Faculty Development Plan and Proposed Development Projects
Name
Department of Mechanical Engineering
June 2017

Overview

This document constitutes my Faculty Development Plan as described in section 3.1.2 of the "University Policy on Rank and Status."

1. SCHOLARSHIP

1.1 Self-Assessment

1.1.1 Areas of Interest

- Developing *in situ* instruments to study the thermal behavior of materials.
    - Specifically, with regards to nuclear energy, I want to characterize and aid development of new fuels and materials, safety systems, and reactors to ensure safe operation of carbon-free energy production.
- Use of fluorescence thermometry and other optical techniques to measure temperature and probe thermal transport.
- Practical uses of synthetic spider silk.

1.1.2 Strengths, Skills, and Competencies

- My scholarship strengths include an established publication record and the associated skills to continue along that route.
- I have had years of experience mentoring undergraduate and graduate students as a lab manager and research team leader.
- Expertise in thermal fluids area, optics, biological materials, instrumentation, and heat transfer
- Previous experience with research proposals as an undergraduate and graduate student.

1.1.3 Areas for Improvement or Growth

- Although I have some contacts at INL, I need to expand that circle to be successful in nuclear research.
- Clearly delineating the scope of work and significance of the proposed work in proposals.
- Maintain diversity of research topics in and out of nuclear energy.
- Establishing collaborations to create impactful, publishable work.

1.2 Scholarship Goals

1.2.1 Short-term plans (1-4 years)

- Recruit a PhD student by Fall 2018.
- Consistently publish 3 journal articles a year.
    - Specifically, submit papers on blu-ray instrument and microfluidic temperature sensing device by 2018.
- Have 2-3 conference submissions per year.

    - ANS Annual or Winter meetings.
    - ASME Heat Transfer or IMECE conferences.
- Continue to seek research funding in Nuclear Energy.
    - Yearly submission to the NEUP (Nuclear Energy University Program) program in DOE.
    - Nuclear Regulatory Commission (NRC).
        - Faculty Development grant.
        - Co-PI on fellowship and scholarship grants.
    - DOE Young Investigator.
- Integrate more undergraduate students into the lab via ORCA and MEG grants.
- Broaden the scope of my research through proposals in microfluidics and optical sensing.
    - Establish relationship with NSF program manager of the Thermal Transport Processes program, Jose Lage.
    - Develop spider silk fiber optics.
- Help graduate students apply for prestigious apply for NEUP fellowship and undergraduate students apply for NEUP scholarships.
- Have significance and scope of work of each proposal assessed by a colleague prior to submission.
- Visiting faculty appointment at INL to establish collaborations.
- Develop in situ measurement of thermal behavior of materials.
    - Focus on molten salt reactors.
    - Solid fuels.
    - Boiling in microfluidic channels.

1.2.2 Long-term plans (5-8 years)

- Develop a research program in the department that allows for multiple faculty to collaborate with INL.
- Keep research scope broad via at least one proposal submission not focused on nuclear energy.
- Build university consortium of energy with University of Utah, BYU, and USU.
- Maintain a lab of 5-6 graduate students and 4-6 undergraduate students.
    - $200k per year 2 grad students + summer funding + 2 undergraduate RA's.
- Write for an average of 30 minutes every day.
- Establish international relationships with my alma mater in Belgium.

1.3 Relationship to Department Goals and Needs

The main goal of the department is to be recognized as the best mechanical engineering department in the world. Successful proposal writing will bring in more funds to allow undergraduate and graduate students to get involved in research. This will also provide mentoring opportunities for students of all levels. Publications in quality journals will expand student opportunities and capabilities, provide tangible products for them during job interviews, improve the visibility of the department, as well students make an impact on the world. Conference participation and national lab collaborations will also increase department visibility and provide networking opportunities for students.

1.4 Required Resources

- Lab space for optical systems.
- Funds for travel to conferences and INL.
- Undergraduate and graduate students.

1.5 Progress to Date

- Submission of two DOE-NE NEUP proposals, 1 BYU MEG grant, and 1 Utah NASA Space Grant Consortium grant.
- Collaboration established with:
    - Dr. Matthew Memmott in Chemical Engineering and Dr. Dale Tree in Mechanical Engineering on nuclear energy property measurements.
    - Dr. Greg Nordin in Electrical Engineering on temperature sensing in microfluidics.
    - Dr. David Allred in Physics on uranium and thorium thin film characterization.
- Recruited MS graduate student Sam Hayden.
- Provisional patent on blu-ray based Fluorescent Scanning Thermal Microscope (FSTM).
- Three journal articles published based on previous work, 1 submitted to International Journal of Heat and Mass Transfer, and 1 in the final stages of preparation.

2. CITIZENSHIP

2.1 Self-Assessment

2.1.1 Strengths, Skills, and Competencies

- Attended and presented at international conferences
- Served on numerous collaborative research teams
- Reviewed articles for journals

2.1.2 Areas for Improvement or Growth

I am not well known in the nuclear community having not completed a post-doctoral position. Despite this, I am trying to make inroads into the premier national lab for nuclear research (INL).

2.2 Professional Goals

2.2.1 Short-term plans (1-4 years)

- Get involved in both the Thermal-Hydraulics and Materials Science Committees in ANS
- Perform service in the department, college and university when requested.
- Mentor ANS student chapter at BYU.
- Review for top journals in heat transfer (Int. J. of Heat and Mass Transfer), materials (Advanced Materials and associated journals), and instrumentation (Measurement Science and Technology).
- Review for DOE Nuclear Energy NEUP and other programs.
- Serve in ANS and ASME conferences as track, session, and section chair.

2.2.2 Long-term plans (5-8 years)

- Review for DOE Nuclear Energy NEUP and other programs.
- Contribute reliably to the department through committee assignments.
- Develop relationships with journal editors.
- Serve as committee leadership in ANS.

2.3 Relationship to Department Goals and Needs

The department has set the goal of increased visibility of the department and elevating our graduate program. Establishing myself in the nuclear community via participation in the ANS will help meet both of these goals by correcting the misconception that BYU does little in terms of graduate research. Additionally, my service with the PhD coursework committee will directly support the graduate program.

2.4 Required Resources

- Time to fulfill citizenship requirements.
- Travel funds for conference meetings, obtained by research proposals.

2.5 Progress to Date

- Reviewer for 3 journals and ANS student conference
- Attended ANS Winter Conference and participated in Materials Science Committee Meetings.
- Participated in PhD Coursework committee in the department, and ME 362 course committee.
- Serving on 3 graduate committees.
- Registered as an NEUP reviewer.

3. TEACHING

3.1 Self-Assessment

3.1.1 Strengths, Skills, and Competencies

Thus far, my interactions with teaching have been fulfilling. I was the instructor for a senior level course at USU and have taught two undergraduate level courses at BYU (ME EN 250 and ME EN 362).

Strengths that I have with my teaching include:

- Knowing all student names and connecting with students.
- Bringing in real life demonstrations.
- Working well one-on-one with students both in teaching and mentoring.

Mentoring students is also included in Teaching responsibilities, and I've had over 8 years of mentoring students at both the undergraduate and graduate level. This has taught me how to bring a new student up to speed on a project, how to integrated them into the team, and how to follow up and help them move the project forward.

3.1.2 Areas for Improvement or Growth

One main difficulty is defining where the level of high (but achievable) expectations should be set. Areas of weakness for improvement in classroom teaching are:

- Speed at which I present material.
- Confidence due to unfamiliarity with presentation of course or material.
- Facilitating active learning with the students.

I would like to get involved in developing content for classes that expose students to the energy field, specifically with respect to nuclear energy.

With regards to mentoring, as the number of students in my research lab is expected to increase, I will need to develop training procedures and relevant background information to deal with the time load needed for each student. However, I want to maintain an open door policy where I make time for students that need it.

3.2 Teaching Goals

3.2.1 Short-term plans (1-4 years)

- Reframing the structure and pruning the content of the course to help the students not get lost in the myriad topics involved in ME 362.
- Ask for feedback on teaching from my mentor in both ME 250 and 362 as we attend each other's lectures in ME 362.
- Develop modules on materials behavior in nuclear power plants for ME 250.
- Expand nuclear expertise from chemical engineering department into mechanical engineering department (related to growth of ANS student chapter).
- Recruit a PhD student and 3 MS students by Fall 2018.
- Incorporating department real world problem solving program and writing thread into classes.

3.2.2 Long-term plans (5-8 years)

- Develop new graduate course focused on energy production topics.

- Consistent use of CTL services to improve teaching.
- Attend all college Teach & Learn Seminars.
- Develop better curriculum materials for 362 to fill the need not met by any current textbook.

3.3 Relationship to Department Goals and Needs

As ME 362 is stated by students as the least helpful class, further development and improvement of the class will help bring the department to a higher level. Further, because of my wider range of specialties, and with the help of NRC funding, the growing interest in energy topics by students and the needs of our society would be met by the course I seek to develop.

3.4 Required Resources

- Opportunity to teach same class multiple semesters.
- TA wages.
- Funds for demonstrations in ME 362.
- Time to develop nuclear materials modules.

3.5 Progress to Date

- Midcourse evaluations were used in ME 362 in the Fall 2016 and SCOT interviews were used in ME 250 in Winter 2017, which provided favorable student responses in final evaluations.
- Currently have 5 undergraduate students, and 1 Master's student, with another Master's student that has accepted an offer for the fall.

4. SCHOLARSHIP STRATEGIES PROJECT PROPOSAL

4.1 Overview

To be successful as a scholar, several key components are needed:

1. Establishment as an expert in an area by contributing to the state-of-the-art
2. External funding to support students and equipment
3. Presentation and dissemination of high quality research at conferences and peer reviewed journals

The focus of this project proposal is the current research areas:

- Developing new instruments and techniques to overlay maps of the thermal conductivity of nuclear materials with other property maps of interest
- Improved property measurement techniques to understand heat transfer in molten salts and microfluidics

4.2 Specific Goals to be Completed by Feb 2018

- Recruit and fund two new graduate students
- Pursue external funding from DOE NEUP, Nuclear Regulatory Commission, and NSF

4.3 Strategies for Productivity

- Submit proposal NRC Faculty Development Grant and NEUP annual FOA
- Submit to International Journal of Heat & Mass Transfer and Nuclear Technology journals
- Contact program managers in NSF and DOE and volunteer to review proposals
- Secure visiting researcher position at INL to develop collaborations and understand resources available to university researchers
- Encourage undergraduate and graduate researchers to apply for DOE Nuclear Energy University Programs scholarships and fellowships
- Have a day dedicated solely to research

4.4 Evaluation of Productivity

- Number of articles submitted and accepted
- Number of proposals submitted and accepted
- Summary report of INL activities and collaborations

5. CITIZENSHIP PROJECT PROPOSAL

5.1 Overview

Previously, nuclear research at BYU was housed in the Physics department with a focus on accelerators and radiation emission detectors. That emphasis has been lost with retirements and department chair changes, but several accelerators and scintillators remain. However, there has been a resurgent interest in nuclear energy with the establishment and flourishing of the student ANS chapter and the recent faculty development grant from the NRC awarded to Dr. Matthew Memmott in Chemical Engineering. The interdisciplinary nature of nuclear research at BYU is manifest in the local ANS student chapter (approximately 80 students from chemical engineering, mechanical engineering, and physics), which is housed in chemical engineering but has grown substantially in its 1-year lifetime. The proposed citizenship project is to establish a nuclear energy group that spans multiple departments.

5.2 Goals

- Attend, support, and announce American Nuclear Society (ANS) student chapter events
- Review journal papers (1 every other month), particularly in International Journal of Heat & Mass Transfer, Journal of Nuclear Materials, Nuclear Technology, and ANS journals
- Arrange for a tour or seminar between INL and BYU

5.3 Evaluation

- Documentation of ANS activities
- Number of reviewed articles

6. COURSE DEVELOPMENT PROJECT PROPOSAL

6.1 Overview

The course I want to focus on for course development is ME 362 – Engineering Measurements, that I will be teaching with my mentor in Winter 2018.

6.2 Course Purpose

The purpose of this class is to understand truth and how to improve measurement systems to get as close to the truth as possible.

6.3 Student Progress Assessment

- Culminating project for students to build a system to measure the drag on objects and compare to known values to quantify how close to the truth they are.
- Laboratory exercises.

6.4 Evaluation

- My mentor and I will attend each other's classes once a month to give feedback.
- Midcourse evaluations from the Center for Teaching and Learning.

6.5 Syllabus

Next page.

ME EN 362 – Engineering Measurements

Winter 2018

Course Description: Principles and application of engineering instruments and measurements, including sensors, data acquisition, signal conditioning, and uncertainty analysis.

Prerequisites: ME EN 335, STAT 201, ENGL 316, ME EN 312 (concurrent).

Class Time: ***MWF*** 1:00-1:50 PM, 240 CTB.

Instructor:

Name
Office: 435V Crabtree Building
Office Hours: Monday 1:00-2:30, Thursday 1:00-2:30 (or by appointment)
Email: Name@byu.edu **(contact me this way, not through Learning Suite)**
Phone: 801-422-6541

Grading Scale:

A	93%	C	73%
A-	90%	C-	70%
B+	87%	D+	67%
B	83%	D	63%
B-	80%	D-	60%
C+	77%	E	0%

Course Operation: **The purpose of this class is to understand truth**, and we'll apply that to engineering measurements. Every sensor you use to measure something is lying to you (some more than others) and we will develop tools and models to overcome this to the best of our abilities. Every lecture will begin with the lies we are trying to overcome.

I will be asking for a class secretary to record: **(1)** questions asked that I answer with "I don't know," **(2)** corrections I said I'll make to a slide

Grading: Course grades will be computed based the guideline percentages assigned as follows:

Homework		15%	
Quizzes	5%		
Labs and Projects		30%	
Midterm Exam	20%		
Final Exam		25%	
In-class Presentation		5%	

Homework: Homework questions are assigned every 2 weeks. Homework assignments are to be **handed in**, in the homework box outside the ME office before 4:55 PM on the due date. **No late homework submissions** will be allowed except under extreme situations (contact the TA's or the instructor **before** the deadline). Working

together in small teams can be helpful, but remember students must write out (and not copy) their own solutions individually.

Labs: There will be lab sessions covering an experiment or allowing you to work on an assigned project. These projects and labs will last between 1-4 weeks. You will work in groups of 2-3 students to complete each lab and write the required report for it. See Learning Suite for more details, including some report examples. Since these labs are essential to the course objectives, **you MUST participate fully in every lab/project to receive a passing grade**!

Because of time and space constraints involved, it will not be possible to make up missed projects or labs. If you must miss your lab section, please let me (not the TA) know at least one week ahead of time so we can work something out.

In-class Quizzes: (i-clicker) An I-clicker is required for use in this course. I-clickers may be obtained from the BYU bookstore and are used in many courses on campus. In this class, we will use them for regular in-class quizzes **where you'll get points for participation**. You can register your i-clicker for free at http://ctl-clicker.byu.edu/.

Post-class Quizzes: There will be Learning Suite quizzes following some class lectures. The purpose of this quiz is to help solidify concepts from class. Also, they are helpful for studying for exams (sometimes exam questions are taken directly from the quiz). If you do not take a quiz, you are not able to see it later, so I suggest you take every quiz. Finally, note that you can take each quiz up to 3 times, but each time will lower your highest score by 20%. So the second time you take a quiz the highest you can get is 80%, no matter what you got the first time.

Group Presentation: Each student, in a team of four, will need to give a presentation lasting between 5-7 minutes on a specific sensor, the governing physical phenomenon, and a common use of the sensor. Assignments for groups and topics will happen part way through the semester. **You MUST participate to receive a passing grade!**

Exams: There will be one midterm and a comprehensive final. You will not be allowed to make up a missed exam, unless (1) in case of an emergency, and (2) you let me know **beforehand** (even if it's just a phone or email message – but it MUST be left before the exam).

Learning Outcomes:

Measurement Concepts and Calibration

1. Students should be familiar with concepts of measurement such as accuracy, precision, bias error, random error, and static sensitivity. Students should be able to calibrate a measurement system.

Spectral Analysis

2. Students should understand the basics of spectral analysis and how to interpret the frequency content of a signal.

Time and Frequency Response

3. Students should understand how the concepts of time and frequency response apply to measurement systems.

Data Acquisition and Signal Conditioning

4. Students should gain experience with data acquisition and signal conditioning. Students should understand the sampling process, how aliasing can occur, and how it can be prevented.

Experience with Sensors

5. Through laboratory exercises and projects, students should gain hands-on experience with a variety of sensors, such as strain gages, thermocouples, pressure transducers, and optical sensors.

Uncertainty Analysis

6. Students should be able to perform a basic uncertainty analysis for a measurement system.

Documenting and Reporting Experimental Results

7. Students should gain experience in documenting experimental work. Students should learn how to write a memo report and a full formal report.

Real World Application

8. Students will apply measurement procedures to real world problems.

Schedule

ME 362 – ENGINEERING MEASUREMENTS

Course Schedule

Subject to change as needed

Homework: Due by 4:55 p.m. in the ME 362 HW box (CTB 4th floor) on the date shown in Learning Suite.

Week	*Date*	*Lecture & Topic*	*Lab/Project*
1	T	Introduction to course material & MATLAB	
	Th	Writing	
2	T	Sensor calibration, 1st-order time response	
	Th	1st-order frequency response	
3	T	Signal conditioning - Filters	Lab 1:
	Th	Signal conditioning – Op Amps	Thermocouples
4	T	Signal conditioning – Bridges	
	Th	Strain gages	
5	T	Frequency content of signals	Lab 2: Strain
	Th	Discrete Fourier transform (DFT)	Gages
6	T	3D imaging and optical sensors	
	Th	2nd-order time response	
7	T	2nd-order frequency response, Log decrement method	Lab 3: Quant.
	Th	Accelerometers	Imaging
8	T	Review	
	Th	**Midterm**	
9	T	Data Acquisition	Lab 4:
	Th	Signal conditioning & DAQs	Accelerometers
10	T	Multiple-input systems, Coupled systems	
	Th	Measurement error & statistics	
11	T	Statistics	Project
	Th	Uncertainty	
12	T	Design stage uncertainty	Project
	Th	Uncertainty analysis	
13	T	In-class presentations on sensors	Rewrite
	Th	In-class presentations on sensors	
14	T	In-class presentations on sensors	
	Th	Final review	
15	M	**Final exam (comprehensive)**	

University Policies

Honor Code
In keeping with the principles of the BYU Honor Code, students are expected to be honest in all of their academic work. Academic honesty means, most fundamentally, that any work you present as your own must in fact be your own work and not that of another. Violations of this principle may result in a failing grade in the course and additional disciplinary action by the university. Students are also expected to adhere to the Dress and Grooming Standards. Adherence demonstrates respect for yourself and others and ensures an effective learning and working environment. It is the university's expectation, and every instructor's expectation in class, that each student will abide by all Honor Code standards. Please call the Honor Code Office at 422-2847 if you have questions about those standards.

Preventing Sexual Misconduct
As required by Title IX of the Education Amendments of 1972, the university prohibits sex discrimination against any participant in its education programs or activities. Title IX also prohibits sexual harassment-including sexual violence-committed by or against students, university employees, and visitors to campus. As outlined in university policy, sexual harassment, dating violence, domestic violence, sexual assault, and stalking are considered forms of "Sexual Misconduct" prohibited by the university.

University policy requires any university employee in a teaching, managerial, or supervisory role to report incidents of sexual misconduct that come to their attention through various forms including face-to-face conversation, a written class assignment or paper, class discussion, email, text, or social media post. If you encounter Sexual Misconduct, please contact the Title IX Coordinator at t9coordinator@byu.edu or 801-422-2130 or Ethics Point at https://titleix.byu.edu/report or 1-888-238-1062 (24-hours). Additional information about Title IX and resources available to you can be found at http://titleix.byu.edu.

Student Disability
Brigham Young University is committed to providing a working and learning atmosphere that reasonably accommodates qualified persons with disabilities. If you have any disability which may impair your ability to complete this course successfully, please contact the University Accessibility Center (UAC), 2170 WSC or 422-2767. Reasonable academic accommodations are reviewed for all students who have qualified, documented disabilities. The UAC can also assess students for learning, attention, and emotional concerns. Services are coordinated with the student and instructor by the UAC. If you need assistance or if you feel you have been unlawfully discriminated against on the basis of disability, you may seek resolution through established grievance policy and procedures by contacting the Equal Employment Office at 422-5895, D-285 ASB.

Mental Health
Mental health concerns and stressful life events can affect students' academic performance and quality of life. BYU Counseling and Psychological Services (CAPS, 1500 WSC, 801-422-3035, caps.byu.edu) provides individual, couples, and group counseling, as well as stress management services. These services are confidential and are provided by the university at no cost for full-time students. For general information please visit https://caps.byu.edu; for more immediate concerns please visit http://help.byu.edu.

Devotional Attendance

Brigham Young University's devotional and forum assemblies are an important part of your BYU experience. President Cecil O. Samuelson said, "We have special and enlightening series of devotional and forum assemblies...that will complement, supplement, and enrich what will also be a very productive period in your classrooms, laboratories, and libraries. We look forward to being with you each Tuesday...and hope that you will regularly attend and bring your friends and associates with you...A large part of what constitutes the unique 'BYU experience' is found in these gatherings where the Spirit has been invited and where we have the opportunity to discuss and consider things of ultimate worth and importance that are not afforded to the academic community on almost any other campus" (from the address "The Legacy of Learning", 30 August, 2005). Your attendance at each forum and devotional is strongly encouraged.

Respectful Environment

"Sadly, from time to time, we do hear reports of those who are at best insensitive and at worst insulting in their comments to and about others... We hear derogatory and sometimes even defamatory comments about those with different political, athletic, or ethnic views or experiences. Such behavior is completely out of place at BYU, and I enlist the aid of all to monitor carefully and, if necessary, correct any such that might occur here, however inadvertent or unintentional. "I worry particularly about demeaning comments made about the career or major choices of women or men either directly or about members of the BYU community generally. We must remember that personal agency is a fundamental principle and that none of us has the right or option to criticize the lawful choices of another." President Cecil O. Samuelson, Annual University Conference, August 24, 2010 "Occasionally, we ... hear reports that our female faculty feel disrespected, especially by students, for choosing to work at BYU, even though each one has been approved by the BYU Board of Trustees. Brothers and sisters, these things ought not to be. Not here. Not at a university that shares a constitution with the School of the Prophets." Vice President John S. Tanner, Annual University Conference, August 24, 2010

Plagiarism

Intentional plagiarism is a form of intellectual theft that violates widely recognized principles of academic integrity as well as the Honor Code. Such plagiarism may subject the student to appropriate disciplinary action administered through the university Honor Code Office, in addition to academic sanctions that may be applied by an instructor. Inadvertent plagiarism, which may not be a violation of the Honor Code, is nevertheless a form of intellectual carelessness that is unacceptable in the academic community. Plagiarism of any kind is completely contrary to the established practices of higher education where all members of the university are expected to acknowledge the original intellectual work of others that is included in their own work. In some cases, plagiarism may also involve violations of copyright law. Intentional Plagiarism-Intentional plagiarism is the deliberate act of representing the words, ideas, or data of another as one's own without providing proper attribution to the author through quotation, reference, or footnote. Inadvertent Plagiarism-Inadvertent plagiarism involves the inappropriate, but non-deliberate, use of another's words, ideas, or data without proper attribution. Inadvertent plagiarism usually results from an ignorant failure to follow established rules for documenting sources or from simply not being sufficiently careful in research and writing. Although not a violation of the Honor Code, inadvertent plagiarism is a form of academic misconduct for which an instructor can impose appropriate academic sanctions. Students who are in doubt as to whether they are providing proper attribution have the responsibility to consult with their instructor and obtain guidance. Examples of plagiarism include: Direct Plagiarism-The verbatim copying of an original source without acknowledging the source. Paraphrased Plagiarism-The paraphrasing, without acknowledgement, of ideas from another that the reader might mistake for the author's own. Plagiarism Mosaic-The borrowing of words, ideas, or data from an original

source and blending this original material with one's own without acknowledging the source. Insufficient Acknowledgement-The partial or incomplete attribution of words, ideas, or data from an original source. Plagiarism may occur with respect to unpublished as well as published material. Copying another student's work and submitting it as one's own individual work without proper attribution is a serious form of plagiarism.

Academic Honesty

The first injunction of the Honor Code is the call to "be honest." Students come to the university not only to improve their minds, gain knowledge, and develop skills that will assist them in their life's work, but also to build character. "President David O. McKay taught that character is the highest aim of education" (The Aims of a BYU Education, p.6). It is the purpose of the BYU Academic Honesty Policy to assist in fulfilling that aim. BYU students should seek to be totally honest in their dealings with others. They should complete their own work and be evaluated based upon that work. They should avoid academic dishonesty and misconduct in all its forms, including but not limited to plagiarism, fabrication or falsification, cheating, and other academic misconduct.

Deliberation Guidelines

To facilitate productive and open discussions about sensitive topics about which there are differing opinions, members of the BYU community should: (1) Remember that we are each responsible for enabling a productive, respectful dialogue. (2) To enable time for everyone to speak, strive to be concise with your thoughts. (3) Respect all speakers by listening actively. (4) Treat others with the respect that you would like them to treat you with, regardless of your differences. (5) Do not interrupt others. (6) Always try to understand what is being said before you respond. (7) Ask for clarification instead of making assumptions. (8) When countering an idea, or making one initially, demonstrate that you are listening to what is being said by others. Try to validate other positions as you assert your own, which aids in dialogue, versus attack. (9) Under no circumstances should an argument continue out of the classroom when someone does not want it to. Extending these conversations beyond class can be productive, but we must agree to do so respectfully, ethically, and with attention to individuals' requests for confidentiality and discretion. (10) Remember that exposing yourself to different perspectives helps you to evaluate your own beliefs more clearly and learn new information. (11) Remember that just because you do not agree with a person's statements, it does not mean that you cannot get along with that person. (12) Speak with your professor privately if you feel that the classroom environment has become hostile, biased, or intimidating. Adapted from the Deliberation Guidelines published by The Center for Democratic Deliberation.
(http://cdd.la.psu.edu/education/The%20CDD%20Deliberation%20Guidelines.pdf/view?searchterm=deliberation%20guidelines)

Inappropriate Use of Course Materials

All course materials (e.g., outlines, handouts, syllabi, exams, quizzes, PowerPoint presentations, lectures, audio and video recordings, etc.) are proprietary. Students are prohibited from posting or selling any such course materials without the express written permission of the professor teaching this course. To do so is a violation of the Brigham Young University Honor Code.

7. GRANT PROPOSAL FOR COURSE DEVELOPMENT PROJECT

7.1 Main Course Objective:

During the previous time I taught the ME 362 course, I struggled to find a connection between the different topics in the class and making those concepts concrete. To overcome this shortcoming, I intend to construct the course around the concept that the purpose of measurements is to ascertain the truth of what is happening in an engineering system to the best degree possible. A fair amount of the course is focused on errors that can be encountered during a measurement and how to account for them through mathematical models or electronic components. I intend to demonstrate these effects and draw back the curtain so students no longer treat data acquisition systems as a black box. To do that, I am requesting electronic hardware to demonstrate these concepts in real time.

In summary, this course proposal aims to obtain supplies to:

- Demonstrate errors observed during experiments and how to overcome them
- Move measurement concepts out of the realm of theory to concrete events

7.2 Supplies

Item	**Source**	**Cost**	**Purpose**
NI myDAQ - Student	http://www.studica.com	$179.99	Read electronic signals into a computer to display measurement system behavior
myProtoBoard for NI myDAQ	http://www.studica.com	$39.99	Allows for electronic circuits to be easily constructed
Various electronic components	EE Store at BYU, Radioshack	$80.02	Electronic components to demonstrate 1st and 2nd order responses, filter, amplifiers, and various sensors.
Total		**$300.00**	