Moore, Marsha M.

From: Naufel, Brenna R.
Sent: Friday, June 08, 2012 8:02 AM
To: Thompson, James E.
Cc: Weston, Katherine Amanda; Trimble, Jessica L.
Subject: Nuclear Engineering Email

Good morning Dean Thompson,

Please see below the draft of the fax that you sent through. I couldn't read much of the very top, so I think I am missing the some info there. Please let me know your thoughts!

Sincerely, Brenna

Memorandum

Date: June 8, 2012

To: ?

CC: George Justice
Bob Tzou
??

From: Jim Thompson, Dean College of Engineering

Subject: ??

Planning discussions related to the College of Engineering Nuclear Program will continue during the summer. And, as described in the attached email previously sent to you, a meeting involving NSEI, Engineering, MURR and Campus faculty and staff who are interested and could be contributors to the program will be held in early Fall.

Also, in the attached email, I have invited your input, together with Engineering faculty input. Bob Tzou believes that most Engineering faculty will be complete by June 15th. Your input by that date would also be important and of value. Also, the invitation I made to meet with all of you is sincere. Your partnership and collaboration in the future to the Engineering Nuclear Program will be important. I again ask that we meet and I have asked Kathy Weston to work with your NSEI office to determine is such a meeting with all of the NSEI faculty and Bob Tzou and me would be possible soon after June 15th.

Again, I would value your input by June 15th and a meeting to discuss collaboration.

Jim

Brenna Naufel
Project Specialist
University of Missouri

College of Engineering-Dean's Office
W1051 Thomas & Nell Lafferre Hall
Columbia, MO 65211-2200
Phone: (573) 882-4377
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Moore, Marsha M.

From: Naufel, Brenna R.
Sent: Friday, June 08, 2012 8:16 AM
To: Thompson, James E.
Subject: FW: Nuclear Engineering Program Planning, Collaboration with NSEI
Attachments: Attachment 1-Talking Points_Current Status of Nuclear Science & Engineering.pdf; Attachment 2-May 3, 2012 Communication to Engineering Faculty.pdf; Attachment 3-Summary of May 8, 2012 Nuclear Engineering Program Meeting.pdf

Categories: Orange Category

From: Weston, Katherine Amanda **On Behalf Of** Thompson, James E.
Sent: Friday, May 18, 2012 11:38 AM
To: Ghosh, Tushar K.; Loyalka, Sudarshan K.; Prelas, Mark A.; Tompson Jr, Robert V.
Cc: Thompson, James E.; Justice, George; Tzou, Robert D.
Subject: Nuclear Engineering Program Planning, Collaboration with NSEI

Memorandum

Date: May 18, 2012

From: Jim Thompson, Dean College of Engineering

To: Nuclear Science & Engineering Institute Faculty

Cc: George Justice, Dean of MU Graduate School
Robert Tzou, Interim Associate Dean of Academic Affairs

Subject: Nuclear Engineering Program Planning, Collaboration with NSEI

I have been working with the Chancellor, the Provost, and the Graduate Dean on the Talking Points (Attachment 1), to inform our communities of the current status of the nuclear science and engineering programs at MU. Part of our efforts in continuing our strengths in nuclear engineering is to join the expertise in the College of Engineering and the Nuclear Science and Engineering Institute to form a broadly based Nuclear Engineering Program (NEP) that will not only excel in the core areas of nuclear engineering, but will also utilize the existing strengths and interests of our faculty in all departments of engineering and the faculty of NSEI. This is explained in the attached talking points.

I have asked the Engineering faculty to lead the process of adding Nuclear Engineering to the degrees available through the College of Engineering. The initial Engineering faculty involvement was a meeting held May 8, 2012, where they were exposed to the concept and asked to contribute. I have attached the communication package that was sent to the Engineering faculty at that time (Attachment 2). I have also attached a summary of the results of the May 8th meeting (Attachment 3). As you can see, I asked for Engineering faculty input with regard to focus or concentration areas, curriculum, courses, etc. As described in the talking points and in recognition of the importance of NSEI to the campus and the Nuclear Engineering Program (NEP), I am inviting you to participate in this on-going planning process described in the May 3rd memo and discussed at the May 8th meeting.

While the Engineering faculty are investigating their courses in support of the Nuclear Engineering Program, I would like to ask that you review your curriculum as well, for the purpose of integrating your strengths with ours to establish a well-rounded Nuclear Engineering Program in the College of Engineering. As described in the summary above, the deadline for your input is June 15, 2012, on the possible core and elective courses relevant to the MS and PHD degrees to be offered by the Nuclear Engineering Program in the future. Please note, this is the same deadline that was given to all Engineering faculty. I ask that you send your input to Bob Tzou, the convener of the Nuclear Engineering Program Planning Committee, who will compile your input with others in preparing for our first meeting which will likely be held the beginning of the Fall 2012 semester. Meanwhile, please do not hesitate to contact Bob should you have any questions or suggestions regarding the planning process and/or the courses that we are planning for. I am looking forward to working with you in creating the Nuclear Engineering Program that will continue and broaden service to our students, our state, and our nation.

I believe it would be of value for me and Bob to meet with all of you to personally obtain your ideas regarding the future of the Nuclear Engineering Program and NSEI and other concepts regarding Nuclear Science for the MU campus. Would you be available for a discussion along these lines?

James E. Thompson, PhD, PE
Dean and Ketcham Professor
IEEE Fellow
W1025 Thomas and Nell Lafferre Hall
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University of Missouri
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ThompsonJE@missouri.edu
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Talking Points
Current Status of Nuclear Science and Engineering at MU

The University of Missouri remains fully committed to excellence in nuclear science and engineering in service to our students, our state and our nation. MU is reconfiguring its resources to maximize their potential in the face of new demands and opportunities.

Currently productive discussions are occurring among MU's administration, The Nuclear Science & Engineering Institute (NSEI) faculty and faculty from MU's College of Engineering (CoE).

Based on these discussions, the following agreements have been reached:

1. NSEI as a unit and its programs will remain operational – current faculty will remain engaged, curriculum will be offered, staff and other support will be continued -- until all current students and those admitted in Fall 2012 have graduated.

2. All current NSEI faculty members' tenure homes will move from the Graduate School, no later than July 2014. Their current status as tenured faculty members will continue, including all rights and responsibilities of this status. The university greatly values the many contributions NSEI faculty continue to make to the university and to the nuclear engineering industry. These contributions include the recent naming of Dr. Sudarshan Loyalka as one of six reviewers who participated in an important Nuclear Regulatory Commission report.

In order to respond to new economic opportunities in the nuclear science and engineering areas, take advantage of multiple resources on campus, and achieve national accreditation of MU's nuclear engineering degree, current discussions now involve the College of Engineering (COE), which will add nuclear engineering to the graduate degrees available to students in the COE.

The College is currently preparing the curriculum, energizing the faculty, obtaining industrial input, and obtaining necessary university approvals to offer MS and PhDs in emphasis areas in nuclear engineering. As these new emphasis areas are developed, the College of Engineering honors the hard work and achievements of NSEI faculty members and will include them in the development of these academic programs. The Nuclear Engineering Program (NEP) will offer nationally accredited MS and PhD research degrees in engineering emphasis areas that support the design, construction, operation and maintenance of nuclear plants, as well as courses, curriculum and research to support other areas such as biological effects, environmental issues, construction materials, policy issues, thermal hydraulics, remote sensing and imaging analysis, and other related areas, in support of nuclear power plants and other energy sources.

The NEP will be guided and taught by faculty from the COE's seven engineering departments and NSEI faculty with particularly close coordination from the major college programs of mechanical, electrical, civil, and chemical engineering. The addition of NEP will allow

educational and research programs with MU's Research Reactor (MURR) to be strengthened and grown. Many of the CoE faculty have degrees and experience in areas relevant to nuclear engineering (4 have PhD's in nuclear engineering) and many existing courses and on-going research projects are directly relevant. The addition of nuclear engineering to the degree offerings from the CoE is enthusiastically supported by the engineering faculty and can be offered as soon as campus approval is obtained.

The College of Engineering is well positioned and committed to leading these nuclear engineering programs, which will offer faculty and students broader opportunities as well as ABET accreditation. The COE now has approximately 3,000 undergraduate students and 600 graduate students. Engineering undergraduate students are very well qualified and enter the college with average ACT scores at the 93rd national percentile. Overall college enrollment is growing at 11% per year with freshman enrollment in 2011 and 2012 up more than 20%. The college not only prides itself for excellence and innovation in education but also for conducting world-class research that produces new knowledge and MS and PhD graduates to become new researchers for the future. COE faculty research, largely sponsored by the National Science Foundation, the Department of Defense, the Department of Energy, and the National Institutes of Health, is high impact, collaborative, and interdisciplinary, and has grown from less than $10M to more than $30M in little more than 10 years. Much of this research is in areas relevant to the nuclear engineering program. The college is a major contributor to the research productivity necessary for MU's membership in the American Association of Universities (AAU) of which there are only four in the SEC.

Degree programs in the College of Engineering are ABET (Accreditation Board for Engineering and Technology, Inc.) accredited. ABET accreditation is an internationally recognized assurance that graduates have a solid educational foundation and are capable of leading the way in innovation, emerging technologies, and in anticipating the welfare and safety needs of the public.

In addition to these internal conversations, the university is engaged in talks with external entities that are interested in collaborating with our engineering faculty. An external advisory committee is being formed with members from industry, federal government, and national laboratories, to advise the college on education and research programs. Additionally, the university has expressed interest in collaborating with Ameren and Westinghouse on the Small Modular Reactor Industry Partnership Program. Warner Baxter, president and CEO of Ameren, has confirmed that they are looking forward to collaborating with MU and Missouri University of Science and Technology in this important effort to secure the state of Missouri's and our country's energy and economic future.

We believe these actions will provide new opportunities for NSEI and COE faculty and the students they serve, and we look forward to providing a strong nuclear science and engineering curriculum and degree offerings for generations to come.

Summary of May 8, 2012 Nuclear Engineering Program Meeting

1. An area program will be created utilizing the existing MU MS and PhD degrees. The areas will be defined along department lines (Electrical and Computer Engineering, Chemical Engineering, Mechanical and Aerospace Engineering, Biological Engineering, etc.) or themes, (energy, environment, materials, fission, fusion, etc.). The faculty planning group will make a recommendation regarding how to do this.
2. The MS degree will be ABET accredited to assure quality and national endorsement and standing.
3. The MS degree will consist of four or five core courses such as:
    a. Reactor Theory
    b. Thermal Hydraulics/Structural Analysis of Nuclear Systems
    c. Radiation Detection/Measurement
    d. Radiation Interaction with Materials
    e. Nuclear Materials
    f. Four electives from the "area" will be selected. These will be determined by the student with direction from the student's committee.
4. The PhD degree will require an additional 5-6 8000 level courses to be determined by the student's committee.
5. The existing Master of Engineering Degree will also be used. This degree requires 36 hours of which up to 6 hours can be a project with a report. This could be attractive to engineers who would like to pursue additional education while on the job.
6. More complete utilization of the existing undergraduate nuclear engineering minors will be encouraged.
7. A faculty planning group consisting of interested engineering faculty and convened by Interim Associate Dean Bob Tzou will develop plans for the Engineering Nuclear Engineering Program, due by June 15, 2012.
8. A corporate advisory group will be formed by Jim Thompson and Ralph Butler.

Attachment 2 – May 3, 2012 Memo to Engineering Faculty and communication package RE: Nuclear Engineering Program meeting, team building, planning – Tuesday, May 8, 2012 8:00 – 10:00 am in W1051 Lafferre Hall, Dean's Conference Room

Memorandum

Date: May 3, 2012

To: CoE Faculty with possible interest in a Nuclear Engineering Degree track in Engineering

CC: CoE Department Chairs, Deans

From: Jim Thompson, Dean College of Engineering

Re: Nuclear Engineering Program meeting, team building, planning – **Tuesday, May 8, 2012 8:00 – 10:00 am in W1051 Lafferre Hall, Dean's Conference Room**

The provost and the Graduate Dean have authorized the College of Engineering to offer PhD and MS degrees in Nuclear Engineering. The concept is to use the existing nuclear engineering degrees which have been approved, but add an "engineering track." The existing tracks, now offered by the Nuclear Science and Engineering Institute (NSEI) are power, health physics, and medical physics. The Provost and Graduate Dean believe this new track can be approved very quickly. I propose a College goal to have the College degree track "available" by Fall 2012.

I propose that this track be modeled after the MU informatics Institute (MUII), directed by CS Professor Chi-Ren Shyu, which awards PD degrees in primarily two tracks: health informatics and computational biology. This institute has about 30 faculty members who teach, supervise graduates students, and participate in the governance of the degree program. Faculty do not have tenure in the Institute but in their home departments such as Computer Science, Health Management and Informatics, Animal Science, etc.

Similar to this model, the Engineering Nuclear Engineering Program will be an interdisciplinary degree with various tracks to be determined by student interest and employability (MS primarily) and research areas which are of interest to faculty and which are fundable. Tracks could include: energy (fission, fusion, renewable), materials, or other. The Masters of Engineering Degree could also be used, certificates, and the already existing undergraduate nuclear engineering minors (now managed by ChE).

An important component of our MS degree, should be ABET accreditation.

I have asked my office to organize a meeting of interested faculty to begin the process of creating and implementing this track. The meeting will be set for Tuesday, May 8, 2012 from 8:00 – 10:00 am in W1051 Lafferre Hall, Dean's Conference Room. You have been invited because you might have some interest in a subset of the broad engineering track. I have identified nearly 40 engineering faculty with some possible interests and overlap. The engineering track could have sub areas such as: energy (generation, sustainability, policy, etc), materials, nuclear safety and security, fission, fusion, biomedical, etc.

Please come prepared to submit your ideas regarding MS and PhD degree components:

1. Graduation requirements
2. Curriculum
3. Courses Required
    a. From currently existing CoE and other MU courses (to minimize faculty time and effort during start-up). **Attachment A** is a list of possibly relevant, existing courses.
    b. We can also acquire courses from the University of Engineering Consortium. The MU College of Engineering is a member of this alliance, previously known as the Big 12 Engineering Alliance. **Attachment B** describes this alliance. This alliance concentrates on nuclear engineering and provides access to approximately 10 nuclear engineering courses/year from Texas A&M, K-State, UT Austin and other previous Big 12 Colleges of Engineering with Nuclear Engineering programs. Again, our College of Engineering is a part of this consortium.
    c. We can possibly use existing courses taught by NSEI. I have attached a list of these courses as **Attachment C.**
    d. New courses can be created over time as needed to support student and faculty needs.
4. Governance issues, PhD and MS (ME) committee, qualifiers, dissertations, thesis, other exams, etc.
5. I propose that much of the above structured similar to existing department graduate programs and the MUII.
6. How should the "area" program be administered? MUII is a good model. I will ask Chi-Ren to attend and describe his institute.

As I mentioned previously, I propose a goal of having these degree tracks available Fall 2012. The goal of the meeting is to identify the College of Engineering faculty for the program and to being the activities to create the degree tracks.

Relevant Faculty in College of Engineering – "First & Second Order"

Biomedical imaging –
Biomaterials, biosensors –
Sensors, biomedical diagrams
Biomaterials –
Hazardous waste –
Nuclear fuel cycle
Energy –
Nanotech, nuclear storage –
Renewable energy
Energy efficiency –
Waste storage, policy –
Materials source, nondestructive testing –
Renewable energy –
Biomedical imaging,
Genomics –
Plasmas, fusion –
Nuclear –
Nuclear, materials interactions –
Nuclear, fission, fusion, plasma
Nuclear batteries –
Sustainable energy systems –
Power systems –
Energy efficiency systems –
Thermal engineering –
Nuclear waste management –
Nuclear design –
Neutron diagnostics –
Therapeutic radiation
Two-phase flow
Manufacturing –

Updated May 3, 2012

Attachment A
Fall 2012 Relevant Courses Existing in Engineering

Biological Engineering

7080 - Engineering Computation
7380 - Applied Electronic Instrumentation
7480 - Physics and Chemistry of Materials
7570 - Fluorescent Imaging
7580 - Mechanical Systems Engineering
7670 - Photonics and Nanotechnologies in Optical Biosensors
8170 - Sensors and Biosensors
8180 - Numerical Methods in Engineering Research
8270 - Principles and Applications of Fluorescence
8280 - Advanced Biological Transport Processes
8380 - Modeling and Identification of Engineering Systems
8770 - Photon Migration and Optical Imaging in Turbid Media

Chemical Engineering

4220 - Hazardous Waste Management
4318 - Energy Technology and Sustainability
7226 - Engineering Research Calculations and Reporting
7270 - Design of Experiments and Statistical Quality Control for Process Engineers
7335 - Transport Phenomena
8336 - Advanced Heat and Momentum Transfer
8337 - Advanced Mass Transfer
8451 - Advanced Chemical Engineering Thermodynamics I

Civil & Environmental Engineering

7006 - Digital Computer Applications in Engineering
7260 - Environmental Public Policy
7350 - Matrix Methods of Structural Analysis
7600 - Advanced Mechanics of Materials
7610 - Sensors and Experimental Stress Analysis
7660 - Vibration Analysis
7692 - Introduction to Structural Dynamics
8208 - Finite Element Methods
8215 - Environmental Transport Phenomena
8220 - Advanced Hazardous Waste Treatment Processes
8287 - Seminar in Environmental Engineering
8311 - Nondestructive Evaluation Engineering
8312 - Advanced Structural Analysis
8314 - Numerical Methods in Engineering
8372 - Reinforced Concrete Theory and Design
8392 - Dynamics of Structures
8410 - Advanced Foundation Engineering
8610 - Materials and Measurement
8730 - Fundamentals of Fluid Mechanics
8740 - Hydrodynamics

Attachment A
Fall 2012 Relevant Courses Existing in Engineering

Computer Science
7610 - Computer Graphics I
7650 - Digital Image Processing
7730 - Building Intelligent Robots
7830 - Science and Engineering of the World Wide Web
7860 - Network Security
8130 - Computational Genomics
8190 - Computational Systems Biology
8630 - Data Visualization
8650 - Advanced Image Processing
8760 - Pattern Recognition

Electrical & Computer Engineering
7020 - Energy Systems and Resources
7170 - Control Systems Laboratory
7310 - Feedback Control Systems
7330 - Introduction to Mechatronics and Robotic Vision
7390 - Computer Process Control

Industrial & Manufacturing Systems Engineering
7110 - Engineering Statistics
7280 - Systems Simulation
7385 - Lean Six Sigma Green Belt Project
7410 - Management Information Systems Design
7420 - Web-Based Information Systems
7550 - Computer Aided Design and Manufacturing
7610 - Engineering Quality Control
7750 - Entrepreneurial Innovation Management: Advanced Enterprise Conception
8280 - Advanced Systems Simulation
8550 - Advanced CAD/CAM
8850 - Health Care Systems Design and Analysis

Mechanical & Aerospace Engineering
7220 - Materials Selection
7230 - Nanomaterials
7231 - Transport Phenomena in Materials Processing
7250 - Composite Materials
7260 - Experimental Stress Analysis
7270 - Nondestructive Evaluation of Materials
7280 - Introduction to Finite Element Methods
7310 - Intermediate Heat Transfer
7315 - Multiphase Heat Transfer
7320 - Design of Thermal Systems
7330 - Solar Energy Utilization

Attachment A
Fall 2012 Relevant Courses Existing in Engineering

7350 - Power Plant System Design
7380 - Intermediate Thermodynamics
7420 - Intermediate Fluid Mechanics
7430 - Introduction to Computational Fluid Dynamics and Heat Transfer
7600 - Advanced Mechanics of Materials
7720 - Modern Control
7740 - Classical Control
7820 - Experimental Methods in Fluid Flow and Heat Transfer
8210 - Physical Metallurgy
8220 - Fracture Mechanics
8280 - Finite Element Methods
8300 - Microscale Heat Transfer
8311 - Heat Transfer-Convection
8312 - Heat Transfer-Radiation
8320 - Continuum Mechanics
8385 - Heat Transfer-Conduction
8420 - Computational Heat Transfer and Fluid Dynamics

Updated April 18, 2012

ATTACHMENT B - UNIVERSITY ENGINEERING ALLIANCE COURSES

Nuclear Engineering

The University Engineering Alliance enables students enrolled at any of the partner institutions to take nuclear engineering courses taught by Iowa State University, Kansas State University, Texas A&M University, University of Kansas, University of Missouri-Columbia, and The University of Texas at Austin.

The nuclear engineering courses have been specially adapted to ensure the same quality of education as an on-campus course. These courses are set within the confines of a semester, and students are required to meet deadlines as outlined by the instructor. Students will interact with instructors and other students through email, online chats, discussion boards, and other methods.

- Program Details
- Course Schedule
- Faculty
- Big 12 Engineering Summit
- USNRC Commissioner Visit November 17, 2011

ATTACHMENT B - UNIVERSITY ENGINEERING ALLIANCE COURSES

Course Schedule

Nuclear Engineering: Course Schedule

Fall Offerings

- Introduction to Nuclear and Radiation Engineering Concepts (UT)
- Elements of Nuclear Engineering (K-State)
- Materials Requirements and Selection for Nuclear Engineering Applications (KU)
- Energy Systems and Resources (MU)
- Radiation Protection and Shielding (K-State)
- Nuclear Reactor Theory (K-State)
- Reactor Operations Virtual Laboratory (K-State, TAMU, UT)
- Reactor Applications Virtual Laboratory (K-State, TAMU, UT)

Spring Offerings

- Introduction to Nuclear and Radiation Engineering Concepts (UT)
- Elements of Nuclear Engineering (K-State)
- Probabilistic Risk Assessment (ISU)
- Materials Requirements and Selection for Nuclear Engineering Applications (KU)
- Nuclear Reactor Engineering (UT)
- Reactor Operations Virtual Laboratory (K-State, TAMU, UT)
- Reactor Applications Virtual Laboratory (K-State, TAMU, UT)

Summer Offerings

- Elements of Nuclear Engineering (ISU)

Course Descriptions

Introduction to Nuclear and Radiation Engineering Concepts (UT)

> This online 1-credit course is intended to introduce students at all levels and from all disciplines to the many different aspects and applications of nuclear and radiation engineering/physics. Topics covered include: history of nuclear development, basic concepts of radiation and radioactivity, radioactive waste management, global warming and the impact of nuclear power plants, industrial applications, health physics, nuclear medicine, job opportunities at power plants, graduate school, and national laboratories. (Available for undergraduate credit only.)

Elements of Nuclear Engineering (K-State in fall/spring, ISU in summer)

ATTACHMENT B - UNIVERSITY ENGINEERING ALLIANCE COURSES

This online 3-credit survey course covers the following: nuclear engineering concepts and applications, including nuclear reactions, radioactivity, radiation interaction with matter, reactor physics, risk and dose assessment, applications in medicine, industry, agriculture, and research. (Available for undergraduate credit only.)

Probabilistic Risk Assessment (ISU)

This online 3-credit course covers the following: methods for analysis of nuclear power systems; fault tree and event tree analysis methods; mathematical basics for dealing with reliability data, theory, and analysis; case studies of accidents in nuclear power systems. (Available for undergraduate credit only.)

Materials Requirements and Selection for Nuclear Engineering Applications (KU)

This online 3-credit course covers selection and use of proper materials in nuclear environments for safe and long-term economical operation, including: available materials and their properties; critical properties required in materials for nuclear applications; materials typically selected for nuclear applications by usage area; selection criteria by application area with consideration for cost, safety, and maintenance; selection trade-offs; new and alternative materials for current and new generation reactors; and using NDT and other methods to monitor ongoing materials performance, degradation, and maintenance needs. (Available for undergraduate or graduate credit.)

Energy Systems and Resources (MU)

This online 3-credit course is a general overview of energy systems, renewable and non-renewable energy sources, and advances in energy applications. (Available for undergraduate credit only.)

Radiation Protection and Shielding (K-State)

This online 3-credit course covers the basic concepts of radiation protection, doses, associated risks, and exposure limits; properties of natural and other radiation sources, and evaluation of internal and external doses; and techniques for shield design including ray, point kernel, and transport theories for both neutrons and gamma rays. (Available for undergraduate or graduate credit.)

Nuclear Reactor Engineering (UT)

This online 3-credit course reviews the physics governing nuclear reactors and the design principles for commercial nuclear power plants. The course focus is on reactor designs currently operating in the power industry. However, Generation III and Generation IV reactor designs are also discussed. (Available for undergraduate or graduate credit.)

Nuclear Reactor Theory (K-State)

This online 3-credit course is a detailed introduction to neutron diffusion theory, neutron moderation, neutron thermalization, and criticality conditions of nuclear reactors. (Available for undergraduate or graduate credit.)

Reactor Operations Virtual Laboratory (K-State, TAMU, UT)

This online 1-credit course will include a review of reactivity and criticality and an

ATTACHMENT B - UNIVERSITY ENGINEERING ALLIANCE COURSES

overview of reactor dynamics including development of the Inhour equation and temperature coefficients. The course will include reactor virtual experiments on approach to criticality, control rod calibration, and temperature coefficient of reactivity. (Available for undergraduate credit only.)

Reactor Applications Virtual Laboratory (K-State, TAMU, UT)

This online 1-credit course will cover neutron activation analysis concepts and derivation of equations; overview of radiography principles, diffraction principles; reactor virtual experiments on neutron activation analysis, neutron radiography, and neutron diffraction. (Available for undergraduate credit only.)

Nuclear Engineering - NU_ENG

Course Number	Description	Action
2201	Topics in Nuclear Engineering	View Class Sections
2303	Harnessing the Atoms in Everyday Life: Fulfill M Curie's Dream	View Class Sections
4001	Topics in Nuclear Engineering	View Class Sections
4302	Safe Handling of Radioisotopes	View Class Sections
4303	Radiation Safety	View Class Sections
4305	Survey of Nuclear Engineering	No Sections Available
4306	Advanced Engineering Math	View Class Sections
4315	Energy Systems and Resources	View Class Sections
4319	Physics and Chemistry of Materials	No Sections Available
4320	Natural Resources and Nuclear Energy	No Sections Available
4328	Introductory Radiation Biology	View Class Sections
4330	Science and Technology of Terrorism and Counter Terrorism	View Class Sections
4331	Nonproliferation Issues for Weapons of Mass Destruction	View Class Sections
4341	Nuclear Chemical Engineering	No Sections Available
4346	Introduction to Nuclear Reactor Engineering I	View Class Sections
4349	Nuclear Engineering Materials	No Sections Available
4350	Nuclear Forensic Analysis	No Sections Available
4353	Introduction to Fusion	No Sections Available
4357	Nuclear Heat Transport	No Sections Available

4365	Nuclear Power Engineering	No Sections Available
4369	Principles of Direct Energy Conversion	No Sections Available
4375	Introduction to Plasmas	No Sections Available
4379	Particulate Systems Engineering	No Sections Available
4382	Lasers and Their Applications	No Sections Available
4391	Nuclear Radiation Detection	No Sections Available
7001	Topics in Nuclear Science and Engineering	View Class Sections
7080	Medical Ethics for Medical Physics	No Sections Available
7085	Special Problems in Nuclear Science and Engineering	No Sections Available
7087	Seminar in Nuclear Science and Engineering	View Class Sections
7302	Safe Handling of Radioisotopes	View Class Sections
7303	Radiation Safety	View Class Sections
7305	Survey of Nuclear Engineering	No Sections Available
7306	Advanced Engineering Math	View Class Sections
7313	Nuclear Science for Engineering for Secondary Science Teachers	No Sections Available
7315	Energy Systems & Resources	View Class Sections
7319	Physics and Chemistry of Materials	No Sections Available
7320	Natural Resources and Nuclear Energy	No Sections Available
7328	Introductory Radiation Biology	View Class Sections
7330	Science and Technology of Terrorism and Counter Terrorism	View Class Sections
7331	Nonproliferation Issues for Weapons of Mass Destruction	View Class Sections

7335	Nuclear Safeguards Science and Technology	No Sections Available
7341	Nuclear Chemical Engineering	No Sections Available
7346	Introduction to Nuclear Reactor Engineering I	View Class Sections
7349	Nuclear Engineering Materials	No Sections Available
7350	Nuclear Forensic Analysis	No Sections Available
7353	Introduction to Fusion	No Sections Available
7357	Nuclear Heat Transport	No Sections Available
7365	Nuclear Power Engineering	No Sections Available
7369	Principles of Direct Energy Conversion	No Sections Available
7375	Introduction to Plasmas	No Sections Available
7379	Particulate Systems Engineering	View Class Sections
7382	Lasers and Their Applications	No Sections Available
7391	Nuclear Radiation Detection	No Sections Available
7422	Radiation Shielding	No Sections Available
7470	Fast Reactor Analysis	No Sections Available
8001	Advanced Topics in Nuclear Science and Engineering	View Class Sections
8085	Problems in Nuclear Science and Engineering	View Class Sections
8090	Research in Nuclear Science and Engineering	View Class Sections
8402	Nuclear Fuel Cycle	View Class Sections
8403	Applied Topics in Medical Physics & Health Physics	View Class Sections
8404	Nuclear Reactor Laboratory I	No Sections Available

8405	Nuclear Reactor Laboratory II	No Sections Available
8406	Clinical & Research Application in Medical and Health Physics	No Sections Available
8408	State Variable Methods in Automatic Control	No Sections Available
8409	Interaction of Radiation with Matter	View Class Sections
8411	Nuclear Reactor Theory I	No Sections Available
8412	Nuclear Reactor Theory II	No Sections Available
8421	Advanced Radiation Detection Electronics	No Sections Available
8422	Radiation Shielding	No Sections Available
8429	Radiation Dosimetry	No Sections Available
8432	Nuclear Thermal Hydraulics and Safety	View Class Sections
8434	Fracture Mechanics I	No Sections Available
8435	Physics of Diagnostic Radiology	No Sections Available
8439	Clinical Physics in Radiotherapy	View Class Sections
8444	Fracture and Fatigue Prevention in Engineering Practice	No Sections Available
8450	Superconductivity and Its Applications	View Class Sections
8451	Computational Methods of Reactor Analysis	No Sections Available
8452	Ultrasound and Magnetic Resonance Imaging	No Sections Available
8453	Advanced Fusion Theory	View Class Sections
8454	Clinical Physics of Nuclear Medicine	No Sections Available
8455	Growth, Characterization & Appl. of Diamond & Related Materials	No Sections Available
8461	Neutron Transport Theory	No Sections Available

8470	Fast Reactor Analysis	No Sections Available
8471	Radiation Protection	View Class Sections
9090	Research in Nuclear Science and Engineering	View Class Sections

Moore, Marsha M.

From: Naufel, Brenna R.
Sent: Friday, June 08, 2012 8:35 AM
To: Tzou, Robert D.
Cc: Weston, Katherine Amanda; Trimble, Jessica L.; Thompson, James E.
Subject: FW: Nuclear Engineering Email
Attachments: Nuclear Engineering Program Planning, Collaboration with NSEI

Good morning Bob,

Dean Thompson would like for you to review the below memo to be sent to the NSEI faculty. Please let us know if you have any changes, concerns or questions. Dean Thompson will wait sending this until he receives your input. Thank you!

Brenna

Memorandum

Date: June 8, 2012

To: Nuclear Science & Engineering Institute Faculty

CC: George Justice, Dean of MU Graduate School
Robert Tzou, Interim Associate Dean of Academic Programs

From: Jim Thompson, Dean College of Engineering

Subject: Nuclear Engineering Program Planning, Collaboration with NSEI

Planning discussions related to the College of Engineering Nuclear Program will continue during the summer. And, as described in the attached email previously sent to you, a meeting involving Engineering, NSEI, MURR and Campus faculty and staff who are interested and could be contributors to the program will be held in early Fall.

Also, in the attached email, I have invited your input, together with Engineering faculty input. Bob Tzou believes that most Engineering faculty input will be received by June 15th. Your input by that date would also be important and of value. Also, the invitation I made to meet with all of you is sincere. Your partnership and collaboration are and will be important. I again ask that we meet and I have asked Kathy Weston to work with your NSEI office to determine if such a meeting with Bob Tzou and me would be possible soon after June 15th.

Again, I would value your input by June 15th and a future meeting to discuss collaboration.

Jim

Brenna Naufel
Project Specialist

University of Missouri
College of Engineering-Dean's Office
W1051 Thomas & Nell Lafferre Hall
Columbia, MO 65211-2200
Phone: (573) 882-4377
Fax: (573) 882-2490
Email: naufelbr@missouri.edu

Moore, Marsha M.

From:	Weston, Katherine Amanda on behalf of Thompson, James E.
Sent:	Friday, May 18, 2012 11:38 AM
To:	Ghosh, Tushar K.; Loyalka, Sudarshan K.; Prelas, Mark A.; Tompson Jr, Robert V.
Cc:	Thompson, James E.; Justice, George; Tzou, Robert D.
Subject:	Nuclear Engineering Program Planning, Collaboration with NSEI
Attachments:	Attachment 1-Talking Points_Current Status of Nuclear Science & Engineering.pdf; Attachment 2-May 3, 2012 Communication to Engineering Faculty.pdf; Attachment 3-Summary of May 8, 2012 Nuclear Engineering Program Meeting.pdf
Follow Up Flag:	Follow up
Flag Status:	Flagged

Memorandum

Date: May 18, 2012

From: Jim Thompson, Dean College of Engineering

To: Nuclear Science & Engineering Institute Faculty

Cc: George Justice, Dean of MU Graduate School
Robert Tzou, Interim Associate Dean of Academic Affairs

Subject: Nuclear Engineering Program Planning, Collaboration with NSEI

I have been working with the Chancellor, the Provost, and the Graduate Dean on the Talking Points (Attachment 1), to inform our communities of the current status of the nuclear science and engineering programs at MU. Part of our efforts in continuing our strengths in nuclear engineering is to join the expertise in the College of Engineering and the Nuclear Science and Engineering Institute to form a broadly based Nuclear Engineering Program (NEP) that will not only excel in the core areas of nuclear engineering, but will also utilize the existing strengths and interests of our faculty in all departments of engineering and the faculty of NSEI. This is explained in the attached talking points.

I have asked the Engineering faculty to lead the process of adding Nuclear Engineering to the degrees available through the College of Engineering. The initial Engineering faculty involvement was a meeting held May 8, 2012, where they were exposed to the concept and asked to contribute. I have attached the communication package that was sent to the Engineering faculty at that time (Attachment 2). I have also attached a summary of the results of the May 8th meeting (Attachment 3). As you can see, I asked for Engineering faculty input with regard to focus or concentration areas, curriculum, courses, etc. As described in the talking points and in recognition of the importance of NSEI to the campus and the Nuclear Engineering Program (NEP), I am inviting you to participate in this on-going planning process described in the May 3rd memo and discussed at the May 8th meeting.

While the Engineering faculty are investigating their courses in support of the Nuclear Engineering Program, I would like to ask that you review your curriculum as well, for the purpose of integrating your strengths with ours to establish a well-rounded Nuclear Engineering Program in the College of Engineering. As described in

the summary above, the deadline for your input is June 15, 2012, on the possible core and elective courses relevant to the MS and PHD degrees to be offered by the Nuclear Engineering Program in the future. Please note, this is the same deadline that was given to all Engineering faculty. I ask that you send your input to Bob Tzou, the convener of the Nuclear Engineering Program Planning Committee, who will compile your input with others in preparing for our first meeting which will likely be held the beginning of the Fall 2012 semester. Meanwhile, please do not hesitate to contact Bob should you have any questions or suggestions regarding the planning process and/or the courses that we are planning for. I am looking forward to working with you in creating the Nuclear Engineering Program that will continue and broaden service to our students, our state, and our nation.

I believe it would be of value for me and Bob to meet with all of you to personally obtain your ideas regarding the future of the Nuclear Engineering Program and NSEI and other concepts regarding Nuclear Science for the MU campus. Would you be available for a discussion along these lines?

James E. Thompson, PhD, PE
Dean and Ketcham Professor
IEEE Fellow
W1025 Thomas and Nell Lafferre Hall
College of Engineering
University of Missouri
Columbia, MO 65211
(573) 882-4378 Phone
(573) 882-2490 FAX
ThompsonJE@missouri.edu
http://engineering.missouri.edu

Moore, Marsha M.

From: Naufel, Brenna R.
Sent: Friday, June 08, 2012 8:52 AM
To: Thompson, James E.
Subject: FW: Nuclear Engineering Email

FYI

From: Tzou, Robert D.
Sent: Friday, June 08, 2012 8:39 AM
To: Naufel, Brenna R.
Subject: RE: Nuclear Engineering Email

Excellent! I have no further comment. Bob

From: Naufel, Brenna R.
Sent: Friday, June 08, 2012 8:35 AM
To: Tzou, Robert D.
Cc: Weston, Katherine Amanda; Trimble, Jessica L.; Thompson, James E.
Subject: FW: Nuclear Engineering Email

Good morning Bob,

Dean Thompson would like for you to review the below memo to be sent to the NSEI faculty. Please let us know if you have any changes, concerns or questions. Dean Thompson will wait sending this until he receives your input. Thank you!

Brenna

Memorandum

Date: June 8, 2012

To: Nuclear Science & Engineering Institute Faculty

CC: George Justice, Dean of MU Graduate School
Robert Tzou, Interim Associate Dean of Academic Programs

From: Jim Thompson, Dean College of Engineering

Subject: Nuclear Engineering Program Planning, Collaboration with NSEI

Planning discussions related to the College of Engineering Nuclear Program will continue during the summer. And, as described in the attached email previously sent to you, a meeting involving Engineering, NSEI, MURR and Campus faculty and staff who are interested and could be contributors to the program will be held in early Fall.

Also, in the attached email, I have invited your input, together with Engineering faculty input. Bob Tzou believes that most Engineering faculty input will be received by June 15th. Your input by that date would also be important and of value. Also, the invitation I made to meet with all of you is sincere. Your partnership and collaboration are and will be important. I again ask that we meet and I have asked Kathy Weston to work with your NSEI office to determine if such a meeting with Bob Tzou and me would be possible soon after June 15th.

Again, I would value your input by June 15th and a future meeting to discuss collaboration.

Jim

Brenna Naufel
Project Specialist
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Columbia, MO 65211-2200
Phone: (573) 882-4377
Fax: (573) 882-2490
Email: naufelbr@missouri.edu

Moore, Marsha M.

From: Naufel, Brenna R.
Sent: Friday, June 08, 2012 10:35 AM
To: Tzou, Robert D.
Cc: Thompson, James E.; Weston, Katherine Amanda; Trimble, Jessica L.
Subject: FW: NSEI Response to Dean Thompson
Attachments: NSEIResponse to DeanThompson..pdf

Categories: Orange Category

Bob,

FYI.

Brenna Naufel
Project Specialist
University of Missouri
College of Engineering-Dean's Office
W1051 Thomas & Nell Lafferre Hall
Columbia, MO 65211-2200
Phone: (573) 882-4377
Fax: (573) 882-2490
Email: naufelbr@missouri.edu

From: Loyalka, Sudarshan K.
Sent: Friday, June 08, 2012 10:28 AM
To: Thompson, James E.
Cc: Ghosh, Tushar K.; Prelas, Mark A.; Tompson Jr, Robert V.
Subject: NSEI Response to Dean Thompson

Dear Jim:

Thanks for the reminder this morning. We have given considerable thought to the subject since your memo of May 18, and our response is attached. We look forward to hearing from you-

Sudarshan

Moore, Marsha M.

From: Tzou, Robert D.
Sent: Friday, June 08, 2012 11:42 AM
To: Thompson, James E.
Subject: NSEI Responses

Jim,

I have reviewed the NSEI's response. There is nothing unexpected and we could discuss it next week.

In summary, they don't want to enter any substantive discussions or planning processes until all concerns raised by MU-AAUP President to the Board of Curators are addressed by the campus administration. They believe all concerns raised are still under discussion and no action is appropriate until all these concerns are fully addressed by the campus administration.

They also questioned on

(1) the research expenditure for over $30M/year we used, as compared to what they found from OSPA for $19.6M/year. I remember our figure results from Duncan's Office, which may include all the shared credit while the figure they found doesn't.
(2) the ABET accreditation. They believe that ABET accreditation has pluses and minuses, and the need for accreditation in regular Nuclear Engineering degree does not seem necessary. My take on this is that all departments in engineering are ABET accredited, that you as the Dean of Engineering want all your departments be ABET accredited, and that the external review repeatedly emphasize the need for a ABER accredited Nuclear Engineering program on the MU campus.
(3) the currency of the engineering faculty's knowledge (who have shown interest in Nuclear Engineering Program) in the field of Nuclear Engineering. Before they could seriously consider engaging with another group of faculty in a discussion, they need to know these faculty's professional standing in Nuclear Engineering in terms of their competitively funded research grants, publications, and student dissertation/topics advised.

I am looking forward to discussing with you further next week.

Bob

Moore, Marsha M.

From: Justice, George
Sent: Saturday, June 09, 2012 4:59 PM
To: Dean, Kenneth D.
Subject: Re: NSEI Meetig on Wednesday

It's not even on MU calendar. I have it for Wednesday. We do need to talk about this. We need to get the graduate catalog done and this is relevant information for that. George

On Jun 9, 2012, at 4:46 PM, "Dean, Kenneth D." <DeanK@missouri.edu> wrote:

> George—this why I asked about Monday....
>
> ---
>
> **From:** Malinee, Kirsten
> **Sent:** Friday, June 08, 2012 3:21 PM
> **To:** Dean, Kenneth D.
> **Subject:** NSEI Meetig on Wednesday
> **Importance:** High
>
> Ken,
>
> Can you and George meet re: NSEI admits without Brian on Monday morning? Redacted - Non Responsive
> Redacted - Non Responsive
>
> Kirsten
>
> Kirsten Olson Malinee
> Executive Staff Assistant III
> & Office Manager
> Office of the Provost
> University of Missouri
> 114 Jesse Hall
> T 573-884-1273
> F 573-882-0080
> E malineek@missouri.edu

Moore, Marsha M.

From: Kovaleski, Scott
Sent: Monday, June 11, 2012 11:32 AM
To: Tzou, Robert D.
Cc: Gahl, John M.; Thompson, James E.
Subject: Re: NEP Core and Emphasis Areas

Bob

This looks fine to me.

S.

Dr. Scott Kovaleski

Associate Professor
Electrical and Computer Engineering
University of Missouri
349 Engineering Building West
Columbia, MO 65211

Ph: 573-882-8377
Fx: 573-882-0397

kovaleskis@missouri.edu

highvoltage.missouri.edu

On Jun 11, 2012, at 9:32 AM, Tzou, Robert D. wrote:

Scott and John,

Since we are expected to create our own courses with new course numbers to distinguish our nuclear degrees with those by NSEI, following are compiled from the courses (both Core and Electives) we discussed. They are now assembled in terms of (1) Material, (2) Environment, and (3) Thermo-Hydraulic Emphasis areas. With 5 core courses (15 credit hours) that must be taken for all students, we need at least 3 electives (9 credit hours) to constitute an area of emphasis. The rest of the 6 credit hours are for MS thesis. Also, from the list below, we can identify 5 additional courses on the 8000-level for the PhD program.

John and I discussed last week, and agreed that materials and environment may be viable emphasis areas in terms of the number of courses available from our interested faculty. Thermo-hydraulics is added to address the concern in external reviews. We are waiting for Scott's suggestion/endorsement to finalize our proposed curriculum due to the Dean this weekend. John propose "Nuclear Physics" as an area of emphasis, but we need 3 courses in this area to support such an emphasis area. For the time being, I placed Scott's course on Plasmas in Material Emphasis.

Bob

**********Nuclear Engineering Core Courses and Emphasis Areas in (1) Material, (2) Environment, and (3) Thermo-Hydraulic Emphasis areas**********

(I) Core Courses (for all emphasis areas):

NE 4000/7000 Introduction to Nuclear Physics
NE 4000/7000 Nuclear Reactor Engineering (Sabiha, or UEA: Nuclear Reactor Engineering; Nuclear Reactor Theory)
CHEM 4600/8600 Radiation Detection and Measurement (Robertson)
NE 4000/7000 Thermal Management of Nuclear Power Plant (Ma)
NE 4000/7000 Nuclear Materials (Pinhero)

(II) Material Emphasis

ECE 4550/7550 Introduction to Plasmas (Kovaleski)
NE 4000/7000/8000 Nuclear Fuel Cycles (Islam)
NE 4000/7000/8000 Reactor Shielding and Safety (Islam, or UEA: Radiation Protection and Shielding)
MAE 8290 Fracture and Fatigue Prevention (Khanna)
NE 4000/7000 Diffraction Methods in Materials Sciences (Winholtz)
NE 4000/7000 Basic Biology and Radiochemistry for Nuclear Engineers (Raghu Radiology)

(III) Environmental Emphasis

NE 4000/7000/8000 Nuclear Waste Management (Islam)
CEE 4220/7220/ChE 7220 Hazardous Waste Management (CEE)
CEE 4250/7250 Environmental Regulation and Compliance (Trauth)
NE 8000 Regulation of Radioactive Materials (Trauth)

(IV) Thermo-hydraulic Emphasis

MAE 4320/7320 Design of Thermal Systems
MAE 8311 Heat Transfer – Convection
MAE 8315 Multiphase heat Transfer
MAE 8420 Computational Heat Transfer and Fluid Dynamics

Moore, Marsha M.

From: Yousry Y. Azmy <yyazmy@ncsu.edu>
Sent: Tuesday, June 12, 2012 3:19 PM
To: 'John Bernard'; gilligan@ncsu.edu; corradini@engr.wisc.edu; fentiman@purdue.edu; aldemir.1@osu.edu
Cc: rongilg@umich.edu; Leo_Bobek@uml.edu; Butler, Ralph
Subject: RE: FW: NEUP item for NEDHO Agenda

Dear John,
When this item is brought up it will undergo discussion at which time you can make your points below.
Yousry

From: John Bernard [mailto:bernardj@mit.edu]
Sent: Tuesday, June 12, 2012 12:57 PM
To: gilligan@ncsu.edu; corradini@engr.wisc.edu; fentiman@purdue.edu; yyazmy@ncsu.edu; aldemir.1@osu.edu
Cc: rongilg@umich.edu; Leo_Bobek@uml.edu; butlerRa@missouri.edu
Subject: RE: FW: NEUP item for NEDHO Agenda

Dear All,

I'm the designated TRTR representative to NEDHO for the upcoming ANS meeting in Chicago. If the item below is on the agenda, I would appreciate the opportunity to speak to the issue. (I will be brief because I know how tight NEDHO agendas are.) My comments would be that:

- The number of university reactors is actually stable - we lost one this past year but that decision was made long ago.

- Funding needs for the university reactors remain acute. There were many excellent upgrade and infrastructure proposals this past year that DOE was not able to fund.

I think that a better approach would be for us to continue what we have done (and done quite well) in the past which is to work as a group to grow the budget for things nuclear. I realize that growth is unlikely for the upcoming year but over the next few years, it might be possible. To achieve this, NEDHO and TRTR need to work together and to align with NEI in their efforts to interact with Congress. For example, NEI regularly hosts mtgs in DC which can be used for visits to the Hill. The most recent one (last winter) was not well attended by universities. Its drudgery to do this but we have to do it or we will not have the funding that our students need.

Thank you for your consideration.

John Bernard

From: John Gilligan [mailto:gilligan@ncsu.edu]

Sent: Thursday, May 24, 2012 11:46 AM
To: corradini@engr.wisc.edu; J Wesley Hines; Ken Nash; Butler, Ralph; fentiman@purdue.edu; yyazmy@ncsu.edu; Tunc Aldemir
Subject: Fwd: FW: NEUP item for NEDHO Agenda

Something to consider. Thoughts? Although if we increase one category of funding it will result in a descrease in another (or reduced award numbers) at this point. Not to mention total budget decreases for next year. John

---------- Forwarded message ----------
From: **Yousry Y. Azmy** <yyazmy@ncsu.edu>
Date: Thu, May 24, 2012 at 12:38 PM
Subject: FW: NEUP item for NEDHO Agenda
To: John Gilligan <gilligan@ncsu.edu>
Hi John,
You may already know about this. I will place it on the NEDHO agenda, so I'd like your thoughts so I'll be prepared for the discussion.
Yousry

From: Gilgenbach, Ronald [mailto:rongilg@umich.edu]
Sent: Friday, May 18, 2012 11:20 AM
To: Yousry Y. Azmy
Cc: Gilgenbach, Ronald; Tunc Aldemir
Subject: NEUP item for NEDHO Agenda

Dear Yousry and Tunc,

Nuclear engineering faculty and national lab scientists would like to see a change in the NEUP Infrastructure program to allow for larger purchases in the "general equipment" category. We request that NEDHO consider the attached proposal and justification at its June meeting to discuss support of this idea by NE departments.

We are in the process of getting support letters from the following organizations: ORNL, LANL, LLNL, INL, ATR-NSUF, ANL, PNNL, and NE-7. The plan would be to send the proposal to John Gilligan accompanied by these letters of support. Clearly, it would be a stronger case if we had the backing of NEDHO members to include in the folder of support letters.

I appreciate your inclusion of this topic as an agenda item at our next meeting and look forward to seeing you in Chicago.

sincerely,

Ron
Ronald M. Gilgenbach
Chair and Chihiro Kikuchi Collegiate Professor
Nuclear Engineering and Radiological Sciences Dept.
University of Michigan
2355 Bonisteel Blvd., Room 1911
Ann Arbor, MI 48109-2104

Office Phone: 734-763-1261
FAX: 734-763-4540
e-mail: rongilg@umich.edu
http://www-ners.engin.umich.edu/

--
John Gilligan, PhD
Professor of Nuclear Engineering
North Carolina State University
Raleigh, NC 27695
919/513-7144
and
Director of the NEUP Integration Office
for the US Department of Energy
Idaho Falls, ID 83415
www.neup.gov

Moore, Marsha M.

From: Wampler, Susan
Sent: Tuesday, June 12, 2012 4:16 PM
To: Thompson, James E.; Tzou, Robert D.; Kiger, Sam A.
Cc: Weston, Katherine Amanda; Naufel, Brenna R.
Subject: Yesterday's Columbia Tribune article re: NSEI response to Thompson proposal

Assume you all have seen this article, or at least have already received Loyalka's memo (referenced in the article).

http://www.iterasi.net/openviewer.aspx?sqrlitid=rxmorrcdu0ymnn2h4vemkw

Moore, Marsha M.

From: Justice, George
Sent: Wednesday, June 13, 2012 10:38 AM
To: Dean, Kenneth D.
Subject: Fwd: Next meeting of AAUP-MU

FYI
--
George Justice
Dean of the Graduate School
Vice Provost for Advanced Studies
210 Jesse Hall
University of Missouri
Columbia, MO 65211
573-884-1402
JusticeG@missouri.edu

Begin forwarded message:

From: Stephen Montgomery-Smith <stephen@MISSOURI.EDU>
Subject: Next meeting of AAUP-MU
Date: June 13, 2012 10:12:43 AM CDT
To: <MU-AAUP_ANNOUNCEMENTS@PO.MISSOURI.EDU>
Reply-To: Stephen Montgomery-Smith <stephen@MISSOURI.EDU>

The next meeting of the MU Chapter of AAUP will be Saturday June 23th 10am-12noon. The location will be announced.

Possible Agenda Items:

1. Items to be placed on agenda for July 24th meeting with President Wolfe. (On July 24th, three of four of us will meet with President Wolfe. His secretary has asked us for an agenda for the meeting.)

2. Closure of the University Press.

3. Updates on NSEI issues, and ECE/COE issues.

Stephen

Moore, Marsha M.

From: AAUP-MU Announcements <MU-AAUP_ANNOUNCEMENTS@PO.MISSOURI.EDU> on behalf of Montgomery-Smith, Stephen
Sent: Wednesday, June 13, 2012 1:05 PM
To: MU-AAUP_ANNOUNCEMENTS@PO.MISSOURI.EDU
Subject: Re: Next meeting of AAUP-MU

The location is Memorial Union S304.

On 06/13/2012 10:12 AM, Stephen Montgomery-Smith wrote:
> The next meeting of the MU Chapter of AAUP will be Saturday June 23th
> 10am-12noon. The location will be announced.
>
> Possible Agenda Items:
>
> 1. Items to be placed on agenda for July 24th meeting with President
> Wolfe. (On July 24th, three of four of us will meet with President
> Wolfe. His secretary has asked us for an agenda for the meeting.)
>
> 2. Closure of the University Press.
>
> 3. Updates on NSEI issues, and ECE/COE issues.
>
> Stephen
>
>

Moore, Marsha M.

From: Weston, Katherine Amanda
Sent: Wednesday, June 13, 2012 1:27 PM
To: Thompson, James E.
Cc: Naufel, Brenna R.; Trimble, Jessica L.; Weston, Katherine Amanda
Subject: DRAFT - Email to Pinhero RE: Equipment
Attachments: RE: Tensile testing system; Re: High temperature Instron Load Frame from AmesLab - PART 1 (pics of unit)

Dean Thompson – below is your draft email to Patrick. You mentioned two emails you sent him, however, the only emails we could find were 1) email from you to Baolin on the Tensile testing system and 2) the correspondence w/ Patrick and Dave on the equipment at MURR.

Patrick,

In preparation for our meeting next Tuesday, which is primarily to discuss Nuclear Engineering, I would also like to discuss the two pieces of equipment that you intend to acquire. It is my understanding that you have a tensile testing system and a high temperature instron load frame that would be available to you from the Ames Lab. I have at least one idea for where this could go. You had also sent me and Dave Robertson a request for space for the HT instron load frame and I may also have ideas of a space for this.

Let's discuss these two machines and their current status when we meet Tuesday.

Thanks,
Jim

James E. Thompson, PhD, PE
Dean and Ketcham Professor
IEEE Fellow
W1025 Thomas and Nell Lafferre Hall
College of Engineering
University of Missouri
Columbia, MO 65211
(573) 882-4378 Phone
(573) 882-2490 FAX
ThompsonJE@missouri.edu
http://engineering.missouri.edu

Moore, Marsha M.

From: Logan, William
Sent: Wednesday, June 13, 2012 2:59 PM
To: Justice, George
Subject: RE: Graduate Catalog

In response to your question about my PhD-granting institution, I graduated in 1969 from the University of Missouri Columbia, Physics Department.

I would be glad to visit with you about the medical physics program sometime soon. We might start at least with a phone conversation if that works for you. I am fairly busy this week, but early next week would likely work. If you let me know by e-mail 2-3 times on Monday or Tuesday that would be good for you, I will let you know which one fits for me, and then call you at that time. If those days are not good, then let me know about some later times.

I look forward to talking with you. Jim Liu was one of my students in an earlier version of the medical physics program. I think he has done very well.

Bill Logan

From: Justice, George
Sent: Wednesday, June 13, 2012 11:06 AM
To: Logan, William
Subject: Graduate Catalog

Dear Dr. Logan,

I'm working on the Graduate Catalog for next year (one of my responsibilities as graduate dean). In the entry under Nuclear Engineering (you're listed as an "affiliated faculty member") we don't have your PhD-granting institution, which is something we generally include with a faculty listing. Could you provide the name of the university at which you earned your PhD?

Also, I would appreciate talking about our medical physics program some time, if you had the opportunity to have a brief chat. Dr. James Liu suggested I bend your ear about this issue.

Best wishes,
George Justice
--
George Justice
Dean of the Graduate School
Vice Provost for Advanced Studies
210 Jesse Hall
University of Missouri
Columbia, MO 65211
573-884-1402
JusticeG@missouri.edu

Moore, Marsha M.

From: Butler, Ralph
Sent: Wednesday, June 13, 2012 4:24 PM
To: Attebery, Jeffrey R.
Subject: Re: Two fiscal items for your awareness.

Good job. Ralph

Sent from my iPhone

On Jun 13, 2012, at 3:55 PM, "Attebery, Jeffrey R." <AtteberyJ@missouri.edu> wrote:

Ralph,

1. REDACTED

   REDACTED - Non Responsive

2. I met with Barb Breen last week to review the NSEI NEUP grant. I recall you asking me to schedule a meeting with the Office of Research, however, I thought it would be best for me to inquire one-on-one with Barb first. Barb and I examined all of the financial details. She completely understands and agrees that the funding for this project needs further review before proceeding any further. With her on our side, we are ready to take the next step. I'd like to get with you to discuss what that should be.

Jeff

Moore, Marsha M.

From: Attebery, Jeffrey R.
Sent: Wednesday, June 13, 2012 7:48 PM
To: Butler, Ralph
Subject: Re: Two fiscal items for your awareness.

That is good news. I will be sure to mention that to Rooney tomorrow.

Sent from my iPhone

On Jun 13, 2012, at 6:54 PM, "Butler, Ralph" <ButlerRa@missouri.edu> wrote:

> One bit of good news, we had a ton of interest in Cu-64. Also once we get our I-131 up and running we may be able to I-123 from the cyclotron and process in our I-131 cells.
> Ralph
>
> Sent from my iPhone
>
> On Jun 13, 2012, at 3:55 PM, "Attebery, Jeffrey R." <AtteberyJ@missouri.edu> wrote:
>
> Ralph,

1. REDACTED
   REDACTED - Non Responsive

2. I met with Barb Breen last week to review the NSEI NEUP grant. I recall you asking me to schedule a meeting with the Office of Research, however, I thought it would be best for me to inquire one-on-one with Barb first. Barb and I examined all of the financial details. She completely understands and agrees that the funding for this project needs further review before proceeding any further. With her on our side, we are ready to take the next step. I'd like to get with you to discuss what that should be.

Jeff

Moore, Marsha M.

From: Tzou, Robert D.
Sent: Friday, June 15, 2012 9:19 AM
To: Gahl, John M.; Kovaleski, Scott; Islam, Naz
Cc: Thompson, James E.
Subject: Proposed NEP Curriculum
Attachments: NEP NUCLEAR ENGINEERING PROGRAM in College of Engineering.docx

Dear John, Scott, and Naz,

Attached is our draft for the curriculum (Core and Electives) and emphasis areas (General, Materials, Environment, and Thermo-Hydraulics) that will be presented to the Dean Monday next week. The emphasis area in General results from the discussion I had with John yesterday. Please review and feel free to make additional suggestions.

I believe the MS program has become well defined. For the PhD program, we may need to identify one to two 8000-level courses in each emphasis area, either by creating new (like the ones Naz proposed) or tailoring the existing 8000-level courses in the corresponding departments in Engineering.

Bob

NUCLEAR ENGINEERING PROGRAM of MS and PhD

In

College of Engineering

Nuclear engineering program (NEP) in the College of Engineering has three program emphasis areas: Genral, Materials, Environmental, and Thermo-Hydraulics. There are five core courses that are required by all emphasis areas, which give 15 credit hours. Two to three courses (6-9 credit hours, contingent upon the recommendation of the program study committees) will be chosen from the technical electives in each emphasis area. The rest of 6-9 credit hours are required for the Master Degree in Nuclear Engineering. The PhD degree in Nuclear Engineering will require additional 18 credit hours on the 8000-level.

Core Courses (required for all emphasis areas):

NE 4000/7000 Introduction to Nuclear Physics

NE 4000/7000 Nuclear Reactor Engineering/Reactor Theory (Sabiha, or UEA: Nuclear Reactor Engineering; Nuclear Reactor Theory)

CHEM 4600/8600 Radiation Detection and Measurement (Robertson)

NE 4000/7000 Nuclear Systems/Thermal Management of Nuclear Power Plant (Ma)

NE 4000/7000 Materials in Extreme Environments/Nuclear Materials (Pinhero)

(I) General

A combination of 2-3 electives (6-9 credit hours) taken from Materials Emphasis, Environmental Emphasis, and Thermo-hydraulic Emphasis.

(II) Material Emphasis

ECE 4550/7550 Introduction to Plasmas (Kovaleski)

NE 4000/7000/8000 Nuclear Fuel Cycles (Islam)

NE 4000/7000/8000 Reactor Shielding and Safety (Islam, or UEA: Radiation Protection and Shielding)

MAE 8290 Fracture and Fatigue Prevention (Khanna)

NE 4000/7000 Diffraction Methods in Materials Sciences (Winholtz)

NE 4000/7000 Basic Biology and Radiochemistry for Nuclear Engineers (Raghu Radiology)

(III) Environmental Emphasis

NE 4000/7000/8000 Nuclear Waste Management (Islam)

CEE 4220/7220/ChE 7220 Hazardous Waste Management (CEE)

CEE 4250/7250 Environmental Regulation and Compliance (Trauth)

NE 8000 Regulation of Radioactive Materials (Trauth)

(IV) Thermo-hydraulic Emphasis

MAE 4320/7320 Design of Thermal Systems (Solbrekken)

MAE 8311 Heat Transfer – Convection (Yuwen Zhang)

MAE 8315 Multiphase heat Transfer (Yuwen Zhang)

MAE 8420 Computational Heat Transfer and Fluid Dynamics (Solbrekken)

Moore, Marsha M.

From: Kovaleski, Scott
Sent: Friday, June 15, 2012 10:13 AM
To: Tzou, Robert D.
Cc: Gahl, John M.; Islam, Naz; Thompson, James E.
Subject: Re: Proposed NEP Curriculum

Bob

This looks like an excellent program to me.

Regards,

S.

Dr. Scott Kovaleski

Associate Professor
Electrical and Computer Engineering
University of Missouri
349 Engineering Building West
Columbia, MO 65211

Ph: 573-882-8377
Fx: 573-882-0397

kovaleskis@missouri.edu

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On Jun 15, 2012, at 9:19 AM, Tzou, Robert D. wrote:

Dear John, Scott, and Naz,

Attached is our draft for the curriculum (Core and Electives) and emphasis areas (General, Materials, Environment, and Thermo-Hydraulics) that will be presented to the Dean Monday next week. The emphasis area in General results from the discussion I had with John yesterday. Please review and feel free to make additional suggestions.

I believe the MS program has become well defined. For the PhD program, we may need to identify one to two 8000-level courses in each emphasis area, either by creating new (like the ones Naz proposed) or tailoring the existing 8000-level courses in the corresponding departments in Engineering.

Bob
<NEP NUCLEAR ENGINEERING PROGRAM in College of Engineering.docx>

Moore, Marsha M.

From: Islam, Naz
Sent: Friday, June 15, 2012 10:22 AM
To: Tzou, Robert D.
Cc: Gahl, John M.; Kovaleski, Scott; Thompson, James E.
Subject: Re: Proposed NEP Curriculum

On travel. Will get back as soon as possible.

Sent from my iPhone

On Jun 15, 2012, at 9:19 AM, "Tzou, Robert D." <TzouR@missouri.edu> wrote:

> Dear John, Scott, and Naz,
>
> Attached is our draft for the curriculum (Core and Electives) and emphasis areas (General, Materials, Environment, and Thermo-Hydraulics) that will be presented to the Dean Monday next week. The emphasis area in General results from the discussion I had with John yesterday. Please review and feel free to make additional suggestions.
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>
> Bob
>
> <NEP NUCLEAR ENGINEERING PROGRAM in College of Engineering.docx>