1. Approval of minutes for the meeting of December 13, 2016
2. Dean’s Report (Amr Elnashai)
3. Updates from Undergraduate Studies Committee (Chris Giebink)
   - No items to report
4. Updates from Graduate Studies Committee (Esther Gomez)
5. Updates from Engineering Technology Committee (Engr Tech Chair)
6. Updates from Faculty Senate (Doug Wolfe)
7. Other Business
Meeting Minutes
1. Approval of minutes for the meeting of November 22, 2016
   Unanimously approved.

2. Dean’s Report (Amr Elnashai)
   • Research expenditure – Almost identical to last year. It is expected to increase next year, and continuously increase in the next 5 – 10 years. Pure research expenditure was 102 million this year and 101 million last year. If contracts and internal funding are counted, the research expenditure was 149 million this year and 137 million last year.
   • VRP and rehiring request – lost 8 tenure-system faculty, 1 non tenure-system faculty and 15 staff due to VRP. A request has been submitted and the Provost verbally agreed to provide 13 faculty lines and increase the number of staff by one.
   • Current searches – currently searching for 40 faculty, the largest in engineering. ME hired 3.
   • Undergraduate program numbers – The freshman class is 2180 (UP admission only). Amr had a meeting with Vice Provost and Dean of Undergraduate Education, and the necessity to control the enrollment was agreed.
   • Research thrusts – Four thrusts are progressing. Poised to submit center proposals. Subjects are cyber-environment, advanced manufacturing, integrated infrastructure system, as well as intersection between energy, food and water.
   • UP-commonwealth campuses collaborative research – We have established the link with campuses in terms of undergraduate studies through the multi-campus REU program, which has been running very successfully (34 students the 1st year, 51 the 2nd year and will continuously increase next summer). A longer term plan is to have research collaboration, and make proposals to industries around campuses. The first step is that COE will put $50K and Vice President for Commonwealth Campuses will put $50K to fund 4 grants ($25K each). Proposals require one professor from campuses and one professor from UP. Will be a call for proposals in Spring 2017.
   • Climate study – Three-page report from our group.
   • Review of department – Four subjects. Spring 2016, meetings were held with each department between COE leadership and departmental leadership to review Personnel and Finance. Next semester the review will be Education and Research. It will help prepare for the external review of IE, ESM and Civil Engineering next fall.

3. Updates from Undergraduate Studies Committee (Chris Giebink).
   • Added:
     o ME 103 – Hybrid Electric Vehicles
     o ME 453 – Powertrain System Modeling, Simulation, and Control
   • Change
     o ME 440 – Mechanical Systems Design Project: Prerequisite change
     o ME 442 – Advanced Vehicle Design: Prerequisite change

   Unanimously approved.
4. Updates from Graduate Studies Committees (Howard Salis).
   Program Proposal:
   • Approved (pending revisions):
     o New graduate program in Additive Manufacturing and Design: offering Resident
       Master’s of Science and Online Master’s of Engineering Degrees
       Unanimously approved.
   Course Proposals:
   • Approved
     o EDSGN 562 – Design for Additive Manufacturing
     o E MCH 544 – Multiscale Modeling of Materials
     o ME 552 – Optimal Control of Energy Systems
       Unanimously approved.

5. Updates from Engineering Technology Committee
   No items to report.

6. Updates from Faculty Senate (Doug Wolfe)
   • Faculty Senate meeting on Dec 6.
   • Fund raising – shorter duration, but no total goal of funding listed.
   • Approved the Senate calendar.
   • Global Programs – committee led a Forensic Discussion/Presentation on the challenges,
     needs, and opportunities faculty encounter arranging, marketing and executing a short
     term embedded study abroad course. The discussion featured a faculty member,
     experienced in embedded abroad course offerings, leading a discussion on the
     opportunities such courses represent, as well as the challenges faced by faculty including
     funding, marketing, registration and documentation, associated paper work, and risk
     management.
   • Lion path resolution – The faculty senate approved the Lion Path Resolution. Nick Jones
     and the administration are well aware of the Lion Path issues/challenges and they are
     working hard to resolve them.
   • Revisions to Senate Policy 48-40 (Deferred grades) and 48-50 (No grade) were
     passed. The policies are being cleaned up to clarify language for grade reporting.
   • Revisions to Senate Standing Rules.
   • Follow-up Report and Recommendations for Improving Governance and Communications
     and Furthering the Academic Mission at Penn State – The Special Committee on University
     Governance is a panel of faculty, administrators, staff, students, and alumni appointed by
     the Senate Chair in the aftermath of the events of November 2011 to study the structure
     and practices of the Board of Trustees and to make recommendations for improving
     governance and communications at Penn State. Its report was presented to and
     unanimously approved by the Senate in March 2013. The Senate Chair recently
     reconvened the Special Committee with following charge:
       o Review the changes since the initial report in governance structures and practices
         and lines of communications among the Faculty, Administration, and the Board of
         Trustees.
       o Report on the disposition of the Senate’s recommendations for reform.
With the benefit of hindsight, assess whether any of its initial recommendations should be clarified, modified, or dropped and whether any additional recommendations are warranted.

- Articulation Agreement Review – the Committee on Admissions, Records, Scheduling, and Student Aid (ARSSA), initiated a five-year review of all articulation agreements. The five-year review is referenced in Senate Policy 06-20, but it had never been executed. All agreements dated prior to 2010 were reviewed.
- Faculty Senate scholarships awarded to Undergraduates ~$254K.
- Submission of Curricular Proposals. The purpose of this brief report is to inform the university community of the undergraduate curricular pathway, to highlight curricular resources, and to suggest best practices to enhance efficient, successful navigation of curricular review in this time of wide-spread curricular change including, but not limited to:
  a. general education course recertification
  b. new general education course submission (including courses seeking single domain and integrative studies designations)
  c. substantial prerequisite updates in anticipation of LionPath enforcement of prerequisites
  d. implementation of recent US/IL requirement change
  e. routine course and program reviews
- Millennium Scholars Program — Report on the progress of The Pennsylvania State University Millennium Scholars Program (MSP) which is a very selective merit-based program designed to increase the number of U.S. research scientists and engineers with STEM (Science, Technology, Engineering, and Mathematics) Ph.Ds.
- Third Party Administrative Services for Penn State’s Medical and Prescription Drug Plan. – The current third party administration (TPA) contract for Penn State’s medical and prescription drug plan offered to eligible employees and dependents is ending December 31, 2017.
- Penn State Employee Health and Wellness Center — Paula Milone-Nuzzo, Dean of the School of Nursing, Kevin Black, Vice Dean for Penn State College of Medicine, Susan Basso, Vice President for Human Resources, and Greg Stoner, Senior Director of Compensation and Benefits, will present a report Penn State Employee Health and Wellness Center.
- Report on Childcare at PSU – This report is a summary of child care services (availability, cost, University contributions) and related research, education, and service activities associated with child care centers at Penn State University campuses.
- Drug Testing Program for Penn State’s Defense Related Research Units (ARL) and Electro-Optics center – This currently does not apply to any of the research faculty in the college of engineering, but this might be foreshadowing of what might occur in the future for all PSU faculty receiving federal funds. The program became effective July 1, 2016 and instituted to ensure the laboratory’s compliance with Federal Regulations for receiving federal funding.

7. Other Business.

N/A.
Program Proposals:  
**Approved:**
- PhD Program in Computer Science and Engineering – Changing course requirements for PhD in CSE

Course Proposals:  
**Approved**
- EE 551_Change
- ME 566_Add

Graduate Faculty Nominations:  
**Approved**
- Stephane Butler Velegol, Category P, Chemical Engineering
## Proposals Submitted to EFC

<table>
<thead>
<tr>
<th>Program</th>
<th>Proposal to Change Ph.D. Requirements in Computer Science and Engineering</th>
<th>CSE</th>
<th>PhD</th>
<th>Change</th>
<th>Approve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Justification (Why/What for)</td>
<td>Compared to many computer engineering and/or science departments at domestic peer institutions, as well as compared to other departments in the College of Engineering, the current course requirements for the PhD students in the CSE department are excessive in the total number of classes required. For example, the University of Michigan CSE PhD requires only 30 credit hours, in contrast to Penn State CSE’s 48. Requiring such a large number of courses delays when our CSE PhD students start spending significant time in research activities (as they spend most of their first two years in classes) and frequently demands that students still have course loads into their third year in the program. These delays affect the research throughput of the department. Moreover, the current course requirements are largely unstructured, relying on volume of credits to ensure core and breadth coverage, which does not appear to align with best practices in comparable departments. Motivated by this, the department proposes to bring down the course-load for its PhD students while retaining strong core topic coverage by requiring that all students take courses in at least two of three defined core areas.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Summary of Discussion Points</td>
<td>1. I approve. 48 credits for a PhD program seriously detracts from completing high-quality research and publishing it. 2. I think it is reasonable to reduce the number of required courses for the PhD program in CSE. Overall, I am supportive of the program change. It seems like the Graduate Bulletin description that is included has not been updated. It would be useful if the proposal showed the changes for the bulletin using track changes.</td>
<td></td>
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</tr>
<tr>
<td>Program</td>
<td>Course</td>
<td>Wavelets and Sparse Signal Representations</td>
<td>EE</td>
<td>551</td>
<td>Change</td>
</tr>
<tr>
<td>Justification (Why/What for)</td>
<td>The objectives in this course are to enable the students to: 1. Describe the workflow for metal-based additive manufacturing from start to finish 2. Define key cost drivers for part production with additive manufacturing 3. Design parts for metal-based additive manufacturing using appropriate computer-aided design software 4. Use analysis tools and simulation models to evaluate tradeoffs in metal-based additive manufacturing 5. Develop a build plan that balances build time, cost, and part quality 6. Describe safe operating procedures for metallic powder feedstock handling, laser safety, and equipment operation 7. Define post-processing needs for metallic components fabricated using different additive manufacturing processes 8. Perform non-destructive inspection of a metallic component fabricated with additive manufacturing This course will be of interest to graduate students (and advanced undergraduate students) working on additive manufacturing with metals.</td>
<td></td>
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</tr>
<tr>
<td>Summary of Discussion Points</td>
<td>1. I approve 2. Yes, looks good. 3. The proposed changes seem reasonable. I am supportive of this proposal to change the title and pre-requisite list for the course.</td>
<td></td>
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</tr>
<tr>
<td>Program</td>
<td>Course</td>
<td>Metal Additive Manufacturing Laboratory</td>
<td>ME</td>
<td>566</td>
<td>Add</td>
</tr>
<tr>
<td>Justification (Why/What for)</td>
<td>The objectives in this course are to enable the students to: 1. Describe the workflow for metal-based additive manufacturing from start to finish 2. Define key cost drivers for part production with additive manufacturing 3. Design parts for metal-based additive manufacturing using appropriate computer-aided design software 4. Use analysis tools and simulation models to evaluate tradeoffs in metal-based additive manufacturing 5. Develop a build plan that balances build time, cost, and part quality 6. Describe safe operating procedures for metallic powder feedstock handling, laser safety, and equipment operation 7. Define post-processing needs for metallic components fabricated using different additive manufacturing processes 8. Perform non-destructive inspection of a metallic component fabricated with additive manufacturing This course will be of interest to graduate students (and advanced undergraduate students) working on additive manufacturing with metals.</td>
<td></td>
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</tr>
<tr>
<td>Summary of Discussion Points</td>
<td>1. I approve 2. Well-written. I support this. 3. This looks good.</td>
<td></td>
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</tr>
</tbody>
</table>
Graduate Council
Program, Option, or Minor Proposal Form

Submit 1 original, signed Graduate Council proposal form and 2 hardcopies of the graduate program proposal document, with a copy of the signed proposal form attached to each proposal copy, to the Office of the Dean of the Graduate School, 211 Kern Building, University Park. For more information about the process, see the Overview of the Graduate Council Curricular Review Process.

The Program Proposal Procedures provide guidance for the development of a graduate program proposal. If you have questions regarding the preparation of a graduate program proposal or how to complete this Graduate Council proposal form, contact the Office of the Dean of the Graduate School.

College/School: College of Engineering
Department or Instructional Area: School of Electrical Engineering and Computer Science
Computer Science and Engineering

New Graduate Program, Option, or Minor: Add
Designation of new graduate program:
Classification of Instructional Programs (CIP) Code:
Designation of new graduate option:
Designation of new graduate minor:

Indicate effective semester:
First semester following approval
Second semester following approval

Existing Graduate Program Option, or Minor: Change
Current designation of graduate program: Ph.D. Program in Computer Science and Engineering
Current designation of graduate option:
Current designation of graduate minor:

New designation of existing graduate program (if changing): Ph.D. Program in Computer Science and Engineering
New designation of existing graduate option (if changing):
New designation of existing graduate minor (if changing):

Brief description of the change (if not noted above): Changing course requirements for Ph.D. in CSE
Indicate effective semester:
First semester following approval
Second semester following approval

Submitted by Graduate Program Head
Mahmut Kandemir
Printed name
Signature
Date: 12/06/2016

Noted by College/School Representative to Graduate Council Subcommittee on New and Revised Programs and Courses:

Printed name
Signature
Date:

Approved by College/School Dean/Chancellor (or Designee):

Printed name
Signature
Date:
Proposal to Change Ph.D. Requirements in Computer Science and Engineering

December 13, 2016

Dr. Mahmut Kandemir, Professor-in-Charge, CSE Graduate Program
354C IST Bldg., e-mail: kandemir@cse.psu.edu, phone: 863-4888

Dr. Chita Das, CSE Department Head
354F IST Bldg., e-mail: das@cse.psu.edu, phone: 865-0194
Table of Contents

• Justification for the Proposed Changes – page 1
• Specific Changes – page 1
• Proposed Doctoral Degree Requirements – page 2
• Graduate Bulletin Description – pages 3, 4, 5
• Table Showing Current and Proposed Requirements – page 6
• Consultation from Departments Affected by Proposed Change – page 7
• Additional Notes – page 7
The CSE department proposes to reduce the required course-load for PhD students from 48 credits to 33 credits.

**Justification for the Proposed Changes:**

Compared to many computer engineering and/or science departments at domestic peer institutions, as well as compared to other departments in the College of Engineering, the current course requirements for the PhD students in the CSE department are excessive in the total number of classes required. For example, the University of Michigan CSE PhD requires only 30 credit hours, in contrast to Penn State CSE’s 48. Requiring such a large number of courses delays when our CSE PhD students start spending significant time in research activities (as they spend most of their first two years in classes) and frequently demands that students still have course loads into their third year in the program. These delays affect the research throughput of the department. Moreover, the current course requirements are largely unstructured, relying on volume of credits to ensure core and breadth coverage, which does not appear to align with best practices in comparable departments. Motivated by this, the department proposes to bring down the course-load for its PhD students while retaining strong core topic coverage by requiring that all students take courses in at least two of three defined core areas.

**Specific Changes:**

Below are the current course-load requirements and proposed (reduced) requirements. The changed parts are highlighted in yellow.

**Current Doctoral Degree Requirements from the Graduate Bulletin:**

The doctoral degree requirements include the general requirements of the Graduate School as listed under Doctoral Degree Requirements. Furthermore, students applying for and gaining admittance to the Ph.D. program will not be permitted to switch to the master's program at a later date, except under extenuating circumstances. To qualify for a Ph.D. degree, each student must take 27 credits of courses with numbers CSE 500-589 or CSE 598, and 21 additional credits of 400-level and above courses. The 21 additional credits must include at least 3 credits of CSE 590 (colloquium), with a maximum of 3 credits of CSE 590 being counted toward the total of 48 minimum credits. A maximum of 3 credits of X96 may also be counted. A student must pass the Ph.D. candidacy examination by the third regular semester after entering the program (see Handbook). Students must pass the Ph.D. comprehensive examination after completion of most of the course work, and the English competency and communication requirements. A thesis must be completed under the direction of a Ph.D. committee and the results must be successfully defended in the thesis defense examination.
Proposed Doctoral Degree Requirements:

The doctoral degree requirements include the general requirements of the Graduate School as listed under Doctoral Degree Requirements. Furthermore, students applying for and gaining admittance to the Ph.D. program will not be permitted to switch to the master's program at a later date, except under extenuating circumstances. To qualify for a Ph.D. degree, each student who does not have an MS degree in Computer Science or Computer Engineering must take 33 credits of courses, which include two courses (six credits) from \{CSE 565, CSE 511, CSE 530\}, 15 credits from CSE courses excluding CSE 596 and CSE 598, 9 credits from 400+ CSE/EE/MATH/STAT or 500+ IST, up to 3 CSE 596 credits, 2 credits of colloquium (CSE590), and 1 credit CSE591. Student who are admitted to the PhD program with an MS degree in Computer Science or Computer Engineering must take 21 credits of courses, which include two courses (six credits) from \{CSE 565, CSE 511, CSE 530\} credits, 9 credits from CSE courses excluding CSE 596 and CSE 598, 3 credits from 400+ CSE/EE/MATH/STAT or 500+ IST, up to 3 CSE 596 credits, 2 credits of colloquium (CSE590), and 1 credit CSE591. A student must pass the Ph.D. candidacy examination by the third regular semester after entering the program (refer to CSE Graduate Handbook). Students must pass the Ph.D. comprehensive examination after completion of most of the course work, and the English competency and communication requirements. A thesis must be completed under the direction of a Ph.D. committee and the results must be successfully defended in the thesis defense examination.
Graduate Bulletin Description (with Changes Marked):

Computer Science and Engineering (CSE)

CHITARANJAN DAS, Interim Head of the Department
Information Sciences and Technology Building
814-865-9505

Degrees Conferred:

Ph.D., M.S., M.Eng.

The Graduate Faculty

The Program

The department offers courses and is prepared to direct research in a variety of subfields of computer science and engineering, including VLSI, computer architecture, parallel/distributed processors and processing, multiprocessors, interconnection networks, pattern recognition and image processing, performance evaluation, reliability, fault tolerance, theory of computation, computer systems, numerical analysis and optimization, programming methodology, and analysis of algorithms. Research and instruction are supported by extensive computing facilities within the University’s Information Technology Services and by the computer laboratories operated by the department.

For information about areas of specialization, laboratory and research facilities, fellowships assistantships, and other sources of financial assistance, please refer to our Web site:
www.cse.psu.edu.

Admission Requirements

All applicants must provide a one-page statement of purpose and scores from the Graduate Record Examinations (GRE) Aptitude Test (verbal, quantitative, and analytical). A subject test in the GRE is not required, but the subject test in Computer Science is recommended. Those students seeking an assistantship in Computer Science and Engineering ARE REQUIRED to submit a Test of Spoken English (TSE) or the TOEFL iBT. A score of 26 on the speaking section of the TOEFL iBT is equivalent to passing the TSE. A lower score would require remedial English as a Second Language courses. For score reporting for TOEFL and TSE, our institution code is 2660 and our department code is 78.

English Proficiency--The language of instruction at Penn State is English. International applicants must take and submit scores for the TOEFL (Test of English as a Foreign Language) or the IELTS (International English Language Testing System), with the exceptions noted below. The minimum acceptable score for the TOEFL is 550 for the paper-based test, 213 for the computer-based test, or a total score of 80 with a 20 on the speaking section for the Internet-
based test. The minimum composite score for the IELTS is 6.5. Specific graduate programs may have more stringent requirements.

International applicants are exempt from the TOEFL/IELTS requirement who have received a baccalaureate or a master's degree from a college/university/institution in any of the following: Australia, Belize, British Caribbean and British West Indies, Canada (except Quebec), England, Guyana, Republic of Ireland, Liberia, New Zealand, Northern Ireland, Scotland, the United States, and Wales.

Specific graduate programs may require all international applicants to submit a TOEFL or IELTS score, regardless of their academic background and country of origin.

Information about the TOEFL can be obtained by writing to the Educational Testing Service, Box 6155, Princeton, NJ 08541-6155 or visiting its website at www.toefl.org. Local administration at University Park campus of the TOEFL is handled by the IECP. Information about the IELTS can be obtained by contacting IELTS International, 100 East Corson Street, Suite 200, Pasadena, CA 91103 or visiting its website at www.ielts.org.

**Master's Degree Requirements**

Candidates for the master's degree must satisfactorily complete the requirements of the Graduate School. In addition, all students are expected to have completed appropriate courses in computer architecture and machine organization, data structures and analysis of algorithms, programming languages, operating systems, and logical design/switching theory or theory of automata. Students who do not meet background requirements will be required to take the appropriate 400-level courses to prepare them for the 500-level courses. At most, 3 credits of background course work can be used to satisfy the degree requirements except as specified for the MEng degree. Students admitted to the M.S. program will not be permitted to switch to the M. Eng. program at a later time, except under extenuating circumstances.

Master of Science students must take 15 credits of courses numbered CSE 500 through 589, including a minimum of 9 credits of breadth courses taken from the department's Graduate Handbook in Computer Science and Engineering. An additional 9 credits of 400-level courses and above (excluding independent studies courses and ENGR 588) are required (see Handbook). This must include at least 1, and at most 2, credits of CSE 590 (Colloquium). Students must complete and defend an M.S. thesis (6 credits of CSE 600). The total degree requirement is 30 credits.

Master of Engineering students must take CMPSC 465 either (CMPSC 443 and CMPSC 431W) or (CMPEN 431 and CMPEN 472) and one 500 level CSE course during the first semester (fall), then 12 credits of 500 level courses during the second (spring) semester, then CSE 820 and CSE 594 online during the summer. The total degree requirements is 30 credits.
Doctoral Degree Requirements

The doctoral degree requirements include the general requirements of the Graduate School as listed under Doctoral Degree Requirements. Furthermore, students applying for and gaining admittance to the Ph.D. program will not be permitted to switch to the master's program at a later date, except under extenuating circumstances. To qualify for a Ph.D. degree, each student must take 27 credits of courses with numbers CSE 500-589 or CSE 598, and 21 additional credits of 400-level and above courses. The 21 additional credits must include at least 3 credits of CSE 590 (colloquium), with a maximum of 3 credits of CSE 590 being counted toward the total of 48 minimum credits. A maximum of 3 credits of X96 may also be counted. A student must pass the Ph.D. candidacy examination by the third regular semester after entering the program (see Handbook). Students must pass the Ph.D. comprehensive examination after completion of most of the course work, and the English competency and communication requirements. A thesis must be completed under the direction of a Ph.D. committee and the results must be successfully defended in the thesis defense examination.

Student Aid

Graduate assistantships available to students in this program and other forms of student aid are described in the STUDENT AID section of the Graduate Bulletin.

Courses

Graduate courses carry numbers from 500 to 599 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

COMPUTER SCIENCE AND ENGINEERING (CSE) course list

Last Revised by the Department: Spring Semester 2015

Blue Sheet Item #: 43-06

Review Date: 4/14/2015

Faculty linked: 6/5/14
### Table Showing Current Ph.D. Requirements and Proposed Requirements

<table>
<thead>
<tr>
<th>Current Requirement</th>
<th>Accelerated Track (for students entering with MS in CS or equivalent)</th>
<th>Standard Track (for students with BS or MS in different field)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Minimum of 48 credits of non-thesis graduate level courses, with at least 27 credits of courses with numbers CSE 500-589 or CSE 597, and 21 additional credits of 400 level and above courses.</td>
<td>• Two courses from CSE 565, CSE 511, CSE 530 (total 6 credits); 9 credits from CSE courses excluding CSE 596 and CSE 598; 3 credits from 400 level and above in CSE/EE/MATH/STAT or 500 level IST. This can include up to 3 CSE 596 credits.</td>
<td>• Two courses from CSE 565, CSE 511, CSE 530 (total 6 credits); 15 credits from CSE courses excluding CSE 596 and CSE 598; 9 credits from 400 level and above in CSE/EE/MATH/STAT or 500 level IST. This can include up to 3 CSE 596 credits.</td>
</tr>
<tr>
<td>• 3 credits of CSE 590 (colloquium). Only 3 credits of CSE 590 can be counted towards the 48 minimum credits. A maximum of 3 credits of X96 can also be counted.</td>
<td>• 2 credits of CSE 590 (colloquium)</td>
<td>• 2 credits of CSE 590 (colloquium)</td>
</tr>
<tr>
<td>• 2CSE 591 (Research Experience in CSE; 1 credit)</td>
<td>• CSE 591 (Research Experience in CSE; 1 credit)</td>
<td>• CSE 591 (Research Experience in CSE); 1 credit</td>
</tr>
</tbody>
</table>
Consultation from Departments Affected by Proposed Change:

Feedback from Andrew Sears, IST Dean:

Mahmut,

Thanks for checking. When I shared your proposal, it generated a little conversation as people, but in the end there are no concerns with the proposed changes that I can recall. I don't anticipate anyone raising concerns or objections and I can assure you that I would let you know ASAP if I were to hear of any concerns that you should be aware of. Hopefully your proposal will go along smoothly.

Thanks,
Andrew

---

Andrew Sears
Dean and Professor
College of Information Sciences and Technology

Additional notes:

It is important to emphasize that this proposal changes only the required course-load for PhD students. It does not affect in any way the set of courses the CSE department usually offers. Consequently, it is not expected to have any impact on outside students taking CSE courses. Also, the proposal does not affect the SARI requirements. Finally, the candidacy exam or comprehensive exam requirements for PhD students are not affected either.
Graduate Council Subcommittee On New And Revised Programs and Courses

COURSE SUBMISSION AND CONSULTATION FORM

Principal Faculty Member(s) Proposing Course

<table>
<thead>
<tr>
<th>Name</th>
<th>User ID</th>
<th>College</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vishal Monga</td>
<td>vum4</td>
<td>Engineering (EN)</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

College with curricular responsibility: Engineering (EN)

Type of Proposal: [ ] Add [ ] Change [ ] Drop

Course Designation

(EE 551) Wavelets and Sparse Signal Representations

Course Information

Cross-Listed Courses:

Prerequisites:
EE 453

Corequisites:

Concurrents:

Recommended Preparations:
Linear algebra

Abbreviated Title: Wavelets & Sparsity

This course will be delivered:

[ ] in residence

[ ] off-site

[ ] online

Bulletin Listing

Minimum Credits: 3
Maximum Credits: 3
Repeatable: NO

Department with Curricular Responsibility: Electrical Engineering (UPEN_EE)
Effective Semester: Upon Approval
Travel Component: NO

Campuses That Have Offered (EE 551) Over The Past 4 Years

<table>
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<tr>
<th>semester</th>
<th>AB</th>
<th>AL</th>
<th>BK</th>
<th>BR</th>
<th>BW</th>
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<th>HB</th>
<th>HN</th>
<th>HY</th>
<th>LV</th>
<th>MA</th>
<th>NK</th>
<th>PC</th>
<th>SH</th>
<th>SL</th>
<th>UP</th>
<th>WB</th>
<th>WC</th>
<th>WS</th>
<th>XC</th>
<th>XP</th>
<th>XS</th>
<th>YK</th>
</tr>
</thead>
</table>

Course Outline

A brief outline or overview of the course content:
This course will focus on the theory and applications of wavelets and sparse signal representations. Assuming a background in deterministic signal processing (EE 453) and elementary linear algebra, the theory of filter-banks, multi-resolution analysis, sub-band coding and wavelets will be developed. These will then be evolved to make connections to the broader sparse signal representations with particular emphasis on the use of sparsity as a prior on signals or their representation (transform) coefficients.

Multi-resolution and sparse structure is natural to many real-world signals – the course aims to enable students to effectively employ wavelets and sparsity constrained signal processing in understanding and analyzing signals. Moreover, students will be shown multiple real-world applications, some of which will include: inverse problems such as denoising and super-resolution, signal and image compression, classification and regression.
A listing of the major topics to be covered with an approximate length of time allotted for their discussion:

1. Wavelet and filter banks (6 weeks)
   - Discrete-time filters, convolution, sampling and interpolations.
   - Filter banks, reconstructions, filter factorizations and lifting.
   - Modulation representations, polyphase representations and noble identities.
   - Discrete Wavelet transform and decomposition, Mallat Pyramid Algorithm, wavelet approximation and accuracy.

2. Sparse representations (6 weeks)
   - Approximations in bases
   - When are wavelet representations sparse and generalization of wavelet basis to over-complete dictionaries.
   - Sparsity in redundant dictionaries
   - Sparsity constrained signal processing: central optimization problems, Bayesian interpretation and usage.

3. Applications and Inverse Problems (3 weeks)
   - Denoising
   - Compressive sensing and Compression
   - Super-resolution
   - Classification and Regression

Course Description:
This course provides the foundation to understand and use wavelets and sparse signal representations. In particular, it develops sparse representations as an evolution of the discrete wavelet transform.

Students will recognize, identify, and apply sparse and wavelet representations methodology to specific signal processing projects. Students will be shown with multiple real world applications within this area and guided to apply the methodologies combined with their own domain knowledge.

The name(s) of the faculty member(s) responsible for the development of the course:
- Name: Vishal Monga (vum4)
- Title:
- Phone:
- Address:
- Campus:
- City:
- Fax:

Course Justification

Instructional, Educational, and Course Objectives:
This section should define what the student is expected to learn and what skills the student will develop.

1. Demonstrate a basic understanding of approximations in bases, time-frequency dictionaries and sparsity in redundant dictionaries.
2. Demonstrate a basic understanding of filter banks, perfect reconstructions, lifting, modulation and polyphase representations.
3. Develop an awareness of solving inverse problems using sparse and wavelets representations.
4. Recognize and understand sparse representations in relation to the wavelets representations.
5. Understand and apply multi-resolution and sparse signal representations to practical signal/image processing problems.

Evaluation Methods:
Include a statement that explains how the achievement of the educational objective identified above will be assessed. The procedures for determining students' grades should be specifically identified.

This course contains one exam, 5 homeworks and one project:
- Exam 1: (30%) Objectives 2 and 3
- Homeworks: (30%) objectives 1-4
- Project: (40%) objectives 5 and overall evaluation

Relationship/Linkage of Course to Other Courses:
This statement should relate the course to existing or proposed new courses. It should provide a rationale for the level of instruction, for any prerequisites that may be specified, or for the course's role as a prerequisite for other courses.

This course is designed for graduate (Ph. D and M.S.) students ito prepare them for research as well as industrial practice in solving advanced real world signal processing problems. This course builds on content covered in an introductory signal processing course (EE 453) and enables student to link sparse representation methods with wavelets representations. The course does not overlap with any other EE graduate class. The only connection is with ME 578, which also covers wavelets but not from a signal processing viewpoint, e.g. no filter banks or wavelet lifting are covered in ME 578. The introduction of sparse representations as an integral part of this proposal further makes the proposed course quite different from ME 578.

Relationship of Course to Major, Option, Minor, or General Education:
This statement should explain how the course will contribute to the major, option, or minor and indicate how it may function as a service course for other departments.

This course is an elective course in the Electrical Engineering MS and PhD programs. It will primarily be taken by students
specializing in signal and image processing, but may be of interest to other students as well. Students in other engineering
disciplines are welcome to take this course provided that they have the necessary signal processing background.

A description of any special facilities:
None.

Frequency of Offering and Enrollment:
The course is expected to be offered every Spring semester. 15-20 students are expected to enroll.

Justification for Changing The Proposal:
Include a justification for each change to the course. Particular attention should be paid to the effects of the course
change within the discipline and in other disciplines where the course may be required within a major or used as a
service course. When a unit submits several course changes, with or without new course proposals, a general
statement covering the programmatic effects of the changes should be submitted.
The title and content of this course has been updated to put more focus on the topic of sparse signal representation. The proposed
revision to this class is in keeping with current research and educational trends in wavelets theory and applications. As a key
example, Mallat’s highly regarded and widely used book: A Wavelet Tour of Signal Processing has been re-named in its latest
In addition, MATH 220 (linear algebra) has been removed as an official prerequisite in keeping with Graduate School guidelines
which prevent lower-level courses from being listed as official prerequisites. Students are expected to have a background in linear
algebra.

Review History
This section represents all consultation history that has occurred on this proposal

Legend

Approve  Rejected  Waiting Review  User Action Required
Pending Action(s)  Moved to Rejected Status  Approved  (#) - Review Order Sequence Number

Consultation

Recipient Name: AB Shafaye  Department: Science, Engineering And Technology

Position: Consultation  Campus: PENN STATE HARRISBURG,
THE CAPITAL COLLEGE

Title: EE/EET Programs Chair

(4) Request sent: 11/22/2016 at 11:27 AM

Concur: Yes
Comments: I collected the information listed below from Dr. Aldo Morales since he teaches this course at our location.
Comments on EE 551 Wavelets Course proposal
List of Major topics
I would suggest to decrease the time dedicated to matching pursuit dictionaries, as it can be tackled with some papers
- M. Goodwin, “Matching pursuit and Atomic Signal Models Based on Recursive Filter Banks”, IEEE Transactions on
Also, include a discussion on complex wavelets. It is well-known that the real wavelet transform has proven to be a very
powerful tool; but as it was demonstrated by Kingsbury et. al. [references below], it has some serious limitations, in
particular poor directional selectivity in multidimensional applications.
- N. Kingsbury and T. Reeves, “Redundant Representation with Complex Wavelets: How to Achieve Sparsity,”
Proceedings of the 2003 IEEE International Conference on Image Processing (ICIP 2003), Barcelona, Catalonia, Spain,
Hence, in my opinion, students should be exposed to these new complex wavelets and their applications. The new syllabus should address this part.

Dr. Aldo Morales
Penn State Harrisburg

Reviewed On: 12/4/2016 at 11:15 AM

Initiator Comments: Response from course proposer:
I am well aware of this literature and will indeed include a representation of these topics.

Request sent: 12/7/2016 at 1:59 PM
Concur: Yes
Comments: 
Reviewed On: 12/12/2016 at 12:37 AM

Recipient Name: THOMAS HEMMINGER
Department: (Not Available)
Position: Consultation
Campus: (Not Available)
Title: PROFESSOR ELEC & COMP ENG

Recipient Name: ASOK RAY
Department: Mechanical Engineering
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS
Title: DIST PROF_MECH & MATH

Recipient Name: DAVID MILLER
Department: Electrical Engineering
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS
Title: PROFESSOR ELECTRICAL ENGR

Recipient Name: JAMES SELLERS
Department: Mathematics
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS
Title: DIR UNDERGRADUATE STUDIES

Recipient Name: JAMES SELLERS
Department: Mathematics
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS
Title: DIR UNDERGRADUATE STUDIES

Recipient Name: JAMES SELLERS
Department: Mathematics
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS
Title: DIR UNDERGRADUATE STUDIES
Recipient Name: MARY FRECKER  Department: Mechanical Engineering
Position: Consultation  Campus: UNIVERSITY PARK CAMPUS
Title: Prof of Mechanical Engineering

Request sent: 11/22/2016 at 11:27 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 11/22/2016 at 2:23 PM

Recipient Name: Sedig Agili  Department: Science, Engineering And Technology
Position: Consultation  Campus: PENN STATE HARRISBURG, THE CAPITAL COLLEGE
Title: Associate Professor Electrical Engineering

Request sent: 12/5/2016 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 12/7/2016 at 7:15 AM

Recipient Name: WILLIAM HIGGINS  Department: Electrical Engineering
Position: Consultation  Campus: UNIVERSITY PARK CAMPUS
Title: DISTINGUISHED PROFESSOR

Request sent: 11/22/2016 at 11:27 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 11/22/2016 at 2:39 PM

Recipient Name: WILLIAM JENKINS  Department: (Not Available)
Position: Consultation  Campus: (Not Available)
Title: PROFESSOR ELECTRICAL ENGR

Request sent: 12/5/2016 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 12/7/2016 at 7:15 AM

Recipient Name: MOHAMMAD REZA TOFIGHI  Department: Science, Engineering And Technology
Position: Consultation  Campus: PENN STATE HARRISBURG, THE CAPITAL COLLEGE
Title: ASSOC PROF ELECT ENG.
### Head of Department

<table>
<thead>
<tr>
<th>Recipient Name: KULTEGIN AYDIN</th>
<th>Department: (Not Available)</th>
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<tbody>
<tr>
<td>Position: Head of Department</td>
<td>Campus: UNIVERSITY PARK CAMPUS</td>
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Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

### College/School Representative to the Graduate Council Subcommittee on New and Revised Programs and Courses

<table>
<thead>
<tr>
<th>Recipient Name: MATTHEW PARKINSON</th>
<th>Department: (Not Available)</th>
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<tbody>
<tr>
<td>Position: College/School Representative to the Graduate Council Subcommittee on New and Revised Programs and Courses</td>
<td>Campus: UNIVERSITY PARK CAMPUS</td>
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Title:

Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

### Dean of the College

<table>
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<tr>
<th>Recipient Name: PETER BUTLER</th>
<th>Department: (Not Available)</th>
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<td>Position: Dean of the College</td>
<td>Campus: UNIVERSITY PARK CAMPUS</td>
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Title:

Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

### Review on Behalf of the Dean of the Graduate School

<table>
<thead>
<tr>
<th>Recipient Name: VICKI HEWITT</th>
<th>Department: (Not Available)</th>
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<tr>
<td>Position: Review on Behalf of the Dean of the Graduate School</td>
<td>Campus: UNIVERSITY PARK CAMPUS</td>
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Title:
### Feedback from the Graduate Council Joint Curricular Committee

<table>
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<tr>
<th>Recipient Name</th>
<th>ROBERT BANNON</th>
<th>Department: Not Available</th>
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Concur: [Not Yet Reviewed]  
Comments: [Not Yet Reviewed]  
Reviewed On: [Not Yet Reviewed]

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### Final Confirmation

<table>
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<tr>
<th>Recipient Name</th>
<th>CORTNEY SMITH</th>
<th>Department: Not Available</th>
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Concur: [Not Yet Reviewed]  
Comments: [Not Yet Reviewed]  
Reviewed On: [Not Yet Reviewed]

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<tr>
<th>Recipient Name</th>
<th>KADI CORTER</th>
<th>Department: Not Available</th>
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Concur: [Not Yet Reviewed]  
Comments: [Not Yet Reviewed]  
Reviewed On: [Not Yet Reviewed]

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### Curricular Information

- Blue Sheet Item #:  
- Review Date:

### SCRID Numbers

(EE 551):
COURSE SUBMISSION AND CONSULTATION FORM

Principal Faculty Member(s) Proposing Course

<table>
<thead>
<tr>
<th>Name</th>
<th>User ID</th>
<th>College</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARY FRECKER</td>
<td>MXF36</td>
<td>Engineering (EN)</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

College with curricular responsibility: Engineering (EN)

Type of Proposal: [x] Add [ ] Change [ ] Drop

Course Designation

(ME 566) Metal Additive Manufacturing Laboratory

Course Information

Cross-Listed Courses:

Prerequisites:

IE 587

Corequisites:

Concurrents:

E SC 545

Recommended Preparations:

Abbreviated Title: Metal Add Mfg Lab

This course will be delivered:

- [x] in residence
- [x] off-site
- [x] online

Bulletin Listing

Minimum Credits: 3

Maximum Credits: 3

Repeatable: NO

Department with Curricular Responsibility: Mechanical Engineering (UPEN_ME)

Effective Semester: SP 2018

Travel Component: NO

Campuses That Have Offered () Over The Past 4 Years

| semester | AB | AL | BK | BR | BW | CR | DS | ER | FE | GA | GV | HB | HN | HY | LV | MA | NK | PC | SH | SL | UP | WB | WC | WS | XC | XP | XS | YK |

Course Outline

A brief outline or overview of the course content:

This course will provide in-depth and hands-on laboratory experience in additive manufacturing with a focus on metallic-based components. Laboratory activities will include part design and analysis, process simulation and modeling, build preparation and machine setup, part fabrication and post-processing, and non-destructive inspection and measurement. Students will also learn safe practices for handling metallic powders, feedstocks, machine equipment, and high-powered lasers used for additive manufacturing. Through these laboratory activities, students will be exposed to all aspects of the additive manufacturing workflow and learn how metal-based additive manufacturing differs from polymer-based 3D printing.

A listing of the major topics to be covered with an approximate length of time allotted for their discussion:
Part design and analysis
- Computer-aided modeling and design (4 hrs)
- Manufacturing cost estimation for part fabrication (2 hrs)

Prototype fabrication and testing
- Prototyping with polymers (3 hrs)
- Part redesign based on prototyping results (3 hrs)

AM Process simulation
- Additive manufacturing process simulation (3 hrs)
- Part redesign based on process simulation (3 hrs)

AM process planning and safety
- Build layout and orientation (2 hrs)
- Build planning and preparation (2 hrs)
- Powder handling, equipment, and laser safety (2 hrs)

AM process monitoring
- Process sensing and in situ monitoring (2 hrs)
- Process analytics for additive manufacturing (4 hrs)

Post-processing
- Stress relief and heat treatment (2 hrs)
- Part removal and finish machining (4 hrs)

Non-destructive inspection and measurement
- Measurement of part dimensionality (3 hrs)
- Computed tomography (CT) scanning (6 hrs)

Course Description:
This course will provide in-depth and hands-on laboratory experience in metal-based additive manufacturing. The laboratory activities will expose students to all aspects of the additive manufacturing workflow for metal components, starting with conceptual design, proceeding through fabrication, post-processing, and part inspection.

Laboratory activities will include part design and analysis, process simulation and modeling, build preparation and machine set up, fabrication and post-processing, and non-destructive inspection and measurement. Laboratories will include computational design tools and simulation models as well as fabrication and post-processing (e.g., heat treatment, machining). Finally, the laboratory activities will also stress safe powder handling, equipment, and laser safety, which is particularly important when working with metallic powders and feedstocks.

The laboratory is intended for students that have a basic understanding of the different additive manufacturing processes and are gaining familiarity with the engineering and science of additive manufacturing.

Upon completion of the laboratory, students should be able to describe the workflow for additive manufacturing, identify main cost drivers, and describe the differences when using metals versus polymers. They should also understand the key tradeoffs between design, manufacturing, and materials as it relates to the additive manufacturing processes utilized in the laboratory activities.

The name(s) of the faculty member(s) responsible for the development of the course:

- Name: TIMOTHY SIMPSON (tws8)
- Title: PROF ME & IE
- Phone: +1 814 863 7136
- Address: 0209 LEONHARD BUILDING
- Campus:
- City:
- Fax:

Course Justification

Instructional, Educational, and Course Objectives:
This section should define what the student is expected to learn and what skills the student will develop.

The objectives in this course are to enable the students to:
1. Describe the workflow for metal-based additive manufacturing from start to finish
2. Define key cost drivers for part production with additive manufacturing
3. Design parts for metal-based additive manufacturing using appropriate computer-aided design software
4. Use analysis tools and simulation models to evaluate tradeoffs in metal-based additive manufacturing
5. Develop a build plan that balances build time, cost, and part quality
6. Describe safe operating procedures for metallic powder feedstock handling, laser safety, and equipment operation
7. Define post-processing needs for metallic components fabricated using different additive manufacturing processes
8. Perform non-destructive inspection of a metallic component fabricated with additive manufacturing

This course will be of interest to graduate students (and advanced undergraduate students) working on additive manufacturing with metals.
There is currently no other laboratory course at Penn State that offers hands-on experience in metal-based additive manufacturing and non-destructive inspection systems that few universities have available. This laboratory experience is unique to Penn State and will be a differentiator of our graduate program as it leverages state-of-the-art additive manufacturing and non-destructive inspection systems that few universities have available.

Relationship/Linkage of Course to Other Courses:
This statement should relate the course to existing or proposed new courses. It should provide a rationale for the level of instruction, for any prerequisites that may be specified, or for the course's role as a prerequisite for other courses. The course is a stand-alone laboratory course.

The other non-laboratory courses at Penn State currently related to additive manufacturing are:

IE 307: Additive Manufacturing Process and Reverse Engineering
The study and application of rapid prototyping technologies in design and manufacturing

IE 597J: Additive Manufacturing
This course will cover the basics of various additive manufacturing processes, with emphasis on the fundamentals and applications of additive manufacturing

EDSGN 497A: Design for Additive Manufacturing
A hands-on course investigating novel design methods and process-structure-behavior relationships in desktop- and industrial-scale Additive Manufacturing/3D-Printing.

These courses focus on additive manufacturing processes and designing for additive manufacturing at the undergraduate and graduate levels, while the proposed laboratory provides in-depth and hands-on experience in metal-based additive manufacturing processes. The laboratory is complimentary but does not overlap the activities, projects, or exercises in these courses.

Relationship of Course to Major, Option, Minor, or General Education:
This statement should explain how the course will contribute to the major, option, or minor and indicate how it may function as a service course for other departments.

This course provides the in-depth and hands-on laboratory experience that is core to the proposed graduate program and offerings in additive manufacturing and design. There is currently no other laboratory course at Penn State that offers hands-on experience with metal additive manufacturing processes.

The laboratory requires graduate students in the program to have completed the additive manufacturing processes course (IE 587) and be enrolled in, or have completed, the engineering and science of additive manufacturing course (E SC 545) to ensure a basic understanding of the additive manufacturing processes utilized in the laboratory.

Students in the proposed resident M.S. program in Additive Manufacturing and Design as well as those in the online MEng version of the proposed Additive Manufacturing and Design Program will be required to complete this laboratory experience. This will require online students to travel to Penn State to complete the in-lab activities involving fabrication, post-processing, and non-destructive inspection. The laboratory activities will be consolidated into two three-day sessions to minimize travel time and schedule disruptions for the online students. The lab will also be available for graduate students enrolled in MNE, IME, E Sc, and MatSE who have taken an additive manufacturing processing course.

This laboratory experience is unique to Penn State and will be a differentiator of our graduate program as it leverages state-of-the-art additive manufacturing and non-destructive inspection systems that few universities have available.

This laboratory course is based on the hands-on industry practicum in metal-based additive manufacturing that is offered each summer by Penn State’s Center for Innovative Materials Processing through Direct Digital Deposition (CIMP-3D). The practicum has been offered 6 times to as few as 12 industry participants to as many as 40 practitioners.

A description of any special facilities:
Laboratory activities will be conducted in Penn State’s CIMP-3D (Center for Innovative Materials Processing through Direct Digital Deposition, www.cimp-3d.org), which houses a range of metal and polymer AM systems.

Frequency of Offering and Enrollment:
Twice per year (e.g., Spring and Summer)
Enrollment up to 20 per laboratory session

Review History
This section represents all consultation history that has occurred on this proposal.
Consultation

Recipient Name: EDWARD REUTZEL
Department: Engineering Science And Mechanics
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS
Title: SENIOR RESEARCH ASSOCIATE

Request sent: 11/7/2016 at 7:30 AM
Concur: Yes
Comments: As a supplement to heat treat and NDE, I think it'd be worth considering inclusion of limited destructive testing, e.g. optical microscopy of cross-section, or perhaps hardness testing.
Reviewed On: 11/7/2016 at 10:35 AM

Recipient Name: GUHAPRASANNA MANOGHARAN
Department: Mechanical Engineering
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS
Title: ASST PROF MECHNICAL ENG.

Request sent: 11/7/2016 at 7:30 AM
Concur: Yes
Comments: 
Reviewed On: 11/7/2016 at 2:08 PM

Recipient Name: NICHOLAS MEISEL
Department: School of Engr Design, Technology and Prof Prgrms
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS
Title: ASST PROF ENGR DESIGN

Request sent: 11/7/2016 at 7:30 AM
Concur: Yes
Comments: 
Reviewed On: 11/7/2016 at 10:55 AM

Recipient Name: SANJAY JOSHI
Department: Industrial And Manufacturing Engineering
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS
Title: PROFESSOR I & MSE

Request sent: 11/7/2016 at 7:30 AM
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<td>10/28/2016 10:29 AM</td>
<td>Yes</td>
<td>Concur: Yes Comments: (Completed By Default - Exceeded Time Limit)</td>
<td>11/12/2016 7:15 AM</td>
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<tr>
<td>11/7/2016 7:30 AM</td>
<td>Yes</td>
<td>Comments: Good point. The residential students will face the same issue since they will also participate in the condensed lab periods. To overcome this issue, we will develop a series of review materials and pre-readings to help students prepare for the intense lab periods. The time in the lab will be highly scripted to ensure they use the time effectively and efficiently and gather the necessary information to complete their lab assignments. Follow-up readings and post-lab work will also be assigned to utilize the data collected in the lab and encourage reflection on the processes and procedures used. The process would look like the following, for instance, for the powder bed fusion lab: 1) Pre-reading (~1 hrs of work prior to lab) – Refresher on powder bed fusion processes 2) Prepare for lab (1-2 hrs of work prior to lab) – Prepare CAD model and generate STL files 3) Conduct lab (6-8 hrs of hands-on work in lab) – Perform build layout and set up, build prep, set up machine, document process parameters, start build.</td>
<td>11/7/2016 8:00 AM</td>
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</table>
gather machine operation data
4) Lab assignment (2-3 hrs of work after lab) – Conduct build time and economic analysis, compare to data collected in lab
5) Post-lab reflection (~1 hr of work after lab) – Compare and contrast observations with powder bed fusion process to other metal-based additive manufacturing processes (e.g., binder jetting, directed energy deposition)
This process has been added to the Evaluation section of the course proposal to clarify pre- and post-lab prep and reflection. Thanks for the suggestion!

(24) Request sent: 12/8/2016 at 3:29 PM
  Concur: Yes
  Comments: Reviewed On: 12/13/2016 at 8:16 AM

Recipient Name: LUIS AYALA
                Department: Energy And Mineral Engineering
                Position: Consultation
                Campus: UNIVERSITY PARK CAMPUS
                Title: PROF PET. & NAT GAS

(21) Request sent: 11/7/2016 at 7:30 AM
  Concur: Yes
  Comments: (Completed By Default - Exceeded Time Limit)
  Reviewed On: 11/12/2016 at 7:15 AM

Recipient Name: MARY FRECKER
                Department: Mechanical Engineering
                Position: Consultation
                Campus: UNIVERSITY PARK CAMPUS
                Title: Prof of Mechanical Engineering

(12) Request sent: 11/7/2016 at 7:30 AM
  Concur: Yes
  Comments: Reviewed On: 11/7/2016 at 2:41 PM

Recipient Name: MATTHEW PARKINSON
                Department: School of Engr Design, Technology and Prof Prgms
                Position: Consultation
                Campus: UNIVERSITY PARK CAMPUS
                Title: ASSOC PROF ENGR DESIGN

(20) Request sent: 11/7/2016 at 7:30 AM
  Concur: Yes
  Comments: (Completed By Default - Exceeded Time Limit)
  Reviewed On: 11/12/2016 at 7:15 AM

Recipient Name: MICHAEL MICCI
                Department: Aerospace Engineering
                Position: Consultation
                Campus: UNIVERSITY PARK CAMPUS
                Title: PROF AEROSPACE ENGR
Request sent: 10/28/2016 at 10:29 AM
Concur: Yes
Comments:
Reviewed On: 10/28/2016 at 10:41 AM

Recipient Name: NICHOLAS PETRUZZI  Department: Supply Chain And Information Systems
Position: Consultation  Campus: UNIVERSITY PARK CAMPUS
Title: DEPT CHAIR & PROF OF SCM

Request sent: 10/28/2016 at 10:29 AM
Concur: Yes
Comments:
Reviewed On: 10/28/2016 at 10:35 AM

Recipient Name: PHILLIP SAVAGE  Department: Chemical Engineering
Position: Consultation  Campus: UNIVERSITY PARK CAMPUS
Title: PROF/DEPT HEAD CHEM ENGR

Request sent: 11/7/2016 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 11/12/2016 at 7:15 AM

Recipient Name: ROBERT VOIGT  Department: Industrial And Manufacturing Engineering
Position: Consultation  Campus: UNIVERSITY PARK CAMPUS
Title: Professor IE

Request sent: 11/7/2016 at 7:30 AM
Concur: Yes
Comments: I strongly support.
Reviewed On: 11/8/2016 at 8:40 AM

Recipient Name: SANJAY SRINIVASAN  Department: (Not Available)
Position: Consultation  Campus: (Not Available)
Title: ASSOC DEPT HEAD GRAD EDU

Request sent: 11/7/2016 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 11/12/2016 at 7:15 AM

Recipient Name: SUZANNE E MOHNEY  Department: Materials Science And Engineering
Title: PROFESSOR MATSE & EE
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS

Concur: Yes
Comments: Reviewed On: 11/3/2016 at 5:15 PM

Title: DIST PROF AG ENGINEERING
Recipient Name: VIRENDRA PURI
Department: Agricultural And Biological Engineering
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS

Concur: Yes
Comments: Reviewed On: 11/7/2016 at 10:40 AM

Title: Assistant professor
Recipient Name: ALLISON BEESE
Department: Materials Science And Engineering
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS

Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 11/12/2016 at 7:15 AM

Title: DEPT HEAD & PROF INDUSTL
Recipient Name: JANIS TERPENNY
Department: Industrial And Manufacturing Engineering
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS

Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 11/12/2016 at 7:15 AM

Title: HEAD/PROF ESM
Recipient Name: JUDITH TODD
Department: Engineering Science And Mechanics
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS

Concur: No, this proposal needs significant changes
Comments: This proposal should include a discussion of the safety issues relevant to metal additive manufacturing
including working with high power lasers and metal powder handling and use.

Reviewed On: 10/29/2016 at 3:21 PM

Initiator Comments: Good point. I have stressed safe powder handling and laser safety more in the updated course proposal. This has been emphasized in the course description, the hands-on laboratory, and in the stated objectives.

Request sent: 12/8/2016 at 3:28 PM
Concur: Yes
Comments:
Reviewed On: 12/8/2016 at 6:22 PM

Recipient Name: RICHARD MARTUKANITZ
Department: Industrial And Manufacturing Engineering
Position: Consultation
Title: SR RES ASC
Campus: UNIVERSITY PARK CAMPUS

Request sent: 11/7/2016 at 7:30 AM
Concur: Yes
Comments:
Reviewed On: 11/7/2016 at 4:50 PM

Recipient Name: SVEN BILEN
Department: School of Engr Design, Technology and Prof Pgrms
Position: Consultation
Title: DEPT HEAD/SEDTAPP
Campus: UNIVERSITY PARK CAMPUS

Request sent: 10/28/2016 at 10:29 AM
Concur: Yes
Comments:
Reviewed On: 10/29/2016 at 1:01 PM

Head of Department

Recipient Name: KAREN THOLE
Department: (Not Available)
Position: Head of Department
Title:
Campus: UNIVERSITY PARK CAMPUS

Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

College/School Representative to the Graduate Council Subcommittee on New and Revised Programs and Courses

Recipient Name: MATTHEW PARKINSON
Department: (Not Available)
Position: College/School Representative to the Graduate Council Subcommittee on New and Revised Programs and Courses
Campus: UNIVERSITY PARK CAMPUS
Dean of the College

Recipient Name: PETER BUTLER
Position: Dean of the College

Title:

Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

Review on Behalf of the Dean of the Graduate School

Recipient Name: VICKI HEWITT
Position: Review on Behalf of the Dean of the Graduate School

Title:

Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

Feedback from the Graduate Council Joint Curricular Committee

Recipient Name: ROBERT BANNON
Position: Feedback from the Graduate Council Joint Curricular Committee

Title:

Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

Final Confirmation

Recipient Name: CORTNEY SMITH
Position: Final Confirmation

Title:

Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Recipient Name: KADI CORTER
Department: (Not Available)
Position: Final Confirmation
Campus: UNIVERSITY PARK CAMPUS

Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]
Faculty Senate Summary
in advance of the January 24, 2017 Faculty Senate meeting

A few of the important topics to discuss on the senate agenda are below:

1. Next Faculty Senate meeting is Tuesday, January 24, 2017

2. At the senate council meeting the following discussion highlights were discussed by:

   **Nick Jones**, Executive Vice President and Provost:
   a. Michael Kubit – New VP for Information Technology and Chief Information Officer
   b. Donald Welch – New Chief Informational Security Officer, Office of Information Security
   c. Dean of PSU Law School appointed – Hari Osofsky, University of Minnesota
   d. Several national searches ongoing or soon to be initiated for various positions including:
      i. College of Engineering Dean
      ii. College of Earth and Mineral Science Dean
      iii. Schreyer Honors College Dean
      iv. University Budget Officer
      v. A few others
   e. Strategic plan Implementation. Thematic plans (5) will be held at various locations throughout the state. Will be available on line.

   **Blannie Bowen**, Vice Provost for Academic Affairs:
   f. PSU Laureate application – Accepting nominations. Please nominate folks.
   g. Jackie and Maggie – General Education leadership; holding sessions on General Education direction and reform.

   **Madlyn Hanes**, Vice President for Commonwealth Campuses and Executive Chancellor
   h. PSU Wilkes-Barre Chancellor position filled
   i. Getting close to filling Dubois campus chancellor position

   **Robert Pangborn**, Vice President and Dean for Undergraduate Education
   h. 60,000 applications to date. Both main and branch campuses are doing well.
   i. ~20,000 offers are out. ~7000 to campuses and 12000 to University Park (this is by intention) so we don’t have too many students over enrolled at main campus this year.
   j. Declines in international applications.
   k. Discovery grant applications – Do research over the summer. Suitable Faculty Mentor. Call for applications for faculty in the student engagement network.
   l. Raise Me scholarship program is being updated and improved. Looking favorably based on PA schools to encourage underrepresented students.

   **Marcus Whitehurst**, Vice Provost for Educational Equity
   m. Discussed various MLK Evening celebrations and events

   **Gerry** – Consolidation of various Human Resources Business Process Transformation
   n. Started in August of 2013
   o. Reviewing all HR policy to make sure they are streamlined
   p. Academic Policy – 23 policies will be combined into one. Looking at moving these policies from VP Human Resources to under Vice Provost for Academic Affairs. With the proposed realignment of policies, HR would still continue to administer the policies.
   q. Compliance, Best Practice
   r. Meeting with leadership regarding communication/roll out of the policy consolidations/review
Consolidation of current policies without changes. For example, 13 deal with appointments, so it would be desired to combine them into one comprehensive policy. However, some policies are being reviewed and may be eliminated/changed based on review. There are numerous categories of policies including: Payroll, Research, HR, Academic, Budget, Travel, all sorts of different policies, etc. 9 over 12 contract only applies to academic roles.

Graduate Council discussion (STEIN)

Graduate Council –Issues on Master’s degree. Discussions regarding MS degrees to be annotated as whether they are by thesis, or class, or capstone system.

Some units believe that the standards of MS degrees are being lowered with some of the new MS degree programs.

Significant Discussion regarding the following Forensic Sessions to be held:

I. Senate Committee on Student Life, Counseling and Psychological Services for Students
   • Primary discussion revolved around what questions should be proposed for the forensic session. There was concern regarding the budgetary comments/discussion with regards to funding, etc. In short, it appears that even with the additional resources allocated in the past year, CAPS may not be meeting the needs of the student population.
   • CAPS is an essential service and program. How is it paid for? How to access the services and how to refer to students.
   • Two potential questions that may be proposed:
     1. “Is Penn State offering enough counselors, sessions, creative solutions, and resources to address our student mental health needs?”
     2. “How can Penn State Faculty and our Faculty Senate foster a climate that best promotes Student Mental Health and access to support resources on campus?”
   • It appears that PSU is struggling to meet the demand.

II. Recommendations for standardization fixed term titles across units
   • This is related to previous legislation regarding Fixed-term appointments and providing a path for promotion. Previously it was recommended that there be three levels for promotion for fixed term faculty similar to Faculty Ranks of Assistant Professor, Associate Professor, and Professor.
   • Modifications to HR21: Definitions of Academic Ranks. There was originally some Advisory/Consultative Legislation proposed to expand the existing promotion pathway for fixed-term faculty from two ranks to three. While at the time the report suggested allow units to determine titles for those ranges. Inconsistent title frequently lead to such confusion as to what the difference might exist between a lecturer and an instructor, whereas some titles are interchangeable for essentially equivalent position in some units. The report recommended standard titles.
   • However, there was significant push back and opposition from many units and Deans regarding the proposed legislation as many were not aware and administration is taking a step back to review. As a result, this was put as a Forensic session to determine whether or not there should be standard university titles or allow units to determine the titles within each unit. The categories were focused on teaching faculty with little to no discussion/input from the research faculty side.
   • Deans/Chancellors. They had a strong reaction.
   • Question to be proposed:
     1. “Do we wish to have uniform titles across the university or do each title within each unit.”
   • Consider the impact on the titles of the tenured, clinical, standing, fixed-term faculty, instructors, lecturers, etc. As we create a possible models, we also have to ask the impact on the conventional titles.
III. Abington Resolution

- They did not want to alter their resolution. There were potential issues with refugee versus sanctuary. Much of this stems from the 2016 presidential election campaign.

1. Appendix A. Senate Curriculum Report.

2. Appendix B. Recommendation for Standardizing Fixed Term Titles across Units [20 minutes allocated for presentation and discussion]. SEE ABOVE DISCUSSION

In March 2016, the University Faculty Senate endorsed an advisory/consultative report that included a recommendation to expand the existing promotion pathway for fixed-term faculty from two ranks to three (Appendix B). Inconsistent titles frequently lead to such confusion as what difference might exist between a “lecturer” and an “instructor”—when in reality, units use such titles interchangeably for essentially equivalent positions. Should each unit develop its own titles for a new, additional rank, such confusion is likely to be compounded. The purpose of this report, then, is to recommend standard titles for correlative positions and avoid compounding existing confusion. In addition, and to provide still more clarity on various fixed-term positions in the university, this report recommends that HR 21 be revised so that, insofar as is practical, rank and title share the same nomenclature.

<table>
<thead>
<tr>
<th>Proposed New Titles</th>
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<tbody>
<tr>
<td>Tenure Track Faculty</td>
</tr>
<tr>
<td>Assistant Professor</td>
</tr>
<tr>
<td>Associate Professor</td>
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<tr>
<td>Full Professor</td>
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Forensic Questions. “Do we, the Faculty Senate, wish to have uniform titles for fixed-term faculty across our University, or will each college independently define these titles?”

3. Appendix C. Faculty Preparation for Online Teaching. Forensic. [10 minutes allocated for presentation and discussion]. SEE ABOVE DISCUSSION

   a. How can the university assure high quality online teaching? What do we mean by “high quality online teaching”? We have several measures, such as Quality Matters¹ for online course design and research-based instruction competencies that comprise best practices for effective online instruction. But, do we have other notions of quality unique to Penn State?
   b. Should there be a university-wide, specific training recommendation or requirement for all faculty who teach online? Many programs use the World Campus OL 2000 course (and additional courses), but others implement their own training. Should training be consistent across colleges, campuses and programs? Should this training be ongoing or is "one-and-done" sufficient?
   c. Are current procedures and practices for evaluating the quality of online teaching, such as the SRTE and faculty peer review processes, like the one used by Earth and Mineral Sciences², sufficient? What additional SRTE questions are needed to adequately address the online classroom?
   d. How can we support faculty to effectively teach an increasingly diverse online student population?
4. **Appendix D. Counseling and Psychological Services for Students.** Forensic. [15 minutes allocated for presentation and discussion]. **SEE ABOVE DISCUSSION**

Based upon Dr. Loche's presentation, the Faculty Senate will consider the following questions:

a. Do Penn State students have adequate access to counselors, sessions, creative solutions, and resources to address their mental health needs?

b. How can Penn State Faculty and our Faculty Senate foster a climate that best promotes Student Mental Health and access to support resources on campus?

**LEGISLATIVE**

5. **Appendix E. Resolution submitted by Penn State Abington.** **SEE ABOVE DISCUSSION**

*We, the University Faculty Senate of Penn State, hereby declare that our university has been and will continue to be a refuge of justice for and acceptance of students, employees, and community members of all backgrounds, beliefs, and orientations.*

*We reject the divisive, racist, sexist, and bigoted language and policies expressed during the recent presidential election campaign and the violence and hate crimes carried out since that time.*

*We reaffirm our commitment to pluralism, inclusivity, and equity as core values of our institution and declare that we will vigorously defend these values against hatred and bigotry—coming from inside or outside our community.*

6. **Appendix F. Establishment of the Standing Joint Committee for General Education Assessment.**

On April 19, 2016 the University Faculty Senate approved a legislative report entitled “Recommendations for General Education Assessment,” which was brought forward by the Special Joint Senate Committee on General Education Assessment. This report included three recommendations for the establishment of a new committee entitled “Standing Joint Committee on General Education Assessment.” This committee will guide regular curricular review and the on-going assessment of student learning as it pertains to General Education. The legislation discusses the standing joint committee for Gen Ed Assessment Scope, Membership, Selection, and Duties. The following revision is proposed to the duties.

7. **Appendix G. Revisions to Senate Bylaws Article II Section.**

Senate Councilors represent their unit(s) in the performance of their duties in Senate Council. Effective representation includes two-way communication between the unit(s) and the Senate Council. The proposed revision would codify the expectation of Senate Councilors to communicate effectively with their unit(s). Effective communication should increase units’ awareness of the actions and activities of Senate Council and improve understanding across this very complex university. The following revision is proposed to the duties.

(i) Individual Senate Council members play a critical role in communicating Faculty Senate issues and legislative decisions back to their units of origin. To facilitate these important communications, best practices for Senate Councilors include organizing caucuses with their unit membership, creating regular electronic communications of Senate activities and sending these communications to their Academic Unit Faculty Leaders, Senators and Administrators, and speaking about Faculty Senate activities at unit governance meetings. It is expected that Senate Councilors will embrace their leadership role and actively serve as a communication conduit back to the academic unit they represent.
8. **Appendix H. Revisions to Senate Standing Rules Article I Section 11.**

The current rule restricts reporting of Senate election results to the tellers, who are responsible for certifying the results, the Senate Chair, and the chair of the Committee on Committees and Rules. This is an awkward situation for the Chair-elect, who is responsible for identifying leadership of standing committees for Senate Council approval. The proposed change stipulates that the election results are to be reported to all Senate officers. New wording is indicated in bold; deleted wording is indicated by strike-throughs.

Votes shall be counted or verified by three tellers, appointed by the Chair of the Senate from among the members of the Senate who are not members of the Nominating Committee [see (c)]. The tellers will report the results of the election to the Chair, Executive Director of the Senate Office, before 12:00 noon of the sixth day prior to the last regularly scheduled meeting of the Senate year, who will immediately inform the Senate officers, candidates, and the chair of the Committee on Committees and Rules of these results. The full senate will be notified of the results in a timely fashion.

9. **Appendix I. Revisions to Senate Standing Rules Article I Section 1.**

The members of the Committee on Committees and Rules is elected by Senate Council and its chair and vice chair are elected by the committee members at the end of the Senate year. In contrast, the members of the other Standing Committees are appointed by Committees and Rules and their chairs and vice chairs are appointed by the incoming Senate Chair, in consultation with Committees and Rules. The current rule calls for the chair and vice chair of Committees and Rules to be elected by the new committee members when they convene at the end of the final regular committee meeting for the Senate year. Often, some of the new committee members are unable to attend that meeting, due to responsibilities on other standing committees that are meeting on the same day at the same time. Consequently, the committee leadership is often elected by only a portion of its members. To solve this issue, it is proposed that the incoming Senate Chair be responsible for calling a meeting of Committees and Rules within one week of the beginning of the new Senate year. As with all Senate meetings, committee members would have the option to participate either in person or via technology. Proposed new wording is indicated in bold; deleted wording is indicated by strike-throughs.

(b) Following formal release of election results to the full Faculty Senate, the New Faculty Senate Chair shall convene the new membership of the Committee on Committees and Rules, within one week of the last regularly scheduled Senate meeting. In that new CC&R membership meeting, the Chair and Vice Chair of the Committee on Committees and Rules shall be determined by election, whose names shall be released and reported to Senate in a timely fashion.

The newly selected Committee on Committees and Rules shall be convened immediately following the last regularly scheduled meeting of the Committee on Committees and Rules. In response to the call of the outgoing Chair of Committees and Rules, the incoming Committee shall elect a new Chair and Vice Chair, whose names shall be reported to the Senate at the last regularly scheduled meeting of the Senate year.
Advisory/Consultative

10. Appendix J. Endowed Scholarships.

This report to the Senate provides an overview of endowed scholarships at Penn State with data from the University Development Office and the Office of Student Aid. The importance of endowed scholarships at Penn State is best understood in the context of the overall financial aid available to Penn State undergraduates. In other words, how do students pay for the cost of attendance? Last year, 63,913 undergraduates received a total of $1 billion from all funding sources tracked through the Office of Student Aid.

11. Appendix K. Addressing Issues of Classroom Climate and Bias in the Classroom at Penn State.

A climate of implicit bias and stereotype threat in classroom situations can have a negative impact on both students and instructors. Specifically, students who identify with an underrepresented racial/ethnic/gendered group are more likely to perform poorly in classrooms where stereotype threat is present, whether the source of bias is another student or the instructor. At the same time, minority instructors’ teaching effectiveness can be greatly impaired if they feel discriminated against by students. When instructors fail to acknowledge or manage bias in the classroom, the morale of the classroom can be dragged down, and can lead to serious performance and/or legal issues in the future if not addressed.

Recommendation

1. Ask the Schreyer Institute for Teaching Excellence to post on their website a checklist of best practices for creating a welcoming climate for diversity in the classroom, including strategies for managing disruptions in the classroom environment by students. See Appendix 1 for an example supplied from the Schreyer Institute for Teaching Excellence.

12. Appendix K. The Senate Committee on Faculty Benefits, the Joint Committee on Insurance and Benefits, and the Health Care Advisory Committee: Coordination of Duties

Introduction and Rationale

The size and complexity of Penn State University are factors that necessitate the involvement of many parties in making decisions regarding the benefits plans, programs and services provided to employees. In particular, decisions regarding health care affect faculty and staff and their families on a very direct and personal level. Representation from many different stakeholders and experts is essential in providing guidance to senior administration in making decisions regarding health care and prescription drug benefits that will be acceptable to the employees and to the University.

Three different committees are charged with exploring questions, concerns, and opportunities regarding employee benefits and providing direction and recommendations to senior administration. Two of these committees are composed on the principle of shared governance with representation from university wide stakeholders. One committee is composed on the principle of strategic expertise and implementation of benefits decisions with linkages to the two shared governance committees. This report should help to clarify the function of each committee and the collaborative relationships between the three committees. In addition, recommendations associated with the ongoing functions and collaboration of the committees will be included.
University Faculty Senate Committee on Faculty Benefits
The University Faculty Senate Committee on Faculty Benefits is responsible for advancing consultation to the University through the shared governance body of the University Faculty Senate. Reports from this committee have the benefit of full Faculty Senate deliberation and approval, and recommendations on benefits are forwarded to the President with the weight of this full Faculty Senate approval. This committee represents the breadth of the Faculty Senate, including one retired senator and key administrative members of the Office of Human Resources.

According to the duties described by the Senate for the committee, the Committee on Faculty Benefits shall investigate and be the faculty’s voice on the adequacy and other attributes of the University’s provisions for total compensation (salaries and benefits), and any other associated perquisites affecting conditions of faculty employment. It shall maintain liaison with the Joint Committee on Insurance and Benefits (JCIB) and the Health Care Advisory Committee (HCAC).

Joint Committee on Insurance and Benefits (JCIB)
The Joint Committee on Insurance and Benefits is a representative committee of all University employee constituencies. JCIB includes appointed members, representing the University Faculty Senate, the Staff Advisory Council, Retirees, Nurses' collective bargaining unit, and the Teamsters' collective bargaining unit, in addition to key administrative members of the Office of Human Resources. As a broadly representative unit, JCIB provides the opportunity for diverse views from across the entire employee group. JCIB can refer action items and reports on issues that they believe require shared governance deliberation to their parent committee of the University Faculty Benefits who can choose to support the presentation of those reports to the full University Faculty Senate.

The duties of the Joint Committee on Insurance and Benefits include reviewing and making recommendations to the Senate through the Faculty Benefits Committee on policies relating to the University’s insurance programs including life, medical, dental, and vision, as well as other areas normally defined as fringe benefits, including, but not limited to retirement and tuition remission. It shall be an advisory body to the Office of Human Resources and other appropriate administrative units in the formulation of all policies affecting insurance and benefits.

Health Care Advisory Committee
The Health Care Advisory Committee (HCAC) was formed following the Health Care Task Force report released in April 2014. The task force was formed in late 2013 and was charged with examining health care at Penn State. It provided a framework of strategies for keeping University health insurance costs down, improving employee health, and better communicating changes about employee health and health care.

The committee is comprised of faculty, staff and administrators who have expertise in the healthcare field or who have direct responsibility for health-care related work for the University. Original members included health care practitioners; academic experts in the disciplines of healthcare and insurance; and administrative representatives for human resources, budget and finance. In fall, 2015, the Chairs of the University Faculty Senate Faculty Benefits committee and the Joint Committee on Insurance and Benefits were added to the membership.

The Health Care Advisory Committee is an administrative committee with members who have relevant expertise in health care policy and practices and serve the administration in key positions of the Office of Human Resources and Finance & Business. HCAC is not a representative committee, but solely an administrative advisory committee. Specific issues and items of importance for University health care benefits can be referred to the JCIB for broad University wide representative consultation, and/or to the FB committee for advancement through the shared governance consultative route of the full University Faculty Senate.
Summary

Any of these three committees might originate ideas regarding benefits and health care insurance in particular; however, integration and a few key shared memberships across the three committees provides greater strength in the unique character of what each committee brings to the overall consultative process on any specific issue. Varied perspectives are inherent in the particular focus and membership of each separate committee. In order to support the essential need for integration, the Chair of the University Faculty Benefits and the Chair of the Joint Committee on Insurance and Benefits serve on the Health Care Advisory Committee. These individuals provide oral reports on the work of the JCIB and HCAC to the Faculty Benefits committee at regular meetings. Communication between the committees is achieved through common memberships of the committee chairs on more than one committee and through representation from the Office of Human Resources on each committee.

Recommendations:

1. The Chair of the University Faculty Benefits and the Chair of the Joint Committee on Insurance and Benefits will continue to serve on the Health Care Advisory Committee.
2. Each October, the Committee on Faculty Benefits will sponsor an annual report from JCIB to provide a summary of benefit changes, changes under consideration, costs to the University and employee, and other issues discussed during the previous calendar year.
3. Ad hoc committees regarding benefits, such as the steering committee recently created to evaluate and make recommendations regarding a new third party administrator for health care and prescription drug benefits will include representation from the three committees.

13. Appendix M. Recommendations for Third Party Administrator (TPA) Choice for Penn State Medical and Prescription Drug Coverage

Recommendations:
The University Faculty Senate Committee on Faculty Benefits is seeking endorsement from the full senate on the following recommendations regarding the work of the steering committee and the senior administration that are ultimately responsible for the final decision.

The steering committee and senior administration should:
1. Consider new and innovative opportunities for the pricing and delivery of health care, including but not limited to, those described above.
2. Insist upon a TPA that is able to provide quality health care coverage to all Penn State employees across the Commonwealth, with broad, in-network access to physicians and facilities.
3. Remain committed to the guiding principles outlined in the Principles for the Design of Penn State Health Care Plans Advisory and Consultative report that was endorsed by the Senate and accepted by the President in spring of 2016.
4. Seek contractual agreements with TPAs to specify terms of commitment of no longer than 5 years in order to retain flexibility in administrative options in the context of a rapidly changing healthcare environment.

14. Appendix N. Disciplinary Communities Revisited

At the April 25, 2006 meeting of the University Faculty Senate, an Advisory/Consultative Report entitled “Disciplinary Communities” submitted by the Intra-University Relations Committee was passed in response to a charge to “recommend the creation of organizational processes and structures needed to implement promotion and tenure, and curricular recommendations of other committees; to identify strategies to support faculty collaboration on course offerings; to develop recommendations for discipline-based coordination councils; and to develop recommendations to support discipline based conferences and communications.” While this report was accepted by then President, it was never completely implemented. A few units took the recommendations of the report seriously, but many other units ignored it, and effective disciplinary communities are operating in only some of the disciplines.
**Recommendation 1**
The Provost’s office, the deans of each University Park college, and those administrators designated to act as deans for the campus colleges and the University College, are responsible for ensuring that effective disciplinary communities are established and sustained. To accomplish this, administrators will, in consultation with the faculty, identify new and continuing disciplinary community leaders in each campus and academic unit, and form multi-campus disciplinary teams. These teams will organize themselves and, with the support of their respective college deans, collaboratively plan ongoing activities for their University-wide disciplinary communities. The multi-campus teams should seek the assistance of campus administration, faculty governance, and faculty at each campus in developing disciplinary structures aligned, to the extent possible, with existing disciplinary communities (i.e., programs, schools, departments, majors, minors and options) at the University Park colleges, Campus colleges, and the University College. Multiple solutions for constructing and sustaining each University-wide disciplinary community will be successful, depending on the particular units, faculties, students, and programs involved.

**Recommendation 2**
The Committee recommends that the disciplinary communities identified in Recommendation 1 utilize many of the following procedures, if appropriate, to construct and sustain their University-wide activities.

  a. Ensure that adequate two-way communication essential for the maintenance of curricular integrity is carried out with all categories of faculty (including fixed-term and instructors) at every location where discipline courses are offered.
  b. Develop documentation such as course objectives and expected learning outcomes, giving due consideration to the needs of students at all locations in the adoption of course standards.
  c. Recognize, develop, and consolidate the accomplishments of distinctive academic programs at all Penn State locations.
  d. Assess periodically all courses at all locations, including World Campus, to determine the extent to which delivered courses are meeting objectives and expected outcomes.
  e. Evaluate other institutions’ courses related to requests for incoming transfers of credit, and periodically re-evaluate articulation agreements and related credit-transfer agreements with other institutions by benchmarking course components such as credit assignment, syllabus content, texts used, and rigor of courses offered.
  f. Post on a secure website available to faculty, information such as original course proposals, long and short course descriptions, current course content, a “model” course syllabus, sample exams, and any teaching hints or suggestions for new faculty.
  g. Provide consultation to the Associate Deans and Department Heads within their discipline in the development of new curricula, and the revision of current curricula, giving due consideration to the needs of students at all locations;
  h. File a yearly report on community activities to all appropriate college deans, to the Provost, and Vice-Presidents for Undergraduate Education, Graduate Education, and Commonwealth Campuses. These Vice-Presidents make a yearly report to the University Faculty Senate (mandatory).

**Recommendation 3**
University-wide disciplinary faculty meetings must be held at least once per year to share course, program, and advising information, pedagogical methods, classroom technology, and current research. The responsibility for convening and hosting the meetings would be rotated among the units with faculty in the discipline. Costs for the meetings would be shared by all units on an equitable basis. For efficiency in the use of travel funds, meetings could be “breakout” sessions of wider disciplinary meetings. Technology such as video conferencing would be used as appropriate to minimize expense and travel time.
Recommendation 4
The administration report back to the Senate within two years on progress that has been made regarding implementation of these recommendations, including a summary of how many disciplinary communities exist, how often they meet, and how many courses have been reviewed by the communities.

15. Appendix O. Equivalence of Courses Across the University

It has come to the attention of the Intra-University Relations Committee that several degree-granting units of the University have been requiring students who have taken certain courses at a different location than the one where that unit is located to retake them in order to count them towards graduation requirements. These requirements are contrary to both the spirit and the letter of University policies; therefore IRC is submitting this Advisory/Consultative Report requesting the University to enforce existing policies with respect to course equivalence across the University.

RECOMMENDATION
The senior administration of the University should enforce AAPPM Policy P-11 and Senate Policy 83-80. All units must accept for credit towards graduation requirements, all courses completed at other units and campuses of the University, except for senior seminars and capstone courses, as long as the student has met the 24-credit requirement at the degree-granting unit for work in the major.

INFORMATIONAL

16. Appendix P. Program Goals for Global Penn State; Student Participation, Diversity, and Comparison to Peer Institutions. 20 minutes allotted for presentation and discussion

Michael Adewumi, the Vice Provost for Global Programs, will present an informational report discussing the goals of Global Penn State, outlining the student participation and diversity in these programs, and comparing Global Penn State to similar programs at peer institutions.

17. Appendix Q. Annual Report on the Reserved Spaces Program

"Reserved Spaces" are admission spaces reserved at University Park for eligible first-year students with special needs or talents that cannot be met at Commonwealth Campus locations and whose evaluation indices (EI) do not meet the applicable University Park admission criteria. These students contribute to the educational and cultural life and diversity of the University Park campus.

18. Appendix R. Penn State Veterans – Historical Perspectives

The following information provides the history and background of the G.I. Bill and programs offered through Penn State. The goal is to provide a better understanding of how active-duty military and veterans pay for their schooling as well as inform members of the Faculty Senate about other programs offered to support them while they attend school.

19. Appendix S. Update on Assessment and Accreditation

Lance Kennedy-Phillips, Vice Provost for Planning and Assessment and Barbara Masi, Associate Vice Provost for Learning Outcomes Assessment, both representing the Office of Planning and Assessment, will present an update on assessment and accreditation.
20. Appendix T.  University Faculty Census Report 2017-2018

In March 2011, the Senate voted to change the representation ratio for electing senators from one senator for each 25 members of the electorate, to a representation model of a maximum number of 200 elected faculty seats. The legislative report and table showing the calculation for achieving a Senate of 200 elected faculty seats. In 2017-2018, the University Faculty Senate will be a fixed size of 200 elected faculty seats.

21. Appendix U.  Report on the Penn State Facilities and Administration Rate

The Senate charged the Committee on Research with creating an information report benchmarking Penn State’s overhead rate (currently 57%) with peer institutions. Questions to be addressed include:
• At what point do these overhead costs become a limiting factor on research productivity and our competitiveness to secure grant funding?
• Are there ways these overhead costs could be reduced, especially for young investigators?

22. Appendix V.  Summary of Petitions by College, Campus, and Unit 2015-2016

The Senate permits students to petition for exceptions to the Senate academic rules found in the Policies and Rules for Undergraduate Students. Exceptions to these policies are the responsibility of the Senate Committee on Undergraduate Education. The committee reports annually to the Senate on student petition actions. This report provides a summary of petitions by colleges and campuses.