

Updated Spring 2007

* This information supplements general information in the current University of Idaho Catalog. A summary of University requirements for graduate degrees can be found at <http://www.uidaho.edu/catalog/>.

CONTENTS

	Page
Undergraduate Preparation for Graduate Students in Mechanical Engineering	1
Graduate Record Examination and GPA	3
English Requirements for Students Whose Primary Language is not English.....	4
International Students	4
Degree Requirements for M.S. and M.E. Degrees.....	5
Degree Requirements for the Ph.D. Degree	7
Graduate Course Offerings.....	8
Procedures for Candidates for M.E. Degree	9
Procedures for Candidates for M.S. Degree.....	10
Procedures for Candidates for Ph.D. Degree	12
Appendix A. Faculty Research Areas	15
Appendix B. Forms and Handbooks	17

For further information contact:

Elaine Queener
Mechanical Engineering Department
University of Idaho
Moscow, ID 83844-0902
Phone: (208) 885-6579
Fax: (208) 885-9031
e-mail: elaineq@uidaho.edu
Website: <http://www.uidaho.edu/engr/ME>

Graduate Admissions
University of Idaho
Moscow, ID 83844-3019
Phone: (208) 885-4665
Website: <http://www.uidaho.edu/cogs/>

Admissions form:
<http://www.uidaho.edu/cogs/apply.html>

Undergraduate Preparation for Graduate Students in Mechanical Engineering

Admission to the College of Graduate Studies 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 lists the University's GPA admission requirements. Admission to the Mechanical Engineering Graduate Program is open to any student with the above qualifications if his or her baccalaureate degree is with a major in mechanical engineering from an A.B.E.T. accredited U.S. program.

Students with a B.S. degree from an accredited U.S. engineering program with a major other than mechanical engineering may also be admitted to the Mechanical Engineering Graduate Program. However, such students must demonstrate a basic proficiency in the areas of energy and mechanical systems. This generally requires the student to include courses on the study plan that are assigned as undergraduate deficiencies, in addition to the 30 credits of graduate courses required for the Master's degree. The subjects included in the following list define the areas for which proficiency is expected as an entrance requirement.

a. Mechanical Systems: Statics (Engr 210), Dynamics (Engr 220), and Mechanics of Materials (Engr 350)

b. Energy: Thermodynamics (Engr 320), Fluid Dynamics (Engr 335), and Heat Transfer (ME 345)

Each applicant to the program is evaluated individually which may lead to exceptions and/or substitutions to the above requirements.

Students who do not have a B.S. degree from an accredited U.S. engineering program may also be admitted to the Mechanical Engineering Graduate Program. However, such students must demonstrate a proficiency in the basic subjects included in a B.S.M.E. program. This requires 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.

a. 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), and calculus-based physics (Phys 211, 212, 213).

b. Sixteen credits of humanities and social sciences including both breadth and depth.

- c. 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), and 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 like ME 424/426 is required).
- d. Appropriate laboratory experience such that the student is competent to conduct experimental work. (Laboratory classes are required which include an instrumentation class like ME 330).
- e. Appropriate computer-based experience including computational techniques needed to solve specific engineering problems.
- f. Competence in written and oral English communication. This requires both English composition (e.g., Eng 102) and English technical writing (e.g., Eng 317).
- g. An understanding of the ethical, social, economic, and safety considerations in engineering practice (see engineering design under item c above).
- h. Appropriate classes in the energy stem and the mechanical systems stem of mechanical engineering (included under engineering science in c above).

The evaluation of equivalent classes will be done on an individual basis. If a student does not have the equivalent of one of the above classes (except capstone design), the student may take the class or challenge it (see procedures for challenge in UI General Catalog) after appropriate self-study.

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 (the engineering subject test is no longer available). 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. The GRE areas of interest and expected minimum scores are as follows:

Area	Suggested Scaled Score	Engineering Approximate Percentile Rank
Verbal (Reading Comprehension)	470	50th
Quantitative (Basic Math and Problem Solving Skills)	680	50th
Analytical Writing (critical thinking and writing)	4.5	50th

Explanation of the Analytical Writing score:

SCORE 6 - a cogent, well-articulated analysis of the complexities of the issue and conveys meaning skillfully.

SCORE 5 - presents a generally thoughtful, well-developed analysis of the complexities of the issue and conveys meaning clearly.

SCORE 4 - presents a competent analysis of the issue and conveys meaning adequately.

SCORE 3 - demonstrates some competence in its analysis of the issue and in conveying meaning but is obviously flawed.

SCORE 2 - paper demonstrates serious weaknesses in analytical writing.

SCORE 1 - demonstrates fundamental deficiencies in analytical writing skills.

SCORE 0 - off topic, in a foreign language, merely copies the topic, consists of only keystroke characters, or is illegible, blank, or nonverbal.

English Requirements for Students Whose Primary Language is NOT English

The results of the Test of English as a Foreign Language (TOEFL) are required for all students whose primary language is not English. These results are used as a measure of the student's skills in the following areas:

Area	Paper Based Minimum Score	Computer Based Minimum Score	Internet Based Minimum Score	Approximate Percentile Rank ⁽¹⁾
Listening	56	22	22	70%
Structure/Writing	58	24	21	70%
Reading	56	22	22	70%
Speaking	NA	NA	21	70%
Total	560	220	83	70%

⁽¹⁾ Based on 2003-2004 TOEFL report of scores for students applying for graduate studies (www.toefl.com). Updated annually. After September 2005, speaking skills will be part of the TOEFL. The Internet-based TOEFL test is under evaluation.

The TOEFL also reports an essay rating, or the Test of Written English (TWE), as part of the paper-based test. The writing test provides information about an examinee's ability to generate and organize ideas on paper, to support those ideas with evidence or examples, and to use the conventions of standard written English. A minimum 70th percentile score of 4.2 is recommended.

- 6 Demonstrates clear competence in writing on both the rhetorical and syntactic levels, though there may be occasional errors.
- 5 Demonstrates competence in writing on both the rhetorical and syntactic levels, though there will probably be occasional errors.
- 4 Demonstrates minimal competence in writing on both the rhetorical and syntactic levels.
- 3 Demonstrates some developing competence in writing, but it remains flawed on either the rhetorical or syntactic level, or both.
- 2 Suggests incompetence in writing.
- 1 Demonstrates incompetence in writing.

International Students

International students must carry nine (9) credit hours per semester to be in compliance with the rules and regulations of the U.S. Immigration Service. Exceptions to this requirement permitted by the Immigration Service are:

1. when a student is in his/her final semester and does not need full credit to graduate;
2. for medical reasons, which requires verification from a doctor;
3. for graduate students who have completed all course work and have only thesis or dissertation work remaining.

Degree Requirements for M.S. and M.E. Degrees

Thirty credits are required for the M.S. and M.E. degrees in Mechanical Engineering. At least 18 credits (including thesis for M.S.) must be at the 500 level. No credits may be at the 300 level or lower. In addition, no classes required in our B.S.M.E. curriculum can be used as part of the graduate program. This restriction does not include technical elective classes.

At least three classes that consist primarily of subject material focused in mechanical engineering at the 500 level are required. MEME students must take at least two additional mechanical engineering classes in lieu of thesis/research. Mechanical engineering classes are offered in the following areas:

mechanics and materials science
dynamic systems
thermodynamics and energy

design and manufacturing
fluids and heat transfer

Available classes are listed on the M.E. Plan for Schedule of Course Offerings.

Courses that satisfy the M.E. mathematics requirement include:

- ME 541 Mechanical Engineering Analysis
- ME 544 Conduction Heat Transfer
- ME 545 Numerical Heat Conduction
- any 400 or higher-level course in mathematics, numerical methods or statistics. This class cannot be a duplication of material covered in the required B.S.M.E. curriculum (such as the numerical methods taught in ME 123/223 or the statistics taught in Stat 301).

One class is required that focuses on the model/equation formulation (not solution) in energy and mechanical system stems. ME 540 Continuum Mechanics is the only class that will presently satisfy this requirement.

The combined total of transfer credits, correspondence credits, nonmatriculated 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 requiring 36 or fewer credits.

Credits earned at an institution that does not grant graduate degrees cannot be transferred to the UI for graduate credit.

All other credits submitted to meet the requirements for a Master's degree must have been earned within the eight consecutive years immediately preceding the academic session in which the degree is completed. The required course distributions for the two degrees follow.

M.S.M.E. DEGREE
(Available only in Moscow, IFCHE, and Boise)

<u>Course Area</u>	<u>Credits</u>
Mathematics/statistics/numerical methods	3
Continuum Mechanics	3
Mechanical Engineering Technical Electives	9
Other technical electives in Mechanical Engineering or from other appropriate departments as approved by supervisory committee and department chairman	6 – 9
Research and Thesis	6 - 9
TOTAL	30

Final Defense and Comprehensive Exam: One hour presentation and defense of thesis followed after a break by a one hour oral exam. A written examination on course work will be given at a later date if necessary.

M.E.M.E. DEGREE

<u>Course Area</u>	<u>Credits</u>
Mathematics/Statistics/Numerical Methods	3
Continuum Mechanics	3
Mechanical Engineering Technical Electives	15
Electives - Mechanical Engineering or Other Appropriate Departments As Approved by Supervisory Committee and Department Chairman	9
TOTAL	30

Final Comprehensive Exam: Two hour oral possibly followed by a written examination on course work, graded P/F.

Note: Research credits will not count toward the MEME degree.

Degree Requirements for the Ph.D. Degree

The applicant must satisfy our requirements for the M.E.M.E. or M.S.M.E. degree. The additional details of the individual program for the doctoral degree is established by the supervisory committee in consultation with the student. General university guidelines require:

1. A minimum of 78 credits beyond the bachelor's degree;
2. At least 52 credits in courses numbered 500 and above;
3. At least 39 of the 78 credits must be in courses other than Doctoral Research and Dissertation.
4. At least 39 of the 78 required credits must be UI courses.

The Department of Mechanical Engineering requires that at least one-third of the credits beyond the bachelor's degree be in research (26 credits).

Two examples of the requirements are given below. One example assumes the student completed a master's thesis and the other assumes the student did not.

With Master's Thesis

	24 credits M.S. <u>course</u> work
	24 credits Ph.D. <u>course</u> work
Total	48 credits course work
	6 credits MS research & thesis
	24 credits Ph.D. research & dissertation
Total	30 credits research
Total	78 credits

Without Master's Thesis

	30 credits M.S. course work
	21 credits Ph.D. course work
Total	51 credits course work
Total	<u>27</u> credits Ph.D. research & dissertation
Total	78 credits

Of the total course work, at least one-half of the credits beyond the bachelor's degree must be in M.E. 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. 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.

Graduate Course Offerings

The Departments at the University of Idaho (UI) and Washington State University (WSU) support each other's graduate programs. Graduate students at either institution register at their own institution to take classes at the other institution. The following table outlines the planned Mechanical Engineering course offerings at the UI. This plan may change.

Class	F06	S07	F07	S08	F08	S09
<i>Mechanics and Materials Science</i>						
ME 415 - Materials Selection for Mechanical Design		X				X
ME 461 - Fracture Mechanics		X			X	
ME 508 - Mechanics of Plates and Shells			X			
ME 534 - Mechanics of Composite Materials	X				X	
ME 539 - Advanced Mechanics of Materials		X				
ME 548 - Elasticity				X		
ME 549 - Finite Element Analysis (CE 546)		CE		CE		CE
<i>Dynamic Systems</i>						
ME 481 - Control Systems (ECE470)	X			sum		sum
ME 413/513 - Acoustics				X		X
ME 573 - Acoustic Waves in Elastic Solids						
ME 578 - Neural Network Design (ECE 578)		ECE				
ME 580 - Linear System Theory (ECE 572)	ECE				ECE	
ME 581 - Fuzzy Logic Control Systems (ECE 573)						
<i>Fluid Mechanics and Heat Transfer</i>						
ME 417/517 - Turbomachinery		X				
ME 412 - Gas Dynamics		X		X		X
ME 420/520 - Fluid Dynamics	X			X		
ME 519 - Fluid Transients (CE519)		CE				CE
ME 544 - Heat Conduction	X					
ME 546 - Convection Heat Transfer			X			
ME 547 - Thermal Radiation Processes				X		
<i>Thermodynamics and Energy</i>						
ME 414/514 - HVAC Systems				X		
ME 422 - Applied Thermodynamics			X			
ME 433 - Combustion Engine Systems	X				X	
ME 443 - Analysis of Thermal Energy Systems		X		X		
ME 444 - Air Conditioning Engineering		X				X
ME 526 - Statistical Thermodynamics				X		
ME 527 - Thermodynamics	X					
ME 529 - Combustion and Air Pollution			X			
<i>Other Classes</i>						
ME 540 - Continuum Mechanics		X		X		X
ME 541 - Mechanical Engineering Analysis	X		X		X	
ME 583 - Reliability of Engineering Systems		X				CE
<i>Undergraduate Classes</i>						
ME 345 - Heat Transfer	X	X	X		X	

Procedures for Candidates for M.E. Degrees

1. Upon application, a student accepted for the degree will be notified of any undergraduate course deficiencies which must be fulfilled.
2. Nomination of Major Professor: The student, department chair, and potential major professor must concur on the nomination of the major professor before the student has completed three classes. The major professor nominated, in conjunction with the student, must submit the Appointment of Major Professor and/or Committee form to the Mechanical Engineering office, to be sent to the College of Graduate Studies.
3. Supervisory Committee: A supervisory committee is not required for the MEME degree.
4. Study Plan: The Study Plan, filled out by the student in consultation with the major professor, must be prepared by the time three classes are completed. Only those courses needed to complete the degree are on the plan. After approval by the department chair, the plan is sent to the College of Graduate Studies. Awarding of the degree is contingent upon completion of the Study Plan.
5. Comprehensive Exam: The final comprehensive examination is scheduled and administered by the major professor. A committee of professors who have prepared the questions will be present for this oral examination. The exam is graded P/F.

The exam is scheduled for one hour before a ten-minute break after which the exam may continue for an additional hour, or a written examination may be required at a later date. After the examination, the Non-Thesis Requirement Report form must be completed and submitted to the College of Graduate Studies.

Awarding of the degree is contingent upon passing the comprehensive examination. Students are encouraged to seek guidance on preparation from committee members in advance of the exam.

6. The Application for Advanced Degree form, found on the Registrar website at <http://www.students.uidaho.edu/default.aspx?pid=19797> should be completed on-line when you are within one semester of completing your requirements.

Further information on university and general regulations may be obtained from the University of Idaho College of Graduate Studies at www.uidaho.edu/cogs/ and the registrar at www.uidaho.edu/registrar/forms.html (Appendix B).

Procedures for Candidates for M.S. Degree

1. Upon application, a student accepted for the degree will be notified of any undergraduate course deficiencies which must be fulfilled. Students should review the faculty research areas table (Appendix A) and contact faculty with mutual research interests.
2. **Major Professor:** The student, department chair and potential major professor must concur on the nomination of the major professor before three classes are completed. The major professor and student then submit a completed Appointment of Major Professor and/or Committee form to the Mechanical Engineering office to be sent to the College of Graduate Studies.
3. **Committee:** The supervisory committee will be nominated by the major professor consulting with the student and the department chair. The committee must include:
 - a. The major professor as chair;
 - b. An additional member from the Mechanical Engineering Department;
 - c. One member from another department.

Additional members may be appointed if desired. All committee members must be UI faculty or UI affiliate faculty members. At least fifty percent (50%) of the committee members must be graduate faculty.

4. **Study Plan:** The Study Plan, filled out by the student in consultation with the major professor, must be prepared by the time three classes are completed. Only those courses needed to complete the degree are on the plan. After approval by supervisory committee members and the department chair, the plan will be sent to the College of Graduate Studies. Awarding of the degree is contingent upon completion of the Study Plan.
5. **Final Comprehensive Exam:** The final comprehensive examination is scheduled and administered by the major professor. All supervisory committee members must be present at this examination. The first hour is to be used by the student to present his/her thesis. Following a ten-minute break, an oral examination will be given on course work and/or matters related to the thesis. At the completion of this oral examination, it will be decided if an additional written examination will be required at a later date.

The Request to Proceed to Final Defense form must be submitted to the College of Graduate Studies at the beginning of the semester in which the student intends to graduate. Upon submitting the "Request to Proceed..." form, the student will receive the Report of Final Defense form which must be signed by the student's committee after the defense, and submitted to the College of Graduate Studies by the major professor.

A copy of the title page of the thesis must be attached to the Report of Final Defense form, and the completed thesis submitted within six months of the final defense.

6. **Submission of the Thesis:** Complete instructions for format and submission are found in the Graduate Handbook for Theses and Dissertations (www.uidaho.edu/cogs/). It is important to follow the instructions to the letter.

In addition to the two copies of the thesis required by the College of Graduate Studies, one unbound copy with a completed signature page is required by the Mechanical Engineering Department. It is wise to have extra signature pages completed.

If you desire a bound copy of your thesis, be sure to make arrangements with the ME office staff or with UI Printing and Design.

7. The **Application for Advanced Degree** form, found on the Registrar website at <http://www.students.uidaho.edu/default.aspx?pid=19797> should be completed on-line when you are within one semester of completing your requirements.

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 at www.uidaho.edu/cogs/ and the Registrar at www.uidaho.edu/registrar/forms.html (Appendix B).

Procedures for Candidates for Ph.D. Degree

1. Upon application, a student accepted for the degree will be notified of any undergraduate course deficiencies which must be fulfilled.
2. **Major Professor:** The faculty research areas table (Appendix A) at the end of this handbook will help the student choose a major professor. The student, department chair and potential major professor must concur on the nomination before three courses have been completed. The major professor and student then submit the Appointment of Major Professor and/or Committee form to the Mechanical Engineering (ME) office, to be sent to the College of Graduate Studies.
3. **Study Plan:** The Study Plan, filled out by the student in consultation with the major professor must be prepared and approved soon after completion of the qualifying examination. After the plan is signed it should be taken to the ME office from which it will be sent to the College of Graduate Studies. Awarding of the degree is contingent upon completion of the Study Plan.

The study plan is just a plan; courses can be dropped and added on a Change of Study Plan form at any time. The form must be signed and submitted to the ME office to be sent to the College of Graduate Studies.

3. **Qualifying Examination:** The Ph.D. qualifying examination, administered within the first year and before completion of the bulk of course work, is designed to evaluate preparation for doctoral course work and provide guidance in planning the Ph.D. program. The examination consists of a two-hour oral in specified subject areas at the advanced undergraduate level, possibly followed by a written exam in the same subject areas. Areas of expected qualification are:
 - a. Energy and Energy Design - Thermodynamics, Heat Transfer, Fluid Mechanics, and Energy Design. (Course preparation:* Engr 320, ME 345, and Engr 335 or equivalent)
 - b. Applied Mechanics and Mechanical Design - Statics, Dynamics, Mechanics of Materials and Machine Design. (Course preparation:* Engr 210, Engr 220, Engr 350 and ME 425 or equivalent)
 - c. Mathematics, numerical methods and FORTRAN. (Course preparation:* Math 310, ME 123/223 and additional computer and mathematics experience)

In lieu of the foreign language proficiency requirement, the ME department asks for demonstrated proficiency in numerical methods and computer programming. This requirement may be satisfied by successful completion of courses, or other evidence of proficiency.

The department chair in consultation with the major professor will appoint examiner(s) in each area. The student may, at the discretion of the examining committee, be exempted from the written part of the exam because of exemplary performance on the oral portion.

Dates for the oral examination are to be arranged with personnel in the Mechanical Engineering Department office.

Results of the examination must be communicated to the department chair in a memo from the committee chair. The memo will be put into the student's file.

*Course numbers shown are from the current University of Idaho General Catalog.

4. Committee: A supervisory committee will be nominated by the major professor consulting with the student and the department chair. The committee must include:
 - a. the major professor, a full member of the UI graduate faculty, as chair;
 - b. an additional member from the major field;
 - c. one member from a supporting field;
 - d. one member from outside the major field.

All of these must be UI faculty or affiliate faculty members. Additional members may be appointed if needed. At least fifty percent (50%) of the committee must be members of the graduate faculty.

5. Preliminary Examination: When a majority of the course requirements on the study plan have been completed, a preliminary exam, written and oral, will be given under direction of the student's major professor. The purpose of this exam is to ensure that the student adequately reviews and integrates completed course work, and has the necessary technical knowledge upon which to base the doctoral research. Students are encouraged to seek additional direction from their graduate committee on preparation for the exam.

The student will be expected to complete an eight-hour written examination on graduate-level concepts in either open or closed book form at the discretion of the supervisory committee. This examination is usually scheduled in two four-hour sessions on successive days.

A two-hour oral examination will follow the written examination at a later date. Broad areas to be covered are those listed in the study plan. Upon successful completion of the exam, the student is advanced to candidacy.

Dissertation Proposal: The examination includes presentation of a written dissertation proposal and/or progress report to the supervisory committee. Committee members will sign and date the front page of the proposal, indicating acceptance.

Report of Preliminary Examination and Advancement to Candidacy form: Obtained from the COGS website (<http://www.grad.uidaho.edu/default.aspx?pid=32490>), this form must be filled out and submitted to the College of Graduate Studies on completion of the exam and presentation.

6. **Final Ph.D. Examination:** Administered by the major professor, this examination may be taken no earlier than five months after advancement to candidacy. Ten days prior to the examination, a near-final copy of the dissertation must be submitted to supervisory committee members, all of whom must be present at the examination.
7. **Request to Proceed with Final Defense of Dissertation/Thesis Form:** The completed form (obtained from the COGS website, above) must be submitted to the College of Graduate Studies at the beginning of the semester in which the student intends to graduate.

The student will receive from the College of Graduate Studies the Final Defense Report form that must be signed by the student's committee after the defense, and submitted to the College of Graduate Studies by the major professor.

8. **Doctoral Dissertation Defense:** At the conclusion of the candidate's research project, a date is arranged with the supervisory committee for the student to defend his/her dissertation. Two weeks before the chosen date, the dissertation defense must be announced on a simple poster with the candidate's name and that of the major professor; the date, time and location of the defense; the dissertation topic and a short narrative of the subject matter.

A draft of the dissertation is submitted to members of the supervisory committee at least one week prior to the date of the defense. The defense consists of a one-hour presentation followed by 30 minutes of questions. After deliberation, the supervisory committee may require further research or edits to the dissertation.

9. **Submitting the final dissertation:** Complete instructions for format and submission are found in the Graduate Handbook for Theses and Dissertations. It is important to follow the instructions to the letter.

In addition to the two copies of the dissertation required by the College of Graduate Studies, one unbound copy with a completed signature page is required by the Mechanical Engineering Department. It is wise to have extra signature pages completed.

If you wish to have a bound copy, be sure to make arrangements with ME office staff or with UI Printing and Design.

Further information on university and general regulations, the Graduate Handbook for Theses and Dissertations, and necessary forms are on the University of Idaho College of Graduate Studies website at www.uidaho.edu/cogs/.

Appendix A. Faculty Research Areas Mechanical Engineering Department

Moscow Faculty

Anderson, Michael J., Ph.D., P.E., Professor

Acoustics in fluids and solids; transducer design.

anderson@uidaho.edu;

homepage <http://calvin.engr.uidaho.edu/~anderson/mikea.htm>

Beyerlein, Steven W., Ph.D., Professor

Catalytic ignition systems for spark-ignition and compression-ignition engines. Engine testing. Design and delivery of faculty development activities. Application of educational research methods in engineering courses.

sbeyer@uidaho.edu;

homepage http://222.uidaho.edu/engr/ME/faculty/s_beyerlein.htm

Blackketter, Donald M., Ph.D., P.E., Professor & Department Chair

Mechanics of composite materials, math modeling; structural analysis; micromechanics, advanced vehicle technology, and engineering education research. dblack@uidaho.edu;

homepage <http://www.uidaho.edu/~dblack/>

Budwig, Ralph S., Ph.D., Professor

Fluid dynamics and turbulent transport; optical measurement techniques; cardiovascular fluid dynamics; hydrodynamic and acoustic manipulation of particles and droplets; laboratory and design pedagogy.

rbudwig@uidaho.edu; homepage http://www.webs1.uidaho.edu/ralph_budwig/

Den Braven, Karen R., Ph.D., Professor

Design and installation of geothermal or ground-coupled heat pump systems; alternative snowmobile design

kdenb@uidaho.edu; homepage <http://www.uidaho.edu/~kdenb>

Edwards, Dean B., Ph.D., P.E., Professor

Fuzzy logic control systems with applications to autonomous vehicles. Development of hybrid electric vehicle powertrain components including high performance sealed, lead-acid batteries.

dedwards@uidaho.edu;

homepage http://www.uidaho.edu/engr/ME/faculty/d_edwards.htm

Elger, Donald F., Ph.D., P.E., Professor

Heat transfer; fluid mechanics; methodologies for engineering problem-solving and design.

delger@uidaho.edu; homepage <http://www.uidaho.edu/~delger/>

Lemmon, E. Clark, Ph.D., Professor

Mechanical engineering problem solving using numerical simulation with a focus in the area of physical phenomena in thermosciences. Teaching of graphics, problem solving, design and the thermosciences.

eclm@uidaho.edu

Odom, Edwin M., Ph.D., P.E., Associate Professor
Applied mechanics and manufacturing; experimental stress analysis; TQM
eodom@uidaho.edu

Penoncello, Steven G., Ph.D., P.E., Professor
Thermophysical properties of fluids and fluid mixtures, determination of equations of state for fluids and fluid mixtures of engineering interest.
stevep@uidaho.edu; homepage <http://stevep.engr.uidaho.edu/>

Rink, Karl K., Ph.D., Assistant Professor
Combustion, gas dynamic and thermodynamic research with emphasis in rapid detonations, confined explosions, and energetic materials; combustion component design in propulsion systems including gas turbines and rockets; leak rate determination in small cavity devices.
karlrink@uidaho.edu

Stephens, Robert R., Ph.D., P.E., Professor
Materials properties measurements and modeling; failure analysis, fatigue and fracture.
bstephen@uidaho.edu; homepage
http://www.uidaho.edu/engr/ME/faculty/r_stephens.htm

Sturgul, John, Ph.D., Professor
Discrete system simulation and animation, chaos theory, mine design
sturgul@uidaho.edu

Boise Faculty

Stauffer, Larry A., Ph.D., P.E., Professor
Engineering design, specifically design theory and design methods dealing with product planning, specifications, ergonomics, safety and production; process design, layout, and simulation.
stauffer@uidaho.edu

Steciak, Judi A., Ph.D., P.E., Associate Professor
Applied combustion research, especially reducing air pollutants released from combustion systems, including pollutants created from fossil fuels, renewable transportation fuels, and biomass, and contaminants released from unwanted fires caused by industrial accidents.
jsteciak@uidaho.edu; homepage <http://www.webs1.uidaho.edu/niatt/>

Idaho Falls Faculty

Crepeau, John C., Ph.D., P.E. Associate Professor
Solidification of materials with internal heat generation; transition to turbulence in fluid flow and fluid stability; flow visualization; high temperature thermocouple measurements.
crepeau@uidaho.edu

Gunnerson, Fred, Ph.D., Professor
Nuclear energy, renewable energy, turbomachinery, fire dynamics, laboratory simulation of thermofluid systems.
gunner@if.uidaho.edu

Appendix B. Forms and Handbooks

Form/Handbook	Degree	Where Available
Appointment of Major Professor and/or Committee	ME, MS, PhD	www.grad.uidaho.edu
Study Plan, Change of Study Plan, Change of Curriculum	ME, MS, PhD	www.grad.uidaho.edu
Application for Advanced Degree	ME, MS, PhD	www.uidaho.edu/registrar complete the application online
Add/Drop Form	ME, MS, PhD	www.uidaho.edu/registrar
Non-Thesis Requirement Report	ME	www.grad.uidaho.edu
Qualifying Examination Result Memo	PhD	Written by the chair of the examination committee and sent to the department chair.
Report of Preliminary Examination and Advancement to Candidacy	PhD	www.grad.uidaho.edu
Request to Proceed to Final Defense	MS, PhD	www.grad.uidaho.edu
Report of Final Defense	MS, PhD	College of Graduate Studies (208) 885-6243 uigrad@uidaho.edu
Graduate Handbook for Theses and Dissertations	MS, PhD	www.grad.uidaho.edu
College of Graduate Studies Bulletin	ME, MS, PhD	College of Graduate Studies (208) 885-6243 uigrad@uidaho.edu