1. Approval of minutes for the meeting of March 20th, 2018

2. Updates from Undergraduate Studies Committee
   - USCRC Summary Report
   - CHE 445: Bioremediation/Green Chemistry
   - Cybersecurity Computational Foundations Minor
   - EDSGN 10: Introductory Engineering Graphics
   - ME 302: Engineering Thermodynamics and Heat Transfer
   - ME 456: Introduction to Robotics

3. Updates from Graduate Studies Committee
   - No updates

4. Updates from Engineering Technology Committee
   - No updates

5. Updates from Faculty Senate

6. Dean’s Report

7. Other business
Engineering Faculty Council

Meeting Agenda
March 20th, 2018
11:00 a.m.
202 Hammond Building (Stavely conference room)

Present:

1. Approval of minutes for the meeting of February 20th, 2018
   Unanimously approved.

2. Updates from the Faculty Senate
   1. An overall description of the operating budget description, categories, appropriations, and pursuits for funding was provided for the next fiscal year.
   2. Revisions to the Senate constitution were proposed to strengthen faculty voice.
   3. The number of student senators was increased from 2 to 3.
   4. There was a discussion on recreational facilities and user fees. It was proposed that future changes are made available to faculty through their benefits program.
   5. There was a discussion on defining Global Citizenship and Competency regarding Penn State’s programs.
   6. Changes were made to RPO6, which covers disclosures of financial interests.
   7. Approval was given to dissolve the outdated planning board.
   8. The recent Senate election results were announced, including the Chair.
   9. There was a discussion of P&T differences between UP and branch campuses at the full Professor rank.
   10. There was a discussion of the increasing child care costs in Faculty families.
   11. There was a discussion of inappropriate time keeping of employed persons by faculty when using WorkLion.
   12. Updates to the user interface in WorkLion were made to improve user accessibility.
   13. Updates to AC21 Standardization of Titles were made. Most units have implemented these changes.
   14. There was a review of alcohol abuse across the campus and community.

3. Graduate Council – NEEDS TO BE ADDED TO AGENDA
   1. There is a Graduate Research Exhibition on March 25th 2018
   2. The deadline for Visa applications for Optional Practical Training (OPT) is April 1st for finished applications. Completion date letters need to be provided.

4. Dean’s Report (given by Peter)
1. There is an ongoing search for Associate Dean for Inclusion & Diversity. 4 candidates have been invited for on-campus interviews.

2. There is an ongoing search for a multi-cultural engineering director. 3 candidates have been interviewed on campus.

3. There is an ongoing search for a department head of Architectural Engineering. 3 candidates are currently interviewing.

4. An update on the graduate student unionization process was provided. The PA Labor Relations Board approved the unionization vote to include both TAs and RAs. Resources are available on web to discuss unionization (gradfacts.psu.edu). It is important for students to get out and vote. The Town Hall meeting is available online at live.psu.edu. Polling takes place April 11, 2018: 11:00 a.m. - 7:00 p.m., Charles W. Mann Assembly Room, 103 Paterno Library; April 12, 2018: 11:00 a.m. - 7:00 p.m., Charles W. Mann Assembly Room, 103 Paterno Library; and April 13, 2018: 10:00 a.m. - 5:00 p.m., Millennium Science Complex, Rooms W202 and W203.

5. Architects have met with IPAC members to discuss the master COE building plan.

6. Claude Steel, Vice-Chanc & Provost at UC Berkeley, will be speaking at a special seminar series. April 19th in Eisenhower auditorium. Ticketed event.

7. The number of undergraduate student applications to COE are slightly lower, compared to this time last year, by a modest amount (200 students).
<table>
<thead>
<tr>
<th>Course/Minor</th>
<th>Type and Description of Change</th>
<th>Description or Rationale for Curricular Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 445 Bioremediation/Green Chemistry</td>
<td>Course Add</td>
<td>Man has polluted his environment but biotechnology holds great promise for cleansing it and for synthesizing the chemicals that we all need in a modern society in a manner that limits generating new pollution. The course focuses on the application of biological and engineering principles toward the remediation of hazardous wastes and for the synthesis of chemicals in a sustainable manner; i.e., in a manner that limits the production of unwanted compounds. The tools that will be explained for accomplishing this are metabolic engineering, systems biology, and protein engineering. Students will also gain knowledge related to the design of biological contacting devices for waste remediation and green chemistry. Emphasis will also be placed on the evolution of bacterial pathways for accomplishing engineering goals. Discussion will also ensue on societal issues such as the wisdom of the release of genetically-engineered microorganisms and the limitations of biotechnological approaches.</td>
</tr>
<tr>
<td>Cybersecurity Computational Foundations Minor</td>
<td>Minor Add</td>
<td>The importance of cyber-security to all areas of engineering has become clear as industry recognizes the need to develop technologies to build secure cyber-systems. As has been reported in the popular and academic press, the need for software and hardware engineers has never been more pressing. Yet, at the same time the current Computer Science and Engineering—and more broadly Penn State—curriculum does not provide sufficiently broad and deep opportunities to acquire the skills necessary to practice security engineering at the professional level. Informal discussions with industry and students show overwhelming internal and external support for the minor that would serve to prepare students for careers in and relating to cyber-security engineering. Cyber-security engineering requires one having mastery over computer science and/or computer engineering, upon which more advanced and focused courses can be built. For this reason we believe that it is important to embed the development of a cyber-security engineering education within a program like EECS. EECS’s leadership in security internationally and the broad spectrum of security-relevant expertise in the school uniquely position it to make such an offering. Furthermore, we believe a minor in</td>
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the computational foundations of cyber-security, building upon the core of the computer science and computer engineering majors, is the best approach, as opposed to offering a stand-alone major alongside of our existing majors. The cyber-security discipline focused on computational foundations is not sufficiently separable from computer science and computer engineering. All of the relevant curricular material builds up or requires extensive knowledge of software and/or hardware principles.

The proposed minor consists of 18 credits, 15 of which are at the 400-level, exceeding the generally accepted parameters for a minor. We justify this based on the technical depth required to make this minor meaningful. Unlike some minors whose purpose is to complement a major by providing a broadening or knowledge, our minor is designed to allow students to gain the technical depth in an area with significant importance to a number of majors, namely computer science, computer engineering, and electrical engineering. The three required courses for the minor are EE/CMPEN 362 (Computer Networks), CMPEN 473 (Operating Systems), and CMPSC 443 (Computer Security). These provide the foundation upon with the additional courses rely, particularly the new courses CMPEN 462 (Wireless Communications and Systems Security) and CMPSC 447 (Software Security). If the minor were to have only 3 courses at the 400-level it would lose its significance by failing to provide the technical depth and knowledge required to be prepared for the cyber-security challenges faced by software and hardware designers.

Related to the issue of 400-level courses is the number of prerequisite courses required to attain the minor. The justification is the same as above: the technical depth of these courses requires a significant sequence of general software and hardware courses. Without these prerequisites the required and additional courses cannot be taught at the depth required. And while the number of prerequisite courses is non-negligible, students in computer science and computer engineering majors (of which there are five) would already meet these requirements. Students in electrical engineering majors (of which there are three) would need to take several courses outside of their major to prepare for this minor, but with careful planning they should be able to do this.

<table>
<thead>
<tr>
<th>EDSGN 10 Introductory Engineering Graphics</th>
<th>Course Drop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submitted by: Sven Bilen</td>
<td>EDSGN 10 is being dropped as it is not a requirement or elective course in any engineering program, nor has it been for quite some time. We have offered the course because it was required as part of the Landscape Contracting major (Design/Build Option). They have indicated that they will be able to integrate components of EDSGN 10 into other classes.</td>
</tr>
<tr>
<td><strong>ME 302 Engineering Thermodynamics and Heat Transfer</strong></td>
<td><strong>Course Drop</strong></td>
</tr>
<tr>
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<tr>
<td>Submitted by: Karen Thole</td>
<td>This course was taught by the Mechanical Engineering Dept. at University Park to undergraduate students in the Engineering Science and Mechanics program up through and including the spring 2018 semester. Students in other majors, including mechanical engineering, do not take this course; only ESM students enroll in ME 302. The Dept. of Engineering Science and Mechanics at UP has made arrangements to take over the administration and teaching of this course under a new ESM course name that is being processed in a separate CRCS proposal. Mechanical Engineering will no longer be teaching or offering the course. We request that ME 302 be removed from the Bulletin to reflect its transfer to its new home in the Dept. of Engineering Science and Mechanics.</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th><strong>ME 456 Introduction to Robotics</strong></th>
<th><strong>Course Change</strong></th>
</tr>
</thead>
</table>
| Submitted by: Eric Marsh | This course is a technical elective where students learn about the present and future status of robot applications, and are required to apply fundamental knowledge of physics, mechanics, and mathematics to develop software to analyze and control robots.  

The course deals with mechanics and control of mobile robots, flying robots and robot manipulators. First, students are taught to describe position and orientation of a rigid body, including rotation matrix, roll-pitch-yaw angles and Euler angles. In addition, a brief introduction to feedback control system is provided. After these background materials, students learn about the following topics: a. kinematics and control of wheeled mobile robots, car-like mobile robots and quadrotor and b. 3-D kinematics, statics, dynamics and control of robot manipulators. Sensors, actuators and software used in industrial robots are discussed.  

The current description of ME/IE 456 was developed in early 1980s, when robotics application was primarily in manufacturing, and mobile robots were not used. The field of robotics has changed significantly in the last 15 years. Now, application areas are autonomous vehicles, drones, medical, service to people etc. in addition to manufacturing. Therefore, the contents of this course are revised to reflect the needs of mechanical engineering students.  

The previous version of this course emphasized kinematics, path planning, and manufacturing. At that time, the content required certain math courses such as matrices (MATH 220) and differential equations (MATH 251) as well as computer science (CMPSC 200/201). Because the core of this revised course is now dynamics, design, and control, the prerequisites are proposed to be changed to EMCH 212 (available at both campuses that offer the course--HB and UP) plus either ME 367 Machine Design |
IE and ME offered their separate versions of the course in Fall 16 and Fall 17 due to a difference in the needs of students studying the two majors. We request that the ME/IE cross-listing be removed from this course. Dropping the cross-listing of this course will not affect IE students as they will retain their course that is offered on the same annual schedule.
SENATE COMMITTEE ON CURRICULAR AFFAIRS
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>THOMAS WOOD</td>
<td>tuw14</td>
<td>Engineering (EN)</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

Academic Home: Engineering (EN)
Type of Proposal: [ ] Add [ ] Change [ ] Drop

Course Designation
(CHE 445) Bioremediation/Green Chemistry

Course Information

Cross-Listed Courses:

Prerequisites:
CHE 340
Corequisites:
Concurrents:

Recommended Preparations:

Abbreviated Title: Biorem/Green Chem
Discipline: None
Course Listing:

Special categories for Undergraduate (001-499) courses

Foundations
☐ Writing/Speaking (GWS)
☐ Quantification (GQ)

Knowledge Domains
☐ Health & Wellness (GHW)
☐ Natural Sciences (GN)
☐ Arts (GA)
☐ Humanities (GH)
☐ Social and Behavioral Sciences (GS)

Additional Designations
☐ Bachelor of Arts
☐ International Cultures (IL)
☐ United States Cultures (US)
☐ Honors Course
☐ Common course number - x94, x95, x96, x97, x99
☐ Writing Across the Curriculum

First-Year Engagement Program
☐ First-Year Seminar

Miscellaneous
Course Outline

A brief outline or overview of the course content:
Application of biological and engineering principles toward remediation of hazardous wastes and synthesis of chemicals in a sustainable manner. Emphasis on metabolic engineering, systems biology, and protein engineering to accomplish these aims. Biological contacting devices for waste remediation and green chemistry.

A listing of the major topics to be covered with an approximate length of time allotted for their discussion:
Week 1: Overview of Bioremediation/Green Chemistry
Week 2: Microbiology of soil bacteria
Week 3: Mechanisms of genetic exchange
Week 4: Degradative plasmids and their enzymes
Week 5: Evolution of degradation pathways
Week 6: Gene cloning and manipulation in Pseudomonas and E. coli
Week 7: Bioremediation using wild-type microorganisms
Week 8: Bioremediation using recombinant microorganisms
Weeks 9 & 10: Biocatalysis
Week 11: Bioreactors for bioremediation/biocatalysis
Week 12: Genetic Release
Weeks 13 & 14: Contaminated site studies and biocatalysis successes
Week 15: Case Studies (i) Biodegradation of 1,2,3-Trichloropropane, (ii) Molecular Breeding of Carotenoid Bio-synthetic Pathways, and (iii) Applications of the Green Fluorescent Protein

Course Description:
Man has polluted his environment but biotechnology holds great promise for cleansing it and for synthesizing the chemicals that we all need in a modern society in a manner that limits generating new pollution. The course focuses on the application of biological and engineering principles toward the remediation of hazardous wastes and for the synthesis of chemicals in a sustainable manner; i.e., in a manner that limits the production of unwanted compounds. The tools that will be explained for accomplishing this are metabolic engineering, systems biology, and protein engineering. Students will also gain knowledge related to the design of biological contacting devices for waste remediation and green chemistry. Emphasis will also be placed on the evolution of bacterial pathways for accomplishing engineering goals. Discussion will also ensue on societal issues such as the wisdom of the release of genetically-engineered microorganisms and the limitations of biotechnological approaches.

The name(s) of the faculty member(s) responsible for the development of the course:
- Name: THOMAS WOOD (tuw14)
- Title: Professor and Biotechnology Chair
- Phone: 8148634811
- Address: 42 Greenberg
- Campus: UP
- City: University Park
- Fax:
Instructional, Educational, and Course Objectives:
This section should define what the student is expected to learn and what skills the student will develop. Students will be able to (i) understand genetic exchange, (ii) understand how genetic pathways evolve, (iii) design pathways for the degradation of pollutants, (iv) design pathways for the synthesis of chemicals using green chemistry, and (v) design biological reactors for chemical synthesis and pollutant degradation.

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.
Presentation/Paper 40% (10 pg single space)
(10% progress report, 30% presentation, & 60% final report)
Class Discussion 10%
Homework 5%
Midterm 20%
Final 25%

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. Proposed course builds on CHE 340 Intro to Bio-molecular Engineering by extending it to show how gene cloning may be used in detail. Also gives students a chance to fully develop an idea related to biology and engineering (via the final report).

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.
25% of the jobs in chemical engineering are related to biology so this course is important to increase exposure of our undergraduates to biological methods.

A description of any special facilities:
not applicable

Frequency of Offering and Enrollment:
every spring, around 20 students

Campuses That Have Offered ( ) Over The Past 4 Years

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

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

Consultation
Recipient Name: HEATHER HAMBY
Department: Civil And Environmental Engineering
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS
Title: STF ASST VI

Request sent: 10/17/2017 at 10:48 AM
Concur: Yes
Comments: 
Reviewed On: 10/24/2017 at 3:44 PM
Recipient Name: MARK MARONCELLI  Department: Chemistry
Position: Consultation  Campus: UNIVERSITY PARK CAMPUS
Title: PROFESSOR CHEMISTRY

Request sent: 10/17/2017 at 10:48 AM
Concur: Yes
Comments:
Reviewed On: 10/17/2017 at 11:22 AM

Recipient Name: PATRICK FOX  Department: Civil And Environmental Engineering
Position: Consultation  Campus: UNIVERSITY PARK CAMPUS
Title: PROF AND DEPT HEAD

Request sent: 10/17/2017 at 10:48 AM
Concur: No, this proposal needs significant changes
Comments:
Comments from CEE Faculty:

So far I have not hear any objection to the course content. However, the title is not a good fit to the proposed content. There is no chemistry in the proposed course, or Green chemistry for that matter. That should be removed from the title.

This is not really a bioremediation course as well.

I would also argue that this is really about “The role of Biotechnology in Future Bioremediation Technologies” rather than actual bioremediation approaches used today. Actual bioremediation often requires either monitoring of natural attenuation, or active pump and treat technologies, or adding in electron donors or acceptors. I think a student taking this course would learn about future biotechnology approaches, but as described, not anything particularly practical about hazardous chemical remediation in the environment.

Reviewed On: 10/25/2017 at 4:47 PM
Initiator Comments: This comment is from an unqualified reviewer who is being disingenuous and apparently has some axe to grind. The comments are absurd and a waste of my time to respond to them. In fact this whole process is laughable and ridiculous. I have taught this course at 4 universities and used the same name at all 4 universities, without objection. For this reviewer to tell a chemical engineer there is no chemistry is laughable and insulting. For example, we cover converting toluene to hydroxyl-toluenes by controlling the regiospecificity of the hydroxylation via the enzyme known as toluene monooxygenases. That is green chemistry and there is no finer example of it. I challenge this disingenuous reviewer to give a better example. To say that an individual that pioneered bioremediation is not teaching a bioremediation course is too absurd to respond.

Request sent: 10/27/2017 at 11:51 AM
Last sent: 11/6/2017 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 11/11/2017 at 7:15 AM
Recipient Name: SIU LEUNG  Department: Biomedical Engineering
Position: Consultation  Campus: UNIVERSITY PARK CAMPUS
Title: Assistant Teaching Professor

Request sent: 10/27/2017 at 11:47 AM
Concur: Yes
Comments: As mentioned this course is developed to support student who are interested in chemical engineering related job with biological aspect. I assume there will be a upper level biological discussion within the course. If that's the case, should any biology / BMB course be a prerequisite of this course?

One suggestion to add for the content is: Maybe explanation on the relationship between the listed chemical process with current industrial requirement or process would be helpful for students.
Reviewed On: 11/1/2017 at 4:09 PM

Recipient Name: THOMAS WOOD  Department: Chemical Engineering
Position: Consultation  Campus: UNIVERSITY PARK CAMPUS
Title: PROF CHEM ENG & BMB

Request sent: 10/17/2017 at 10:48 AM
Last sent: 10/30/2017 at 7:30 AM
Concur: Yes
Comments:
Reviewed On: 10/30/2017 at 8:15 AM

Recipient Name: MEGAN MARSHALL  Department: Agricultural And Biological Engineering
Position: Consultation  Campus: UNIVERSITY PARK CAMPUS
Title: INSTR AG & BIO ENG

Request sent: 4/2/2018 at 8:07 AM
Last sent: 4/9/2018 at 7:30 AM
Concur: Yes
Comments:
Reviewed On: 4/10/2018 at 8:02 PM

Recipient Name: PAUL HEINEMANN  Department: Agricultural And Biological Engineering
Position: Consultation  Campus: UNIVERSITY PARK CAMPUS
Title: DEPT HD/PROF AG & BIO ENG

Request sent: 4/2/2018 at 8:07 AM
Concur: Yes
Comments:

Head of Department

Recipient Name: PHILLIP E SAVAGE  Department: (Not Available)
Position: Head of Department  
Campus: UNIVERSITY PARK CAMPUS  
Title:

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

SCCA Representative

Recipient Name: ROBERT MELTON  
Department: (Not Available)

Position: SCCA Representative  
Campus: UNIVERSITY PARK CAMPUS  
Title:

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

Dean of the College

Recipient Name: PETER BUTLER  
Department: (Not Available)

Position: Dean of the College  
Campus: UNIVERSITY PARK CAMPUS  
Title:

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

SCCA Subcommittee Review

Recipient Name: ALLISON ALBINSKI  
Department: (Not Available)

Position: SCCA Subcommittee Review  
Campus: UNIVERSITY PARK CAMPUS  
Title:

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

Recipient Name: KADI CORTER  
Department: (Not Available)

Position: SCCA Subcommittee Review  
Campus: UNIVERSITY PARK CAMPUS  
Title:

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

Recipient Name: JOY ROBERTSON
Position: SCCA Subcommittee Review
Title:
Department: (Not Available)
Campus: UNIVERSITY PARK CAMPUS

Request sent: 11/9/2017 at 1:51 PM
Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

SCCA Review

Recipient Name: ALLISON ALBINSKI
Position: SCCA Review
Title:
Department: (Not Available)
Campus: UNIVERSITY PARK CAMPUS

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

SCCA Review

Recipient Name: KADI CORTER
Position: SCCA Review
Title:
Department: (Not Available)
Campus: UNIVERSITY PARK CAMPUS

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

SCCA Review

Recipient Name: JOY ROBERTSON
Position: SCCA Review
Title:
Department: (Not Available)
Campus: UNIVERSITY PARK CAMPUS

Request sent: 11/9/2017 at 1:52 PM
Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

Faculty Senate Review

Recipient Name: ALLISON ALBINSKI
Position: Faculty Senate Review
Title:
Department: (Not Available)
Campus: UNIVERSITY PARK CAMPUS

Concur: [Not Yet Reviewed]
Curricular Information

Blue Sheet Item #:

Review Date:

SCRID Numbers

(CHE 445):

Proposal ID: 4801 created on 4/11/2018 12:58 PM
Proposal Designation: Cybersecurity Computational Foundations

This is a proposed Add to Undergraduate Stand Alone Minor

Initiators

<table>
<thead>
<tr>
<th>Name</th>
<th>User ID</th>
<th>College</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>PATRICK MCDANIEL</td>
<td>pdm12</td>
<td>Engineering (EN)</td>
<td>Not Available</td>
</tr>
<tr>
<td>TRENT RAY JAEGE</td>
<td>trj1</td>
<td>Engineering (EN)</td>
<td>Not Available</td>
</tr>
<tr>
<td>JOHN HANNAN</td>
<td>JJH9</td>
<td>Engineering (EN)</td>
<td>Not Available</td>
</tr>
<tr>
<td>MARK P MAHON</td>
<td>mpm114</td>
<td>Engineering (EN)</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

Academic Home: Engineering (EN)

Program Definition

Effective Semester: Upon Approval
- Offering College(s)
  - Engineering

Entrance and/or Retention Policies

Entrance Requirement

Requested Policy: Any student wishing entrance to the minor should have successfully completed all the prerequisite courses (CMPSC 121 or 131, CMPSC 122 or 132, CMPSC 221, CMPSC 311, CMPSC 360, CMPEN 270/271, CMPEN 331, and STAT 318).

Justification: Students need to be ready to start taking the prescribed courses for the minor and this requires a set of prerequisite courses.
Objectives and Justification

Objectives:
This new minor will focus on the development of engineering skills relating to computational security and privacy. The minor will cover the fundamental science, theory and application of security principles to network, hardware and software systems and environments. Students will acquire the skills necessary to apply security technologies in various engineering settings.

Justification:
The importance of cyber-security to all areas of engineering has become clear as industry recognizes the need to develop technologies to build secure cyber-systems. As has been reported in the popular and academic press, the need for software and hardware engineers has never been more pressing. Yet, at the same time the current Computer Science and Engineering—and more broadly Penn State—curriculum does not provide sufficiently broad and deep opportunities to acquire the skills necessary to practice security engineering at the professional level. Informal discussions with industry and students show overwhelming internal and external support for the minor that would serve to prepare students for careers in and relating to cyber-security engineering.

Cyber-security engineering requires one having mastery over computer science and/or computer engineering, upon which more advanced and focused courses can be built. For this reason we believe that it is important to embed the development of a cyber-security engineering education within a program like EECS. EECS’s leadership in security internationally and the broad spectrum of security-relevant expertise in the school uniquely position it to make such an offering. Furthermore, we believe a minor in the computational foundations of cyber-security, building upon the core of the computer science and computer engineering majors, is the best approach, as opposed to offering a stand-alone major alongside of our existing majors. The cyber-security discipline focused on computational foundations is not sufficiently separable from computer science and computer engineering. All of the relevant curricular material builds up or requires extensive knowledge of software and/or hardware principles.

The proposed minor consists of 18 credits, 15 of which are at the 400-level, exceeding the generally accepted parameters for a minor. We justify this based on the technical depth required to make this minor meaningful. Unlike some minors whose purpose is to complement a major by providing a broadening or knowledge, our minor is designed to allow students to gain the technical depth in an area with significant importance to a number of majors, namely computer science, computer engineering, and electrical engineering. The three required courses for the minor are EE/CMPEN 362 (Computer Networks), CMPEN 473 (Operating Systems), and CMPSC 443 (Computer Security). These provide the foundation upon with the additional courses rely, particularly the new courses CMPEN 462 (Wireless Communications and Systems Security) and CMPSC 447 (Software Security). If the minor were to have only 3 courses at the 400-level it would lose its significance by failing to provide the technical depth and knowledge required to be prepared for the cyber-security challenges faced by software and hardware designers.

Related to the issue of 400-level courses is the number of prerequisite courses required to attain the minor. The justification is the same as above: the technical depth of these courses requires a significant sequence of general software and hardware courses. Without these prerequisites the required and additional courses cannot be taught at the depth required. And while the number of prerequisite courses is non-negligible, students in computer science and computer engineering majors (of which there are five) would already meet these requirements. Students in electrical engineering majors (of which there are three) would need to take several courses outside of their major to prepare for this minor, but with careful planning they should be able to do this.

Proposal Outline

CIP Code: 111003

Faculty Member(s) in Charge:

- Name: JOHN HANNAN (JH9)
  Title: Associate Department Head
  Phone: 814-863-0702
  Address: W331 Westgate Building
  Campus: UP
  City: University Park
  Fax:

- Name: PATRICK MCDANIEL (pdm12)
  Title: Distinguished Professor
  Phone: 814-863-3599
  Address: W329 Westgate Building
  Campus: UP
Program Description:
The Cybersecurity Minor offered by the Department of Computer Science and Engineering is designed for students in computational majors who wish to acquire the technical depth to design and construct secure cyber systems. Building upon a core computer science foundation the minor includes courses in computer security, mobile and wireless security, software security and networking. Additional courses in the minor provide areas of application such as operating systems, database systems, and computer architecture, in which issues of security arise. The minor prepares students for careers as technical professionals working with secure cyber systems and for graduate study in computer, network and systems security. To be ready to take the courses in the minor students must complete the following courses (or their equivalents): CMPSC 121 or 131, CMPSC 122 or 132, CMPSC 221, CMPSC 311, CMPSC 360, CMPEN 270/271, CMPEN 331, and STAT 318.

For a MINOR in Cybersecurity Computational Foundations a minimum of 18 credits are required.

Scheduling Recommendation by Semester Standing Given Like (Sem: 1-2)

Academic Outline

Requirements for the Minor:
A minimum of 18 credits are required

Common Requirements for the Minor: (18 Credits)

Prescribed Courses (9 Credits) [1]

CMPEN 362 (3), CMPSC 443 (3), CMPSC 473 (3)

Additional Courses (3-6 Credits) [1]

CMPEN 462 (3); CMPSC 447 (3)

Supporting Courses (3-6 Credits) [1]

CMPEN 431 (3)
CMPS 431 (3)
CMPS 461 (3)
CMPS 464 (3)
CMPS 475 (3)

Further Clarification

This proposal includes two new courses, CMPSC 447 (Software Security) and CMPEN 462 (Wireless Communication Systems and
Security). Both of these courses are being taught as 497s this semester and will subsequently be regularly taught. Both will count as technical electives in the computer science and computer engineering majors. The prerequisites for these course are included in the ones for this minor. Further information about these courses is available upon request.

Courses modified by this proposal
CMPEN 362 (3)

Courses added by this proposal
CMPEN 462; CMPSC 447

Academic Program Costing Analysis Form
Anticipated Costs: No costs are anticipated.

Academic Program Admissions Form

Baccalaureate (4-year) programs
First-year: N/A
Transfer: N/A
Non-Degree: N/A
Already graduated: N/A

Associate (2-year) programs
First-year: N/A
Transfer: N/A
Non-Degree: N/A
Already graduated: N/A

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: DAVID SALVIA
Department: Electrical Engineering
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS
Title: ASST PROF ELECT. ENGR.

Request sent: 6/23/2017 at 10:41 AM
Concur: Yes
Comments: I have no issues with the minor, but I think that the formatting of the requirements is wrong. This is how I think it should look:

REQUIREMENTS FOR THE MINOR:
A minimum of 18 credits are required
PRESCRIBED COURSES (3 Credits) [1]
CMPSC 443 (3)
ADDITIONAL COURSES (3-6 Credits) [1]
CMPSC 447 (3); CMPEN 462 (3)

SUPPORTING COURSES (9-12 Credits) [1]
CMPEN 362 (3) – Communication Networks – Data transmission, encoding, link control techniques; communication network architecture, design; computer communication system architecture, protocols.
CMPEN 431 (3) – Introduction to Computer Architecture – Introduction to computer architecture. Memory hierarchy and design, CPU design, pipelining, multiprocessor architecture.
CMPSC 431W (3) – Database Management Systems – Topics include: conceptual data modeling, relational data model, relational query languages, schema normalization, database/Internet applications, and database system issues.
CMPSC 473 (3) – Operating Systems Design & Construction – Design and implementation of computer operating systems; management of various system resources: processes, memory, processors, files, input/output devices.
CMPSC 475 (3) – Applications Programming – Development of software for devices including smart phones, tablets, handheld units, and other general purpose computing platforms.
CMPSC 461 – Programming Language Concepts – Fundamental concepts of programming language design, specifications, and implementation; programming language paradigms and features; program verification.
CMPSC 464 - Intro. to the Theory of Computation – Computability/Complexity: finite automata, regular & context-free languages, Turing machines, Church-Turing Thesis, undecidability, reducibility, completeness, time/space complexity, P versus NP.


Recipient Name: LINDA MARIE NULL   Department: Computer Science

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

Title: ASSOC PROF COMPUTER SCIENCE

Request sent: 6/23/2017 at 10:41 AM

Last sent: 7/3/2017 at 7:30 AM

Concur: No, this proposal needs significant changes

Comments: Is there a new course in this proposal? If so, approval of this minor should wait until that course is also proposed. (I'm basing my approval on the assumption that this course has not yet been proposed). Since minors basically can be taken by any student at any campus, how will it work for a student at, say PSH, to get this minor if we offer 430 instead of 431, etc? Would those courses be acceptable substitutes?

Reviewed On: 7/6/2017 at 3:08 PM

Initiator Comments: All concerns from reviewers have been addressed including (1) revising required courses and credit totals; (2) including prerequisite courses in program description; (3) removing enrollment controls; (4) expanded the justification of the structure of the minor since it requires mostly 400-level courses. (5) explanation of new courses (CMPEN 462 and CMPSC 447) which have completed consultation and are moving through the approval process. (6) Substitutions for comparable courses (e.g., 430 in place of 431) would certainly be approved.

Request sent: 2/22/2018 at 11:21 AM

Last sent: 3/5/2018 at 7:30 AM

Concur: Yes

Comments: (Completed By Default - Exceeded Time Limit)

Reviewed On: 3/9/2018 at 7:15 AM

Recipient Name: MARY BETH ROSSON   Department: Information Sciences And Technology
Title: Associate Dean

Position: Consultation

Campus: UNIVERSITY PARK CAMPUS

Request sent: 6/23/2017 at 10:41 AM

Last sent: 7/3/2017 at 7:30 AM

Concur: No, this proposal needs significant changes

Comments: (I'm not sure why I am being listed twice as a formal consultant, but after being nagged by the system I have pasted in my comments from the other listing) Like other reviewers, I am confused about the credit requirements given the way they are specified. Is there a minimum of 21 credits or is it more? Also, quite a number of the required courses have prerequisites that have not been specified and would make the more much more heavyweight than it seems. It's not clear that a minor that can only be completed by people already in the major (CMPSC or CMPEN) fulfills the university model for when and to whom a minor should be offered. Finally, the specification seems to include either new courses or typos (CMPSC 447). If a new course, it should be submitted as part of the package for review; if a typo it should be corrected.

Reviewed On: 7/3/2017 at 8:27 AM

Initiator Comments: All concerns from reviewers have been addressed including (1) revising required courses and credit totals; (2) including prerequisite courses in program description; (3) removing enrollment controls; (4) expanded the justification of the structure of the minor since it requires mostly 400-level courses. (5) explanation of new courses (CMPEN 462 and CMPSC 447) which have completed consultation and are moving through the approval process.

Request sent: 2/22/2018 at 11:20 AM

Last sent: 3/5/2018 at 7:31 AM

Concur: Yes

Comments: (Completed By Default - Exceeded Time Limit)

Reviewed On: 3/9/2018 at 7:15 AM

Recipient Name: XIAOCONG FAN

Department: Engineering

Position: Consultation

Campus: PENN STATE ERIE, THE BEHREND COLLEGE

Title: ASSOC PROF CMPSC/SFTW ENG

Request sent: 6/23/2017 at 10:41 AM

Last sent: 7/3/2017 at 7:30 AM

Concur: Yes

Comments: (Completed By Default - Exceeded Time Limit)

Reviewed On: 7/8/2017 at 7:15 AM

Recipient Name: ASAD AZEMI

Department: School of Engr Technology and Commonwealth Engr

Position: Consultation

Campus: BRANDYWINE CAMPUS

Title: ASSOC PROF ENGINEERING
Request sent: 6/23/2017 at 10:41 AM
Concur: No, this proposal needs significant changes
Comments: I support the proposal. Three points that need to be considered: (i) The credit numbers in parenthesis, for courses, need to be corrected (as point out by David Salvia) and (ii) based on UFS policy, “Any prerequisites necessary to complete minor requirements must be clearly detailed in the minor description,” therefore, prerequisites should be added to the description, (iii) CMPSC 443 is a prescribed course, which has CMPSC 362 and CMPSC 473 as prerequisites; therefore CMPSC 362 and CMPSC 473 cannot be supporting courses for the minor since they have to be taken before CMPSC 443. A solution is to add CMPSC 362 and CMPSC 473 as prescribed courses.
Initiator Comments: All three of your concerns have been addressed: Credit hours are now correct; all prerequisites are included in the program description; Prescribed courses are now CMPEN 363, CMPSC 473, CMPSC 443.

Request sent: 2/22/2018 at 10:09 AM
Concur: Yes
Comments: 
Reviewed On: 2/22/2018 at 3:26 PM

Recipient Name: CHARLES GASTON  Department: (Not Available)
Position: Consultation  Campus: YORK CAMPUS
Title: ASST. PROF. ENGINEERING

Request sent: 6/23/2017 at 10:41 AM
Last sent: 7/3/2017 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 7/8/2017 at 7:15 AM

Recipient Name: DAUDI WARYOBA  Department: School of Engr Technology and Commonwealth Engr
Position: Consultation  Campus: DUBOIS CAMPUS
Title: ASST PROF / ENGINEERING

Request sent: 6/23/2017 at 10:41 AM
Last sent: 6/26/2017 at 7:30 AM
Concur: Yes
Comments: Its a good minor, but the proposal needs to be explicit on required credits (18 credits should be the minimum) and prerequisites.
Reviewed On: 6/28/2017 at 5:44 PM
Initiator Comments: The printed version of the course requirements does not reflect what we specified in the proposal. To fix this we have move courses from the “Additional” section to the “Supporting” section to clarify the requirements. The
requirements now read as follows:
COMMON REQUIREMENTS FOR THE Minor: (18 Credits)
PRESERVED COURSES (9 Credits) [1] CMPEN 362 (3), CMPSC 443 (3), CMPSC 473 (3)
ADDITIONAL COURSES (3-6 Credits) [1] CMPEN 462 (3); CMPSC 447 (3)
SUPPORTING COURSES (3-6 Credits) [1] CMPEN 431 (3) CMPSC 431 (3) CMPSC 461 (3)
CMPSC 464 (3) CMPSC 475 (3)

Recipient Name: DAVID HUNTER Department: Statistics
Position: Consultation Campus: UNIVERSITY PARK CAMPUS
Title: DEPT HEAD STATISTICS

Request sent: 6/23/2017 at 10:41 AM
Last sent: 6/26/2017 at 7:30 AM
Concur: No, this proposal needs significant changes
Comments: This sounds like a strong minor. There's something strange about the number of credits listed under "requirements". Is it 18 credits that are required, or more than 18? The reason I have checked "No" is that I object to the entrance requirement. If a student satisfies the prerequisites for all the courses, then I'm not sure how the statement "Students outside of major will not have sufficient background in the materials to succeed in the program" can be justified. Relatedly, it appears that there are implicit requirements for this minor, due to prerequisites, that are not listed. I had thought such implicit requirements were frowned upon.
Reviewed On: 6/27/2017 at 1:21 PM

Initiator Comments: We have addressed your concerns. Credit totals have been revised. All prerequisite courses are now listed in the program description. We have removed the entrance requirements.

Request sent: 2/22/2018 at 10:11 AM
Last sent: 3/5/2018 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 3/9/2018 at 7:15 AM

Recipient Name: DAVID MEREDITH Department: School of Engr Technology and Commonwealth Engr
Position: Consultation Campus: FAYETTE CAMPUS
Title: ASSOC PROF GEN ENG

Request sent: 6/23/2017 at 10:41 AM
Last sent: 6/26/2017 at 7:30 AM
Concur: Yes
Comments: 
Recipient Name: DAVID SALVIA
Department: Electrical Engineering
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS

Request sent: 6/23/2017 at 10:41 AM
Last sent: 7/3/2017 at 7:30 AM

Concur: No, this proposal needs significant changes
Comments: It looks like the requirements have been changed and now the credits don't add up correctly again. There are now 9 credits of required courses, 9 credits of additional courses, and 3-6 credits of supporting courses. That doesn't add up to 18. This needs to be fixed.
Reviewed On: 7/4/2017 at 7:39 AM

Initiator Comments: Credit totals have been fixed. Prerequisite courses have been added to the description of the minor.

Recipient Name: EDWARD EVANS
Department: Engineering
Position: Consultation
Campus: PENN STATE ERIE, THE BEHREND COLLEGE
Title: SR LECT ENGINEERING
(21)  Request sent: 6/23/2017 at 10:41 AM  
Last sent: 7/3/2017 at 7:30 AM  
Concur: Yes  
Comments: (Completed By Default - Exceeded Time Limit)  
Reviewed On: 7/8/2017 at 7:15 AM

Recipient Name: **ERIC LIPSKY**  
Department: Mechanical Engineering  
Position: Consultation  
Campus: GREATER ALLEGHENY CAMPUS  
Title: ASSOCIATE PROFESSOR

(22)  Request sent: 6/23/2017 at 10:41 AM  
Last sent: 7/3/2017 at 7:30 AM  
Concur: Yes  
Comments: (Completed By Default - Exceeded Time Limit)  
Reviewed On: 7/8/2017 at 7:15 AM

Recipient Name: **HAROLD SCHOLZ**  
Department: (Not Available)  
Position: Consultation  
Campus: LEHIGH VALLEY CAMPUS  
Title: INSTRUCTOR

(15)  Request sent: 6/23/2017 at 10:41 AM  
Last sent: 7/3/2017 at 7:30 AM  
Concur: No, this proposal needs significant changes  
Comments: I agree with the comments of David Salvia and Asad Azemi. I filled this out some time ago - not sure why it was not recorded.  
Reviewed On: 7/3/2017 at 12:28 PM

Initiator Comments: All concerns from reviewers have been addressed including (1) revising required courses and credit totals; (2) including prerequisite courses in program description; (3) removing enrollment controls; (4) expanded the justification of the structure of the minor since it requires mostly 400-level courses. (5) explanation of new courses (CMPEN 462 and CMPSC 447) which have completed consultation and are moving through the approval process.

(41)  Request sent: 2/22/2018 at 11:20 AM  
Last sent: 3/5/2018 at 7:30 AM  
Concur: Yes  
Comments: (Completed By Default - Exceeded Time Limit)  
Reviewed On: 3/9/2018 at 7:15 AM
Recipient Name: JAMES HENDRICKSON
Department: (Not Available)
Position: Consultation
Campus: (Not Available)
Title: LECT ENGINEERING

Request sent: 6/23/2017 at 10:41 AM
Last sent: 7/3/2017 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 7/8/2017 at 7:15 AM

Recipient Name: JANICE MARGLE
Department: Abington College (Pre-Major)
Position: Consultation
Campus: ABINGTON CAMPUS
Title: ASSOC PROF ENGINEERING

Request sent: 6/23/2017 at 10:41 AM
Concur: No, this proposal needs significant changes
Comments: Needs significant changes. Am in agreement with suggested comments and changes by Asad Azemi and David Salvia.
Reviewed On: 6/28/2017 at 1:44 PM
Initiator Comments: All concerns from reviewers have been addressed including (1) revising required courses and credit totals; (2) including prerequisite courses in program description; (3) removing enrollment controls; (4) expanded the justification of the structure of the minor since it requires mostly 400-level courses. (5) explanation of new courses (CMPEN 462 and CMPSC 447) which have completed consultation and are moving through the approval process.

Request sent: 2/22/2018 at 11:20 AM
Last sent: 3/5/2018 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 3/9/2018 at 7:15 AM

Recipient Name: JEFFREY CHIAMPI
Department: UC Engineering
Position: Consultation
Campus: WILKES-BARRE CAMPUS
Title: COMPUTER SCIENCE

Request sent: 6/23/2017 at 10:41 AM
Last sent: 7/3/2017 at 7:30 AM
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<thead>
<tr>
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<tr>
<td>JEFFREY HILL</td>
<td>(Not Available)</td>
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<tr>
<td>JEFFREY STONE</td>
<td>UC Information Sciences &amp; Technology</td>
<td>SENIOR INSTR INFO SCI/TECH</td>
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<td>JENIFER SHANNON</td>
<td>(Not Available)</td>
<td>LECTURER ENGINEERING</td>
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<tr>
<td>KENNETH DUDECK</td>
<td>UC Engineering</td>
<td>ASSOC PROF ENGR</td>
</tr>
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**Request sent:** 6/23/2017 at 10:41 AM

**Last sent:** 6/26/2017 at 7:30 AM

**Concur:** Yes

**Comments:** I concur with other comments regarding the clarity of the credit expectations and the listing of prerequisites, but have no other issues with the proposal.

**Reviewed On:** 6/27/2017 at 9:55 AM
Request sent: 6/23/2017 at 10:41 AM
Last sent: 7/3/2017 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 7/8/2017 at 7:15 AM

Recipient Name: KHALED AMLEH
Department: UC Engineering
Position: Consultation
Campus: MONT ALTO CAMPUS
Title: ASSOC PROF ENGINEERING

Request sent: 6/23/2017 at 10:41 AM
Last sent: 7/3/2017 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 7/8/2017 at 7:15 AM

Recipient Name: LINDA NULL
Department: Computer Science
Position: Consultation
Campus: PENN STATE HARRISBURG, THE CAPITAL COLLEGE
Title: ASSOC PROF COMPUTER SCIE

Request sent: 6/23/2017 at 10:41 AM
Last sent: 7/3/2017 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 7/8/2017 at 7:15 AM

Recipient Name: MAJID CHATSAZ
Department: School of Engr Design, Technology and Prof Prgrms
Position: Consultation
Campus: WORTHINGTON SCRANTON CAMPUS
Title: ASST PROF GENERAL ENGR

Request sent: 6/23/2017 at 10:41 AM
Last sent: 7/3/2017 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 7/8/2017 at 7:15 AM
Recipient Name: MARIE HOJNACKI  
Department: Political Science

Position: Consultation  
Campus: UNIVERSITY PARK CAMPUS

Title: ASSOC PROF POLITICAL SCI

Request sent: 6/23/2017 at 10:41 AM

Last sent: 7/3/2017 at 7:30 AM

Concur: No, this proposal needs significant changes

Comments: I agree with the comments that many others have made about the exclusivity of the minor and the additional coursework it implicitly requires through the prerequisites associated with required courses. Moreover, the credits needed for completion are not at all clear.

Reviewed On: 7/5/2017 at 9:50 PM

Initiator Comments: All concerns from reviewers have been addressed including (1) revising required courses and credit totals; (2) including prerequisite courses in program description; (3) removing enrollment controls; (4) expanded the justification of the structure of the minor since it requires mostly 400-level courses. (5) explanation of new courses (CMPEN 462 and CMPSC 447) which have completed consultation and are moving through the approval process.

Recipient Name: MARY BETH ROSSON  
Department: Information Sciences And Technology

Position: Consultation  
Campus: UNIVERSITY PARK CAMPUS

Title: Associate Dean

Request sent: 2/22/2018 at 11:20 AM

Last sent: 3/5/2018 at 7:30 AM

Concur: Yes

Comments: (Completed By Default - Exceeded Time Limit)

Reviewed On: 3/9/2018 at 7:15 AM

Initiator Comments: All concerns from reviewers have been addressed including (1) revising required courses and credit totals; (2) including prerequisite courses in program description; (3) removing enrollment controls; (4) expanded the justification of the structure of the minor since it requires mostly 400-level courses. (5) explanation of new courses (CMPEN 462 and CMPSC 447) which have completed consultation and are moving through the approval process.
(CMPEN 462 and CMPSC 447) which have completed consultation and are moving through the approval process.

(44) Request sent: 2/22/2018 at 11:20 AM
Last sent: 3/5/2018 at 7:31 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 3/9/2018 at 7:15 AM

Recipient Name: MICHAEL GALLIS  Department: UC Science
Position: Consultation  Campus: SCHUYLKILL CAMPUS
Title: ASSOC PROF PHYSICS

(30) Request sent: 6/23/2017 at 10:41 AM
Last sent: 7/3/2017 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 7/8/2017 at 7:15 AM

Recipient Name: RICHARD CIOCCI  Department: Science, Engineering And Technology
Position: Consultation  Campus: PENN STATE HARRISBURG, THE CAPITAL COLLEGE
Title: ASSOC PROF MECH ENG

(7) Request sent: 6/23/2017 at 10:41 AM
Concur: Yes
Comments: I support the minor proposal, but I agree that the credit count doesn't add up and the limitation to certain majors would be better as a caution than a restriction.
Reviewed On: 6/27/2017 at 8:00 PM

Recipient Name: RICHARD SINGER  Department: Business And Engineering
Position: Consultation  Campus: ALTOONA CAMPUS
Title: SR INSTR COMPUTER SCIENCE AND ENGINEERING

(6) Request sent: 6/23/2017 at 10:41 AM
Last sent: 6/26/2017 at 7:30 AM
Concur: No, this proposal needs significant changes
Comments: 1. Entrance requirements are unclear. Is it CMPSC or CMPEN -or- CMPSC or Engineering Programs. For instance are EE and DASC ok?
2. The program description uses the undefined term "computational majors".
3. The requirements and prerequisites for the requirements are unclear as well.
Proposal needs some rework.

Reviewed On: 6/27/2017 at 1:48 PM

Initiator Comments: We have addressed your concerns. Prerequisite courses are now explicitly listed in the program description. We have removed the entrance requirements. We expect the major to be available to the existing computer science and computer engineering majors (of which there are several at different campuses) and proposed new computer science majors.

(34) Request sent: 2/22/2018 at 10:30 AM
Concur: Yes
Comments: Given the changes, I recommend approval.
Reviewed On: 2/22/2018 at 11:33 AM

Recipient Name: SALVATORE MARSICO
Department: UC Engineering
Position: Consultation
Campus: WILKES-BARRE CAMPUS
Title: ASSOC PROF ENGR CC

(31) Request sent: 6/23/2017 at 10:41 AM
Last sent: 7/3/2017 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 7/8/2017 at 7:15 AM

Recipient Name: SHERRY KRATSAS
Department: (Not Available)
Position: Consultation
Campus: BEAVER CAMPUS
Title: INSTR COMP SCI

Last sent: 7/3/2017 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 7/8/2017 at 7:15 AM

Recipient Name: XIAOCONG FAN
Department: Engineering
Position: Consultation
Campus: PENN STATE ERIE, THE BEHREND COLLEGE
Title: ASSOC PROF CMPSC/SFTW ENG

(33) Request sent: 8/23/2017 at 10:41 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 7/8/2017 at 7:15 AM

Recipient Name: NICKLAUS A GIACOBE
Department: Information Sciences And Technology
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS
Title: Assistant Teaching Professor

Request sent: 6/23/2017 at 1:09 PM
Concur: No, this proposal needs significant changes
Comments: The proposal does not meet the expectations of a Penn State Minor in regards to the total number of credits at the 400-level. The published recommendation is that minors should have a minimum of 6 credits at the 400 level, but not more than half of the total credits for the minor should be at the 400 level. This proposal has only 3 credits below the 400 level. The proposers should consider substituting 3 or 6 more credits below the 400 level in place of some of the 400-level credits.

A minor is supposed to be at least 18 credits of coursework that supplements a major... with total requirements are generally limited to 18 to 21 credits. The total number of credits do not add up correctly to the 18 credit (minimum) total as documented. The requirements indicate 9 credits of prescribed courses, 9 credits of additional courses and 3-6 credits of supporting courses. That totals to a minimum of 21 credits with 21-24 credits required under this proposal. The proposers should consider reducing the total credits to meet the 18-21 credit expectation.

Many the courses proposed to be in this new minor are requirements of the Computer Science major, or are choices of courses that can be taken to meet the requirements of the major. From this proposal, it is not clear whether a student in the Computer Science or Computer Engineering program would simply make course selections as part of their major that would qualify for them to receive this minor. As indicated in this proposal, there is no way that a student outside of Computer Science or Computer Engineering would be able to complete this minor. There are too many (undocumented) pre-requisites for the courses listed in this proposal for anyone outside of the described majors to complete the minor. Those pre-requisites include a vast majority of the courses required for the major in Computer Science. If that is the intention, then this is not a minor, but rather is rather an Option in the major. It should be re-proposed as such, in my opinion.

CMPSC 447 does not exist. It does not appear in Lionpath's catalog of CMPSC courses, the previous Penn State Bulletin, the EECs website, this proposal, nor as an individual course proposal in the curriculum system. As such, I cannot speculate on what this course is intended to be or if this is a typographical error. The proposers should address this error by fixing the typo to identify which existing course they intend to use. If this is a new course to be proposed, it should be indicated as such in this proposal and with a corresponding course proposal.

Reviewed On: 6/28/2017 at 9:07 AM
Initiator Comments: All concerns from reviewers have been addressed including (1) revising required courses and credit totals; (2) including prerequisite courses in program description; (3) removing enrollment controls; We have received interest from other computing majors at other campuses and their students would be able to pursue this minor with some course substitutions. (4) expanded the justification of the structure of the minor since it requires mostly 400-level courses, following the Faculty Senate guidelines for such minors. Reducing the number of 400-level courses is not appropriate given the very deep and technical nature of this minor. While not the typical structure of a minor, the structure is within the Faculty Senate guidelines. An option is not appropriate since we want this concentration to be available to several majors (at least 5 if not more) at Penn State; (5) explanation of
new courses (CMPEN 462 and CMPSC 447) which have completed consultation and are moving through the approval process.

(37) Request sent: 2/22/2018 at 11:37 AM

Concur: Yes

Comments:

My original concerns with the scope of the minor and programs that undergraduate students will be from has been addressed. I understand that there are several majors (up to five) that could potentially take this minor. The concept of an option in a major would then require each of those other majors to be revised, so that idea is not feasible.

It is unusual, compared to other minors at Penn State, that this minor is so heavily weighted in 400-level courses, but I concur that that the content proposed would makes sense, but would likely only be accessible by students from those 5 majors. The additional course proposals for the new courses address my concern with understanding what content will be required of students in this minor.

I have one minor formatting concern in the ACADEMIC OUTLINE section of the proposal. Under the Additional Courses (9 Credits), it currently says:

"(CMPEN 462 (3); CMPSC 447 (3))
(CMPE 431 (3), CMPSC 431 (3), CMPS 461 (3), CMPS 464 (3), CMPS 475 (3))"

This is unclear. Do you intend for students to the following:

Option A:

"Select 3 credits from CMPEN 462 (3) or CMPSC 447 (3)
Select 6 credits from CMPEN 431 (3), CMPSC 431 (3), CMPS 461 (3), CMPS 464 (3), CMPS 475 (3)"

Option B:

"Select 6 credits from CMPEN 462 (3) and CMPSC 447 (3)
Select 3 credits from CMPEN 431 (3), CMPSC 431 (3), CMPS 461 (3), CMPS 464 (3), CMPS 475 (3)"

Option C:

"Select 9 credits from any of the following: CMPEN 462 (3), CMPSC 447 (3), CMPEN 431 (3), CMPSC 431 (3), CMPS 461 (3), CMPS 464 (3), CMPS 475 (3)"

I don't think you mean Option D, which is how it is currently written in the bulletin format. I interpret the commas as ANDs and semi-colons as ORs, which means what is there now is:

"Select 3 credits from CMPEN 462 (3) or CMPSC 447 (3)
Take ALL of the following courses: CMPEN 431 (3), CMPSC 431 (3), CMPS 461 (3), CMPS 464 (3), CMPS 475 (3)"

Reviewed On: 3/2/2018 at 4:10 PM
Initiator Comments: The printed version of the course requirements does not reflect what we specified in the proposal. To fix this we have move courses from the “Additional” section to the “Supporting” section to clarify the requirements. The requirements now read as follows:

COMMON REQUIREMENTS FOR THE Minor: (18 Credits)
PRESCRIBED COURSES (9 Credits) [1]CMPEN 362 (3), CMPSC 443 (3), CMPSC 473 (3)
ADDITIONAL COURSES (3-6 Credits) [1]CMPEN 462 (3); CMPSC 447 (3)
SUPPORTING COURSES (3-6 Credits) [1]CMPEN 431 (3) CMPSC 431 (3) CMPSC 461 (3)CMPSC 464 (3) CMPSC 475 (3)

Recipient Name: PENG LIU
Department: Information Sciences And Technology
Position: Consultation
Title: PROFESSOR

Request sent: 6/23/2017 at 1:09 PM
Concur: Yes
Comments: Given the essential role played by malware analysis in cybersecurity, I think it is important to add a malware analysis course to the curriculum. For example, the IST’s new course CYBER 365 (Malware Analytics) could be added to the proposed curriculum.
Reviewed On: 6/26/2017 at 9:18 AM

Head of Department

Recipient Name: CHITARANJAN DAS
Department: (Not Available)
Position: Head of Department
Title:

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

SCCA Representative

Recipient Name: ROBERT MELTON
Department: (Not Available)
Position: SCCA Representative
Title:

Concur: [Not Yet Reviewed]
### Dean of the College

**Recipient Name:** PETER BUTLER  
**Department:** (Not Available)  
**Position:** Dean of the College  
**Campus:** UNIVERSITY PARK CAMPUS  
**Title:**

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

---

### SCCA Subcommittee Review

**Recipient Name:** KADI CORTER  
**Department:** (Not Available)  
**Position:** SCCA Subcommittee Review  
**Campus:** UNIVERSITY PARK CAMPUS  
**Title:**

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

---

**Recipient Name:** JOY ROBERTSON  
**Department:** (Not Available)  
**Position:** SCCA Subcommittee Review  
**Campus:** UNIVERSITY PARK CAMPUS  
**Title:**

**Request sent:** 11/9/2017 at 1:51 PM  
**Concur:** [Not Yet Reviewed]  
**Comments:** [Not Yet Reviewed]  
**Reviewed On:** [Not Yet Reviewed]

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### SCCA Review

**Recipient Name:** KADI CORTER  
**Department:** (Not Available)  
**Position:** SCCA Review  
**Campus:** UNIVERSITY PARK CAMPUS  
**Title:**
Faculty Senate Review

Recipient Name: JOY ROBERTSON  Department: (Not Available)
Position: SCCA Review  Campus: UNIVERSITY PARK CAMPUS
Title:

Request sent:11/9/2017 at 1:52 PM
Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

Faculty Senate Review

Recipient Name: KADI CORTER  Department: (Not Available)
Position: Faculty Senate Review  Campus: UNIVERSITY PARK CAMPUS
Title:

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

Faculty Senate Review

Recipient Name: JOY ROBERTSON  Department: (Not Available)
Position: Faculty Senate Review  Campus: UNIVERSITY PARK CAMPUS
Title:

Request sent:11/9/2017 at 1:51 PM
Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

Registrar Data Entry

Recipient Name: PAULA HAMATY  Department: (Not Available)
Position: Registrar Data Entry  Campus: UNIVERSITY PARK CAMPUS
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Request sent: 11/9/2017 at 1:52 PM
Curricular Information
Blue Sheet Item #: [Not Yet Reviewed]
Review Date: [Not Yet Reviewed]

Program Codes
Engineering: [Not Yet Reviewed]

Option Codes
Cybersecurity Computational Foundations: [Not Yet Reviewed]

Uploaded Documents:
Context Type: Prospectus Memo
File Description: Undergraduate Education Prospectus Memo
File Name: Prospectus Memo for CyberSecurity.pdf

Context Type: Supporting Documents
File Description: ACUE Consultation
File Name: ACUE Consultation- Cybersecurity Computational Foundations Minor.pdf

Proposal ID: 3804 created on 4/10/2018 3:47 PM
DATE: May 11, 2017  
FROM: Jacqueline Edmondson  
TO: Peter Butler

Thank you for the submission of your P-1 prospectus for a new Cybersecurity Computational Foundations Minor. The ACUE Prospectus Committee has reviewed your prospectus and recommends continued consultation with the College of Information Sciences and Technology. In line with AAPPM P-1 criteria and consultation, you may now move to the formal P-1 submission process.

cc: David J. Christiansen  
Kadi K. Corter  
Michele L. Duffey  
Anna M. Griswold  
Daniel R. Hagen  
Tracy S. Hoover  
Robert N. Pangborn
Begin forwarded message:

From: John Hannan <jjh9@cse.psu.edu>
Subject: Re: Consultation: Cybersecurity Computational Foundations Minor
Date: March 26, 2018 at 1:17:13 PM EDT
To: PAMELA SILVER <psb3@psu.edu>
Cc: Meng Su <mus11@psu.edu>, XIAOCONG FAN <xxf2@psu.edu>, "EDWARD R. EVANS JR" <Evans@psu.edu>, ouo1@psu.edu

Pam,

We will proceed with the proposal for the minor as it currently stands and I will have our communications included as part of the consultation. Your students will certainly be able to pursue this minor at Behrend provided your campus offers the appropriate courses. We can address the issue of including additional courses at a later date.

Professor Hannan

John Hannan
Associate Department Head
Department of Computer Science & Engineering
The Pennsylvania State University
W331 Westgate Building
University Park, PA 16802
814-863-0702
hannan@cse.psu.edu

On Mar 26, 2018, at 5:15 AM, PAMELA SILVER <psb3@psu.edu> wrote:

Dr. Hannan –Thank you for your response. As long as there is enough flexibility that our students will be able to take advantage of this major, we are supportive. We appreciate your willingness to be flexible once our new course is approved. I am copying in our software engineering faculty so that they can work directly with you once our course is approved and when substitutions are needed. Will that compromise work for you? Cheers, Pam

From: John Hannan [mailto:jjh9@cse.psu.edu]
Sent: Saturday, March 24, 2018 10:13 AM
To: psb3@psu.edu
Subject: Re: Consultation: Cybersecurity Computational Foundations Minor

Dr. Silver,

We received the feedback from your campus regarding the proposed minor. Before we can consider the request of adding SWENG 497 we would need to see detailed course information so that we can understand how it would fit within the minor. Additionally, we would not add this course until it has a regular course number. Our proposal for this minor has been delayed several times and we are under pressure to get it approved so that we can advertise it and have students planning their schedules around it. I would suggest that we keep the proposal as is, and make a
later change once the new SWENG course has been approved. In the mean time, as long as the proposed course seems suitable, we would have no issues with supporting SWENG 497 as a substitute for one of the required security courses.

Please let me know if this approach is acceptable so that we may proceed with the proposal approval process.

Regards,
John

John Hannan  
Associate Department Head  
Department of Computer Science & Engineering  
The Pennsylvania State University  
W331 Westgate Building  
University Park, PA 16802  
814-863-0702  
hannan@cse.psu.edu

Dear Dr. Earl,

Thank you for the opportunity to review this proposed minor. This is a minor that Behrend students certainly could use, and we have been thinking about something similar for several years. We are happy to support this effort. Below, please find some specific comments from our computer science and software engineering faculty. I hope that you find them helpful.

Cheers,
Pam Silver

Comments:

My understanding is that students will be required to take only one of them from the two new courses which are for CS and CE respectively. We want to add SWENG497 for our SE students so that they can get the minor from courses Behrend offered instead of going to UP to get the minor. Only one of the three additional new courses should be counted and the overlap won’t be an issue. Of course, we need to get their approval for the substitutes of some of the prescribed courses such as cmpsc473 (OS) by cmpeb441 and/or cmpsc474. I don’t know if we should ask to add these subs on the proposal.

We agree with most courses in the curriculum, but we would like to add one course SWENG4xx (497 Engineering Quality and Security Software, which has been offered twice for software engineering students and is currently in the process of the new course proposal) along with the two new courses CMPSC 447 (Software Security) and CMPEN 462 (Wireless Communication Systems and Security) as one of the additional courses.

For the elective courses, we think other topics such as Cryptography, Internet Security, and Mobile Security are equivalently important.
The Engineering Quality part of SWENG 497 certainly makes sense to this minor, but one may argue that SWENG 497 has at least half materials overlapped with CMPSC 447.

It seems that we can suggest to push EE/CMPEN 362 to the prerequisite list instead, then add CMPSC 447 as one of the required courses.

Pamela Silver  
Distinguished Professor of Biology  
Interim Associate Dean of Academic Affairs  
Editor of *Freshwater Science*

Office of the Chancellor  
4701 College Drive  
Erie, PA 16563-0101  
psb3@psu.edu

---

**From:** Betty Mantz  
**Sent:** Monday, March 12, 2018 11:49 AM  
**To:** ACUE Consultation List (L-ACUECONSULT@lists.psu.edu) <L-ACUECONSULT@lists.psu.edu>  
**Cc:** LECHELLE EARL <LTE3@PSU.EDU>  
**Subject:** Consultation: Cybersecurity Computational Foundations Minor

*Consultation Request sent on behalf of Peter Butler, Associate Dean for Undergraduate and Professional Graduate Education*

Good morning, ACUE Colleagues—Attached is a proposal for the College of Engineering to add a Cybersecurity Computational Foundations Minor under the Department of Computer Science and Engineering. Please share the proposal with faculty, staff and administrators in your departments that may have an interest and forward any questions, comments, concerns, or statements of support to LeChelle Earl LTE3@PSU.EDU no later than Friday, March 23, 2018. No response will be interpreted as concurrence and the college will move ahead with the proposal. Thank you for your review.

---

Peter J. Butler  
Associate Dean for Undergraduate and Professional Graduate Education  
Professor of Biomedical Engineering  
Penn State University  
102A Hammond Building  
University Park, PA 16802  
office: (814) 863-3750  
email: pbutler@psu.edu
SENATE COMMITTEE ON CURRICULAR AFFAIRS
COURSE SUBMISSION AND CONSULTATION FORM

Principal Faculty Member(s) Proposing Course

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<th>Name</th>
<th>User ID</th>
<th>College</th>
<th>Department</th>
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<tr>
<td>Sven G Bilen</td>
<td>sgb100</td>
<td>Engineering (EN)</td>
<td>Not Available</td>
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Academic Home: Engineering (EN)
Type of Proposal: [ ] Add [ ] Change [x] Drop

Course Information

General Education Designations

Foundations
- [ ] Writing/Speaking (GWS)
- [ ] Quantification (GQ)

Knowledge Domains
- [ ] Health & Wellness (GHW)
- [ ] Natural Sciences (GN)
- [ ] Arts (GA)
- [ ] Humanities (GH)
- [ ] Social and Behavioral Sciences (GS)

Additional Designations
- [ ] Bachelor of Arts
- [ ] International Cultures (IL)
- [ ] United States Cultures (US)
- [ ] Honors Course
- [ ] Common course number - x94, x95, x96, x97, x99
- [ ] Writing Across the Curriculum

First-Year Engagement Program
- [ ] First-Year Seminar

Miscellaneous
- [ ] Common Course

GE Learning Objectives
- [ ] GenEd Learning Objective: Effective Communication
- [ ] GenEd Learning Objective: Creative Thinking
- [ ] GenEd Learning Objective: Crit & Analytical Think
- [ ] GenEd Learning Objective: Global Learning
- [ ] GenEd Learning Objective: Integrative Thinking
- [ ] GenEd Learning Objective: Key Literacies
- [ ] GenEd Learning Objective: Soc Resp & Ethic Reason

Cross-Listed Courses:

Prerequisites:

Corequisites:
Concurrents:

Recommended Preparations:

**Abbreviation:** EDSGN  
**Number:** 10  
**Title:** Introductory Engineering Graphics  
**Abbreviated Title:** Intro Eng Graphics

**Credits:** Min:1  Max:1  
**Repeatable:** NO

**Description:** Multiview projections, pictorial drawings, dimensioning, engineering standards, and working drawings.

**Justification For Drop:** EDSGN 10 is being dropped as it is not a requirement or elective course in any engineering program, nor has it been for quite some time. We have offered the course because it was required as part of the Landscape Contracting major (Design/Build Option). They have indicated that they will be able to integrate components of EDSGN 10 into other classes.

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**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

**Head of Department**

**Recipient Name:** SVEN BILEN  
**Department:** (Not Available)  
**Position:** Head of Department  
**Campus:** UNIVERSITY PARK CAMPUS

**Title:**

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

**SCCA Representative**

**Recipient Name:** ROBERT MELTON  
**Department:** (Not Available)  
**Position:** SCCA Representative  
**Campus:** UNIVERSITY PARK CAMPUS

**Title:**
Dean of the College

Recipient Name: PETER BUTLER  
Position: Dean of the College  
Title:  
Department: (Not Available)  
Campus: UNIVERSITY PARK CAMPUS

SCCA Subcommittee Review

Recipient Name: ALLISON ALBINSKI  
Position: SCCA Subcommittee Review  
Title:  
Department: (Not Available)  
Campus: UNIVERSITY PARK CAMPUS

Recipient Name: JOY ROBERTSON  
Position: SCCA Subcommittee Review  
Title:  
Department: (Not Available)  
Campus: UNIVERSITY PARK CAMPUS

Recipient Name: KADI CORTER  
Position: SCCA Subcommittee Review  
Title:  
Department: (Not Available)  
Campus: UNIVERSITY PARK CAMPUS

SCCA Review

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Curricular Information
Blue Sheet Item #: [Not Yet Reviewed]
Review Date: [Not Yet Reviewed]

SCRID Numbers
(EDSGN 10):

UPLOADED DOCUMENTS:
Context Type: Supporting Documents
File Description: Landscape Contracting consultation
File Name: RE_EDSGN 10 - class content.pdf
Proposal ID: 6776 created on 4/10/2018 4:16 PM

Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]
UPLOADED DOCUMENTS FOLLOW:
Tracy,

Thanks for confirming this. We will not offer it in the fall, then. Ben Fehl, who currently teaches it, has indicated that he is willing to help work with whoever as they work to add these elements.

Sven

Sven G. Bilén, Ph.D., P.E.
Head, School of Engineering Design, Technology, and Professional Programs
Professor of Engineering Design, Electrical Engineering, and Aerospace Engineering
Chief Technologist, Center for Space Research Programs
The Pennsylvania State University
213B Hammond Building, University Park, PA 16802-1401
(814) 863-1526  FAX (814) 863-7229  sbilen@psu.edu
http://sedtapp.psu.edu/~sbilen
http://csrp.psu.edu

From: Tracy Hoover <tsh102@psu.edu>
Sent: Wednesday, March 7, 2018 4:53 PM
To: Peter J. Butler <pjbbio@engr.psu.edu>
Cc: Sven Bilén <SBilen@engr.psu.edu>; MARGARET C HOFFMAN <mch7@psu.edu>
Subject: RE: EDSGN 10 - class content

Peter,

Good afternoon. I heard back from the Landscape Contracting group. They will be able to integrate components of EDSGN 10 into their fall 2018 semester and future classes.

The group is very appreciative of the engineering programs willingness to help us out and offer it, but they should be fine. They offer many thanks to all for offering EDSGN 10 all these years for our students.

Take care and thank you,

Tracy

Tracy S. Hoover, Associate Dean for Undergraduate Education
College of Agricultural Sciences
101 Agricultural Administration Building
The Pennsylvania State University
University Park, PA 16802-2602
phone - (814) 865-7521
fax - (814) 863-7277
http://agsci.psu.edu/
email- tsh102@psu.edu

From: Peter J. Butler <pbutler@psu.edu>
Sent: Tuesday, March 6, 2018 10:22 AM
To: Tracy Hoover <tsh102@psu.edu>
Cc: Sven Bilén <SBilen@engr.psu.edu>
Subject: FW: EDSGN 10 - class content

Tracy,

Does offering it one last time work for the Landscaping Contracting faculty (see below)?

-Peter

Peter J. Butler, PhD
Associate Dean for Education and Graduate Professional Programs, College of Engineering, Penn State University
pbutler@psu.edu

From: Sven Bilén <SBilen@engr.psu.edu>
Date: Tuesday, February 27, 2018 at 10:04 PM
To: Peter Butler <pbutler@psu.edu>
Cc: Benjamin Fehl <bfehl@engr.psu.edu>
Subject: RE: EDSGN 10 - class content

Peter,

We can roll either way. I can offer it one last time to give them time to make changes to their curriculum.

Sven G. Bilén, Ph.D., P.E.
Head, School of Engineering Design, Technology, and Professional Programs
Professor of Engineering Design, Electrical Engineering, and Aerospace Engineering
Chief Technologist, Center for Space Research Programs
The Pennsylvania State University
213B Hammond Building, University Park, PA 16802-1401
(814) 863-1526  FAX (814) 863-7229  sbilen@psu.edu
http://sedtapp.psu.edu/~sbilen
http://csrp.psu.edu

From: Peter J. Butler <pbutler@psu.edu>
Date: Tuesday, February 27, 2018 5:07 PM
To: Sven Bilén <SBilen@engr.psu.edu>
Subject: FW: EDSGN 10 - class content

Sven,

It looks like we have a resolution [see below]. Tracy would like to know if you are offering it in fall 2018.

Peter J. Butler, PhD
Associate Dean for Education and Graduate Professional Programs, College of Engineering, Penn State University
pbutler@psu.edu

From: Tracy Hoover <tsh102@psu.edu>
Date: Tuesday, February 27, 2018 at 3:17 PM
To: Peter Butler <pbutler@psu.edu>

Subject: RE: EDSGN 10 - class content

Peter,

I heard back from the Landscape Contracting faculty and they will integrate components of EDSGN 10 into their curriculum. One final question, just so I can let them know. Will you be offering EDSGN 10 in fall 2018?

Thanks,

Tracy

Tracy S. Hoover, Associate Dean for Undergraduate Education
College of Agricultural Sciences
105 Agricultural Administration Building
The Pennsylvania State University
University Park, PA 16802-2602
phone: (814) 865-7521
fax: (814) 863-7277
http://agsci.psu.edu/
email: tsh102@psu.edu

---

From: Peter J. Butler <pjbbio@psu.edu>
Sent: Thursday, February 08, 2018 11:02 AM
To: Tracy Hoover <tsh102@psu.edu>
Subject: FW: EDSGN 10 - class content

Tracy,

Here is the EDSGN 10 syllabus.

_______________________
Peter J. Butler, PhD
Associate Dean for Undergraduate and Graduate Professional Education, College of Engineering, Penn State University
pbutler@psu.edu

---

From: Sven Bilen <SBilen@engr.psu.edu>
Date: Wednesday, February 7, 2018 at 8:11 PM
To: Peter Butler <pjbbio@psu.edu>
Subject: FW: EDSGN 10 - class content

Peter,

Attached is the syllabus for EDSGN 10 and I also asked Ben Fehl to give me a weekly list of topics, which is in the email below including the project the students worked on. Please let me know if you have additional questions.

Sven

---

From: Benjamin Fehl
Sent: Tuesday, February 6, 2018 4:56 PM
To: Sven Bilen <SBilen@engr.psu.edu>
Subject: Re: EDSGN 10 - class content

Sven,

This is the basic content and schedule of the class. Please let me know if you would like a more formal document with more detail and has been proofed. Also included are pictures of final projects when the student numbers were more robust and enthusiasm was high.

Benjamin

---

Week 1: Overview items in drafting/drawing toolkit
- Line drawing skills, articulating light weight and line type

Week 2: Architectural scale for measuring and drawing
- Hand lettering skills and drawing layout techniques

Week 3: Engineering scale for measuring and drawing
- Dimensioning standards for isometric drawings

Week 4: Individual student project – draw small site plan
- Project assessment based on week 1, 2 & 3 lessons

Week 5: Final group project – exterior bench
- Site study, design and budgeting

Week 6: Final Project
- Construction of bench offsite

Final day: Bench installation at site
On Feb 6, 2018, at 2:57 PM, Sven Bilen <SBilen@engr.psu.edu> wrote:

Do you also have a weekly list of topics covered, perhaps?

Sven G. Bilén, Ph.D., P.E.
Head, School of Engineering Design, Technology,
From: Benjamin Fehl
Sent: Tuesday, February 6, 2018 12:10 PM
To: Sven Bilen <SBilen@engr.psu.edu>
Subject: Re: EDSGN 10
SENATE COMMITTEE ON CURRICULAR AFFAIRS
COURSE SUBMISSION AND CONSULTATION FORM

Principal Faculty Member(s) Proposing Course

<table>
<thead>
<tr>
<th>Name</th>
<th>User ID</th>
<th>College</th>
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<tr>
<td>KAREN THOLE</td>
<td>KAT18</td>
<td>Engineering (EN)</td>
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Academic Home: Engineering (EN)

Type of Proposal: □ Add □ Change □ Drop

Course Information

General Education Designations

Foundations

- Writing/Speaking (GWS)
- Quantification (GQ)

Knowledge Domains

- Health & Wellness (GHW)
- Natural Sciences (GN)
- Arts (GA)
- Humanities (GH)
- Social and Behavioral Sciences (GS)

Additional Designations

- Bachelor of Arts
- International Cultures (IL)
- United States Cultures (US)
- Honors Course
- Common course number - x94, x95, x96, x97, x99
- Writing Across the Curriculum

First-Year Engagement Program

- First-Year Seminar

Miscellaneous

- Common Course

GE Learning Objectives

- GenEd Learning Objective: Effective Communication
- GenEd Learning Objective: Creative Thinking
- GenEd Learning Objective: Crit & Analytical Think
- GenEd Learning Objective: Global Learning
- GenEd Learning Objective: Integrative Thinking
- GenEd Learning Objective: Key Literacies
- GenEd Learning Objective: Soc Resp & Ethic Reason

Cross-Listed Courses:

Prerequisites:

Corequisites:
Concurrents:

Recommended Preparations:

Abbreviation: ME
Number: 302
Title: Engineering Thermodynamics and Heat Transfer
Abbreviated Title: Thermo and Heat Tr
Credits: Min:4 Max:4
Repeatable: NO
Description: Thermodynamics and Heat Transfer with pertinent applications to devices important in mechanical engineering. For students in engineering science. M E 302 Engineering Thermodynamics and Heat Transfer (4) M E 302, Engineering Thermodynamics and Heat Transfer, is a required course for engineering science students. This course presents the fundamental principles of thermodynamics and heat transfer. The students are expected to develop skills necessary to apply these principles to common engineering problems involving properties of matter, energy, and energy transport. The scope of the thermodynamics instruction, which constitutes approximately three quarters of the course, is limited to the classical viewpoint as opposed to the statistical viewpoint. Control volume analysis techniques are introduced for closed and open systems undergoing steady or transient processes. The techniques are applied to analyze common power and refrigeration cycles, including gas and vapor systems. Instruction on heat transfer, limited to approximately one quarter of the course, includes an overview of the three modes (conduction, convection, and radiation), with consideration of forced and free convective heat transfer for both internal and external flows. Heat exchangers and heat transfer from extended surfaces are presented at a very basic level.

Justification
For Drop: This course was taught by the Mechanical Engineering Dept at University Park to undergraduate students in the Engineering Science and Mechanics program up through and including the spring 2018 semester. Students in other majors, including mechanical engineering, do not take this course; only ESM students enroll in ME 302. The Dept of Engineering Science and Mechanics at UP has made arrangements to take over the administration and teaching of this course under a new ESM course name that is being processed in a separate CRCS proposal. Mechanical Engineering will no longer be teaching or offering the course. We request that ME 302 be removed from the Bulletin to reflect its transfer to its new home in the Dept of Engineering Science and Mechanics.

Effective Semester: FA 2018

Campuses That Have Offered (ME 302) 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 |
|----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Spring 2018 | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ |
| Spring 2017 | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ |
| Spring 2016 | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ |
| Spring 2015 | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ |
| Spring 2014 | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ |

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: GARY GRAY
Department: Engineering Science And Mechanics
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS
Title: ASSOC PROF ENGR SCI & MEC

Request sent: 2/27/2018 at 11:12 AM
Last sent: 3/12/2018 at 7:30 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 3/14/2018 at 7:15 AM

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

Request sent: 2/27/2018 at 11:12 AM
Concur: Yes
Comments:
Reviewed On: 2/27/2018 at 11:21 AM

Recipient Name: LUCAS PASSMORE
Department: Engineering Science And Mechanics
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS
Title: Assistant Professor

Request sent: 2/27/2018 at 11:12 AM
Concur: Yes
Comments:
Reviewed On: 2/28/2018 at 3:05 PM

Recipient Name: SARAH JONES
Department: Engineering Science And Mechanics
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS
Title: RECORDS SPC 3

Request sent: 2/27/2018 at 11:12 AM
Concur: Yes
Comments: (Completed By Default - Exceeded Time Limit)
Reviewed On: 3/14/2018 at 7:15 AM

Recipient Name: ARTHUR MOTTA
Department: Nuclear Engineering
Position: Consultation
Campus: UNIVERSITY PARK CAMPUS
Title: PROF & CHAIR OF NUCL ENGR

Request sent: 2/27/2018 at 11:12 AM
Concur: Yes
Comments:
Reviewed On: 2/27/2018 at 11:35 AM
Recipient Name: ERIC MARSH  
Department: Mechanical Engineering  
Position: Consultation  
Campus: UNIVERSITY PARK CAMPUS  
Title: PROFESSOR OF MECH ENGR

Request sent: 2/27/2018 at 11:12 AM  
Concur: Yes  
Comments:  
Reviewed On: 3/2/2018 at 6:19 PM

Recipient Name: KAREN THOLE  
Department: Mechanical Engineering  
Position: Consultation  
Campus: UNIVERSITY PARK CAMPUS  
Title: DEPT HEAD MNE

Request sent: 2/27/2018 at 11:12 AM  
Concur: Yes  
Comments:  
Reviewed On: 2/27/2018 at 11:22 AM

Recipient Name: AMIT BANERJEE  
Department: Science, Engineering And Technology  
Position: Consultation  
Campus: PENN STATE HARRISBURG, THE CAPITAL COLLEGE  
Title: ASSOC PROF OF MECH ENG

Request sent: 2/27/2018 at 11:12 AM  
Last sent: 3/12/2018 at 7:30 AM  
Concur: Yes  
Comments: (Completed By Default - Exceeded Time Limit)  
Reviewed On: 3/14/2018 at 7:15 AM

Recipient Name: RUNGUN NATHAN  
Department: Engineering, Business and Human Development  
Position: Consultation  
Campus: BERKS CAMPUS  
Title: ASSOC PROF ENGINEERING

Request sent: 2/27/2018 at 11:12 AM  
Concur: Yes  
Comments:  
Reviewed On: 2/27/2018 at 11:14 AM

Recipient Name: YI WU  
Department: Engineering  
Position: Consultation  
Campus: PENN STATE ERIE, THE BEHREND COLLEGE  
Title: ASSOC PROF MECH ENGINEER
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<td>ROBERT MELTON</td>
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<td>Dean of the College</td>
<td>PETER BUTLER</td>
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Title: SCCA Review
Recipient Name: JOY ROBERTSON
Position: SCCA Subcommittee Review
Campus: UNIVERSITY PARK CAMPUS
Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

Title: SCCA Review
Recipient Name: KADI CORTER
Position: SCCA Subcommittee Review
Campus: UNIVERSITY PARK CAMPUS
Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

Title: SCCA Review
Recipient Name: ALLISON ALBINSKI
Position: SCCA Review
Campus: UNIVERSITY PARK CAMPUS
Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

Title: SCCA Review
Recipient Name: JOY ROBERTSON
Position: SCCA Review
Campus: UNIVERSITY PARK CAMPUS
Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

Title: SCCA Review
Recipient Name: KADI CORTER
Position: SCCA Review
Campus: UNIVERSITY PARK CAMPUS
Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]
Faculty Senate Review

Recipient Name: ALLISON ALBINSKI
Position: Faculty Senate Review
Title: 

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

Recipient Name: JOY ROBERTSON
Position: Faculty Senate Review
Title: 

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

Recipient Name: KADI CORTER
Position: Faculty Senate Review
Title: 

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

Curricular Information

Blue Sheet Item #: 
Review Date: 

_SCRID Numbers_ 
(ME 302): 
Proposal ID: 6593 created on 4/11/2018 1:03 PM
SENATE COMMITTEE ON CURRICULAR AFFAIRS
COURSE SUBMISSION AND CONSULTATION FORM

Principal Faculty Member(s) Proposing Course

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<th>Name</th>
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<tr>
<td>ERIC RUSSELL MARSH</td>
<td>erm7</td>
<td>Engineering</td>
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Academic Home: Engineering (EN)

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

[ ] I am requesting recertification of this course for the new Gen Ed and/or University Requirements Guidelines

Course Designation

(ME 456) Introduction to Robotics

Course Information

Cross-Listed Courses:

Prerequisites:
EMCH 212, ME 360; ME 367

Corequisites:

Concurrents:

Recommended Preparations:

Abbreviated Title: Intro Robotics

Discipline: None

Course Listing:

Special categories for Undergraduate (001-499) courses

Foundations

[ ] Writing/Speaking (GWS)

[ ] Quantification (GQ)

Knowledge Domains

[ ] Health & Wellness (GHW)

[ ] Natural Sciences (GN)

[ ] Arts (GA)

[ ] Humanities (GH)

[ ] Social and Behavioral Sciences (GS)

Additional Designations

[ ] Bachelor of Arts

[ ] International Cultures (IL)

[ ] United States Cultures (US)

[ ] Honors Course

[ ] Common course number - x94, x95, x96, x97, x99

[ ] Writing Across the Curriculum

First-Year Engagement Program

[ ] First-Year Seminar
Course Outline

A brief outline or overview of the course content:
Kinematics, dynamics and control of mobile robots, flying robots and robot manipulators with emphasis on current applications.

A listing of the major topics to be covered with an approximate length of time allotted for their discussion:
- Position and orientation of rigid body: 1 week
- Introduction to feedback control: 1 week
- Mobile and flying robots: 6 weeks
- Robot manipulators: 7 weeks

Course Description:
This course is a technical elective where students learn about the present and future status of robot applications, and are required to apply fundamental knowledge of physics, mechanics, and mathematics to develop software to analyze and control robots.

The course deals with mechanics and control of mobile robots, flying robots and robot manipulators. First, students are taught to describe position and orientation of a rigid body, including rotation matrix, roll-pitch-yaw angles and Euler angles. In addition, a brief introduction to feedback control system is provided. After these background materials, students learn about the following topics: a. kinematics and control of wheeled mobile robots, car-like mobile robots and quadrotor and b. 3-D kinematics, statics, dynamics and control of robot manipulators. Sensors, actuators and software used in industrial robots are discussed.

The name(s) of the faculty member(s) responsible for the development of the course:
- Name: ERIC RUSSELL MARSH (erm7)
- Title: Professor of Mech Engr
- Phone: +1 814 865 5242
- Address: 0331 Reber Building
- Campus: UP
- City: UNIVERSITY PARK
- 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.

Upon completion of this course,
a. Students will be able to analyze 3-D kinematics, statics and dynamics of robot manipulators.
b. Students will be able to analyze kinematics of wheeled mobile robots.
c. Students will become familiar with sensors, actuators and softwares used in robots.
d. Students will be able to design feedback control systems for mobile robots and robot manipulators.
e. Students will understand the present and future status of robotics.
f. Students will be able to perform computer-aided analysis of robots.

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.

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.

standalone course with minimal prerequisites

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.
technical elective in mechanical engineering major

A description of any special facilities:
none

Frequency of Offering and Enrollment:
annually to 30 students

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 current description of ME/IE 456 was developed in early 1980s, when robotics application was primarily in manufacturing, and mobile robots were not used. The field of robotics has changed significantly in the last 15 years. Now, application areas are autonomous vehicles, drones, medical, service to people etc. in addition to manufacturing. Therefore, the contents of this course are revised to reflect the needs of mechanical engineering students.

The previous version of this course emphasized kinematics, path planning, and manufacturing. At that time, the content required certain math courses such as matrices (MATH 220) and differential equations (MATH 251) as well as computer science (CMPSC 200/201). Because the core of this revised course is now dynamics, design, and control, the prerequisites are proposed to be changed to EMCH 212 (available at both campuses that offer the course—HB and UP) plus either ME 367 Machine Design (HB) or ME 360 Mechanical Design (UP).

IE and ME offered their separate versions of the course in Fall 16 and Fall 17 due to a difference in the needs of students studying the two majors. We request that the ME/IE cross-listing be removed from this course. Dropping the cross-listing of this course will not affect IE students as they will retain their course that is offered on the same annual schedule.

Campuses That Have Offered (ME 456) Over The Past 4 Years

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

Legend

Approve
Rejected
Waiting Review
User Action Required
Consultation

Recipient Name: AMIT BANERJEE  
Department: Science, Engineering And Technology  
Position: Consultation  
Campus: PENN STATE HARRISBURG, THE CAPITAL COLLEGE  
Title: ASSOC PROF OF MECH ENG

Request sent: 11/27/2017 at 11:36 AM  
Last sent: 12/11/2017 at 7:30 AM  
Concur: Yes  
Comments: (Completed By Default - Exceeded Time Limit)  
Reviewed On: 12/12/2017 at 7:15 AM

Request sent: 1/23/2018 at 11:50 AM  
Last sent: 2/5/2018 at 7:30 AM  
Concur: Yes  
Comments: 
Reviewed On: 2/5/2018 at 8:30 AM

Recipient Name: RUNGUN NATHAN  
Department: Engineering, Business and Human Development  
Position: Consultation  
Campus: BERKS CAMPUS  
Title: ASSOC PROF ENGINEERING

Request sent: 11/27/2017 at 11:36 AM  
Concur: No, this proposal needs significant changes  
Comments: The change being requested will leave only MATH 220 and CMPSC 200/201 as pre-requisite for ME 456. Based on this change a sophomore who has finished MATH 220, CMPSC 200 and MATH 141 can potentially take this class and I am not sure they would be prepared to handle the suggested topics in the syllabus. (To take MATH 220 and CMPSC 200, MATH 141 is a concurrent course)  
Reviewed On: 11/27/2017 at 12:31 PM  
Initiator Comments: Thank you for this helpful feedback. We have adjusted the prerequisite courses per your suggestion.

Request sent: 12/7/2017 at 3:32 PM  
Last sent: 12/18/2017 at 7:30 AM  
Concur: No, this proposal needs significant changes  
Comments: Thanks for making the changes. Adding EMCH 212 is a very good step. Please modify the other prerequisite as ME 360 OR ME 367 (replace ME 349 with ME 367)  
Reviewed On: 12/18/2017 at 10:32 AM  
Initiator Comments: Done.

Request sent: 12/18/2017 at 12:31 PM  
Concur: Yes  
Comments: Thanks Eric for doing all the updates  
Reviewed On: 12/18/2017 at 1:17 PM

Request sent: 1/23/2018 at 11:50 AM
Recipient Name: **YI WU**  
Department: Engineering  
Campus: PENN STATE ERIE, THE BEHREND COLLEGE  
Title: ASSOC PROF MECH ENGINEER

Request sent: 11/27/2017 at 11:36 AM  
Last sent: 12/11/2017 at 7:31 AM  
Concur: Yes  
Comments: (Completed By Default - Exceeded Time Limit)  
Reviewed On: 12/12/2017 at 7:15 AM

Recipient Name: **CHITARANJAN DAS**  
Department: Computer Science And Engineering  
Campus: UNIVERSITY PARK CAMPUS  
Title: DISTINGUISHED PROF CSE

Request sent: 1/23/2018 at 11:50 AM  
Last sent: 1/29/2018 at 7:31 AM  
Concur: Yes  
Comments: (Completed By Default - Exceeded Time Limit)  
Reviewed On: 2/1/2018 at 12:45 PM

Recipient Name: **JOHN HANNAN**  
Department: Computer Science And Engineering  
Campus: UNIVERSITY PARK CAMPUS  
Title: ASC HEAD CMPSCI&ENG

Request sent: 1/23/2018 at 11:50 AM  
Concur: Yes  
Comments:  
Reviewed On: 1/24/2018 at 8:23 AM

Recipient Name: **THOMAS LAPORTA**  
Department: Computer Science And Engineering  
Campus: UNIVERSITY PARK CAMPUS  
Title: LNHRDCHAIRPROF & DIR EECS

Request sent: 1/23/2018 at 11:50 AM
Recipient Name: CATHARINE HARMONOSKY  
Department: Industrial And Manufacturing Engineering  
Position: Consultation  
Campus: UNIVERSITY PARK CAMPUS  
Title: ASSOC PROF I & MSE

Request sent: 1/23/2018 at 11:50 AM  
Concur: Yes  
Comments: (Completed By Default - Exceeded Time Limit)  
Reviewed On: 2/7/2018 at 7:15 AM

Recipient Name: ELENA JOSHI  
Department: Industrial And Manufacturing Engineering  
Position: Consultation  
Campus: UNIVERSITY PARK CAMPUS  
Title: INSTR

Request sent: 1/23/2018 at 11:50 AM  
Concur: Yes  
Comments:  
Reviewed On: 1/25/2018 at 10:19 PM

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

Request sent: 1/23/2018 at 11:50 AM  
Last sent: 1/29/2018 at 7:32 AM  
Concur: Yes  
Comments:  
Reviewed On: 2/2/2018 at 12:34 PM

Recipient Name: LISA PETRINE  
Department: Industrial And Manufacturing Engineering  
Position: Consultation  
Campus: UNIVERSITY PARK CAMPUS  
Title: ADMINISTRATIVE SUPP ASST 4

Request sent: 1/23/2018 at 11:50 AM  
Concur: Yes  
Comments: (Completed By Default - Exceeded Time Limit)  
Reviewed On: 2/7/2018 at 7:15 AM

Recipient Name: JAMES SELLERS  
Department: Mathematics
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<th>Concur</th>
<th>Comments</th>
<th>Reviewed On</th>
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<td>ARTHUR MOTTA</td>
<td>Nuclear Engineering</td>
<td>Consultation</td>
<td>UNIVERSITY PARK CAMPUS</td>
<td>1/23/2018 at 11:50 AM</td>
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<td>PROF &amp; CHAIR OF NUCL ENGR</td>
<td>ERIC MARSH</td>
<td>Mechanical Engineering</td>
<td>Consultation</td>
<td>UNIVERSITY PARK CAMPUS</td>
<td>1/23/2018 at 11:50 AM</td>
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<td>PROFESSOR OF MECH ENGR</td>
<td>KAREN THOLE</td>
<td>Mechanical Engineering</td>
<td>Consultation</td>
<td>UNIVERSITY PARK CAMPUS</td>
<td>1/23/2018 at 11:50 AM</td>
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<td>KAREN THOLE</td>
<td>Mechanical Engineering</td>
<td>Consultation</td>
<td>UNIVERSITY PARK CAMPUS</td>
<td>1/23/2018 at 11:50 AM</td>
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<td>Head of Department</td>
<td>KAREN THOLE</td>
<td>(Not Available)</td>
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<td>UNIVERSITY PARK CAMPUS</td>
<td>1/23/2018 at 11:50 AM</td>
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SCCA Representative

Recipient Name: ROBERT MELTON
Department: (Not Available)
Position: SCCA Representative
Campus: UNIVERSITY PARK CAMPUS
Title:

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

Dean of the College

Recipient Name: PETER BUTLER
Department: (Not Available)
Position: Dean of the College
Campus: UNIVERSITY PARK CAMPUS
Title:

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

SCCA Subcommittee Review

Recipient Name: ALLISON ALBINSKI
Department: (Not Available)
Position: SCCA Subcommittee Review
Campus: UNIVERSITY PARK CAMPUS
Title:

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

Recipient Name: KADI CORTER
Department: (Not Available)
Position: SCCA Subcommittee Review
Campus: UNIVERSITY PARK CAMPUS
Title:

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

Recipient Name: JOY ROBERTSON
Department: (Not Available)
Position: SCCA Subcommittee Review
Campus: UNIVERSITY PARK CAMPUS
Title:

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

Request sent: 11/9/2017 at 1:51 PM
SCCA Review

Recipient Name: ALLISON ALBINSKI
Position: SCCA Review
Department: (Not Available)
Campus: UNIVERSITY PARK CAMPUS
Title:
Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

Recipient Name: KADI CORTER
Position: SCCA Review
Department: (Not Available)
Campus: UNIVERSITY PARK CAMPUS
Title:
Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

Recipient Name: JOY ROBERTSON
Position: SCCA Review
Department: (Not Available)
Campus: UNIVERSITY PARK CAMPUS
Title:
Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

Request sent: 11/9/2017 at 1:52 PM

Faculty Senate Review

Recipient Name: ALLISON ALBINSKI
Position: Faculty Senate Review
Department: (Not Available)
Campus: UNIVERSITY PARK CAMPUS
Title:
Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]

Recipient Name: KADI CORTER
Position: Faculty Senate Review
Department: (Not Available)
Campus: UNIVERSITY PARK CAMPUS
Title:
Concur: [Not Yet Reviewed]
Comments: [Not Yet Reviewed]
Reviewed On: [Not Yet Reviewed]
Curricular Information

Blue Sheet Item #:
Review Date:

 Corinth Numbers

(ME 456):
Proposal ID: 5321 created on 4/11/2018 1:17 PM