From:	noreply@wsu.edu
To:	curriculum.submit
Subject:	609982 Electrical Engineering and Computer Science Requirements Revise - Other
Date:	Friday, September 18, 2020 12:30:48 PM
Attachments:	2020.09.18.12.27.32.56.FormData.html 2020.09.18.12.27.31.75.currentCatalogFile_PSM_EPE_Requirement_from_Grad_School_with_revi.pdf 2020.09.18.12.27.31.75.currentCatalogFile1_PSMEPE_major_changes_summer_2020_v7_002_.docx

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Patricia Elshafei has submitted a request for a major curricular change. His/her email address is: pelshafei@wsu.edu.

Requested change: Other

Other curriculum change being requested: Revise core requirements; change some electives; change title of core

Degree: PSM Electrical Power Engineering

Title: Other

Requested Effective Date: Fall 2021

Dean: Field, David - Assoc Dean - VCEA - Grad,

Chair: Pedrow, Patrick – Coordinator –Electrical Power Eng. Professional Sci Master's Prog., (EECS),

Catalog Subcommittee Approval Date	AAC, PHSC, or GSC Approval Date	Faculty Senate Approval Date

From: Field, Dave
To: curriculum.submit; Pedrow, Patrick D
Subject: Re: 609982 Electrical Engineering and Computer Science Requirements Revise - Other
Date: Friday, September 18, 2020 6:27:33 PM

I approve this proposal in its current form.

Dave

From: curriculum.submit@wsu.edu <curriculum.submit@wsu.edu>
Sent: Friday, September 18, 2020 12:27 PM
To: Pedrow, Patrick D <pedrow@wsu.edu>
Cc: Field, Dave <dfield@wsu.edu>
Subject: 609982 Electrical Engineering and Computer Science Requirements Revise - Other

Pedrow, Patrick – Coordinator –Electrical Power Eng. Professional Sci Master's Prog., (EECS),
Field, David - Assoc Dean - VCEA - Grad,
Patricia Elshafei has submitted a request for a major curricular change.
Requested change: Other
Other curriculum change being requested: Revise core requirements; change some electives; change title of core
Degree: PSM Electrical Power Engineering
Title: Other
Requested Effective Date: Fall 2021

Both Chair and Dean approval is required to complete the submission process. Please indicate that you have reviewed the proposal by highlighting one of the statements below and **reply all** to this email. (curriculum.submit@wsu.edu.)
[Details of major change requested can be found in the attached supplemental documentation]

1. I approve this proposal in its current form.
2. I approve this proposal with revisions. Revisions are attached.
3. I do not approve this proposal. Please return to submitter.

If you do not respond within one week, you will be sent a reminder email. If no response is received within three weeks of the submission date, the proposal will be returned to the submitter.
Thank you for your assistance as we embark on this new process. If you have any questions or concerns, please let us know wsu.curriculum@wsu.edu.

Blaine Golden, Assistant Registrar
Graduations, Curriculum, and Athletic Compliance
Washington State University
Registrar's Office
PO Box 641035
Pullman WA 99164-1035

From: Pedrow, Patrick D
To: curriculum.submit
Cc: Elshafei, Patti
Subject: Re: 609982 Electrical Engineering and Computer Science Requirements Revise - Other
Date: Tuesday, October 6, 2020 10:58:46 AM
Attachments: image.png
image.png
image.png

Blaine [cc Patti],

This is awkward as Patti and I were discussing two edits that are needed. She implied that I should give you those edits but I am not sure if Dave Field needs to approve them. Here are the two edits:

1. At Professional Core Areas my intent was "no more than one course in any given area" but it reads "no more than two courses in any given area".
2. Consider the following screen capture of material:

- ***Internship :3 credits minimum:***
  A. E_E 701 Required Internship Commences with Program Approval
     1. Managing Uncertainty, Risk, and Finance[1] Managing Uncertainty, Risk, and Finance[2] Managing Uncertainty, Risk, and Finance E E 701 – ~~Master's Special Problem, Directed Study, and/or Examination~~ Master's Independent Capstone Project and /or Examination[3] [3 CREDITS]

Which should read as follows:

III. Internship
  A. Required Internship Commences with Program Approval
    i. E E 701 – ~~Master's Special Problem, Directed Study, and/or Examination~~ Master's Independent Capstone Project and /or Examination [3 CREDITS]

With justifications being:

[14] Justification: In this outline format the internship is given its own header since it contains both technical and professional activities for the student.
[15] Justification: The School of EECS lists the title for EE 701 as "Master's Independent Capstone Project and /or Examination" not the previous title that appeared in the PSM-EPE list of classes "Master's Special Problem, Directed Study, and/or Examination".

The Word document does the best job of describing the changes and I find the PDF version confusing. We can start over if we must. Let us know your preference. Thanks.

Pat

From: curriculum.submit <curriculum.submit@wsu.edu>
Sent: Tuesday, September 29, 2020 10:28 AM
To: Pedrow, Patrick D <pedrow@wsu.edu>
Cc: Elshafei, Patti <pelshafei@wsu.edu>
Subject: FW: 609982 Electrical Engineering and Computer Science Requirements Revise - Other

Greetings Dr. Pedrow,

I don't see that we received your approval yet for the below and attached – please confirm that

we can proceed with this proposal?

Thank you,
Blaine

Blaine Golden, M.B.A.
Assistant Registrar

Washington State University
Office of the Registrar
PO Box 641035
Pullman, WA 99164-1035
509.335.7905
bgolden@wsu.edu

From: noreply@wsu.edu <noreply@wsu.edu>
Sent: Friday, September 18, 2020 12:28 PM
To: curriculum.submit <curriculum.submit@wsu.edu>
Subject: 609982 Electrical Engineering and Computer Science Requirements Revise - Other

Patricia Elshafei has submitted a request for a major curricular change. His/her email address is: pelshafei@wsu.edu.
Requested change: Other
Other curriculum change being requested: Revise core requirements; change some electives; change title of core
Degree: PSM Electrical Power Engineering
Title: Other
Requested Effective Date: Fall 2021
Dean: Field, David - Assoc Dean - VCEA - Grad,
Chair: Pedrow, Patrick – Coordinator –Electrical Power Eng. Professional Sci Master's Prog., (EECS),

Catalog Subcommittee Approval Date	AAC, PHSC, or GSC Approval Date	Faculty Senate Approval Date

I. Technical Coursework[1]

A. Required Technical Core Courses [9 CREDITS]
(Note that EE 491 is a prerequisite for EE 521, EE 536, and EE 526.[2])

i. EE 521 – Analysis of Power Systems
ii. EE 536 – Power System Economics and Electricity Markets

<u>One of</u> [3]:

iii. EE 526 – High Voltage Overhead Transmission Lines
iv. EE 485 – Electric Energy Distribution Systems [3]

B. Elective Technical Courses [9 CREDITS; No more than three 400-level courses allowed.]

i. EE 439 – Critical Infrastructure Security: The Emerging Smart Grid
ii. EE 486 – Power Electronics
iii. EE 491 – Performance of Power Systems [this course is prerequisite for EE 521, EE 536, and EE 526][2]
iv. EE 492 – Renewable Energy Sources
v. EE 493 – Protection of Power Systems I
vi. EE 511 – Protection of Power Systems II
vii. EE 522 – High Voltage Engineering
viii. EE 526 (above) or EE 485 (above) may be taken as a technical elective if not used as a required technical course [3]
~~ix. EE 523 – Power System Stability and Control~~ [4]
~~x. EE 525 – Power System Application of Power Electronics~~ [5]

<u>Note</u>: With program approval, two relevant courses may be substituted. WSU Graduate School transfer limits apply.

[1] <u>Justification</u>: This inserted major heading acts as an umbrella over all technical courses.

[2] <u>Justification</u>: Instructors for these courses (EE 521, EE 536, and EE 526) have observed that many students in the PSM-EPE have not completed EE 491 at the undergraduate level and it is required to do well in these three courses. By calling out this prerequisite at the top of the Program, students are able to decide if it is in their best interest to select EE 491 early in their program as an elective. Anticipating that EE 491 will be a popular course, its instructor offers it annually.

[3] <u>Justification</u>: Electric power engineers are typically assigned to either the high voltage transmission system or to the lower voltage distribution system but usually their work assignments do not include both distribution and transmission portions of the power grid. EE 526 covers the transmission (higher voltage) portion of the grid and EE 485 covers the distribution (lower voltage) portion of the grid. Our previous format of offering only EE 526 forced the distribution engineer to learn substantial material not used in their work assignments. Within this pair of courses, the one not used for the core technical course can be used as an elective technical course, for the engineer whose job assignments bridge across distribution and transmission infrastructures.

[4] <u>Justification</u>: Delete EE 523 since PSM-EPE presently has no faculty member available to develop the course.

[5] <u>Justification</u>: Delete EE 525 since PSM-EPE presently has no faculty member available to develop the course.

II. ~~Elective Professional Core Areas~~ Professional Coursework[6] [9 Credits; One from each area A, B, and C[7]]

A. Managing Organizations and Projects[8]
   i. EM 501 – Management of Organizations
   ii. EM 564 – Project Management
   iii. EM 575 – Performance Management in Technical Organizations

B. Managing Uncertainty, Risk, and Finance[9]
   i. EM 503 – Managing Variability and Statistics
   ii. EM 505 – Finance for Technical Systems
   iii. ~~EM 526 – Constraints Management~~ [10] EM 568 – Risk Assessment and Management[11]

C. Communications, Legal, and System Engineering Management[12]
   i. Engl 595 Communicating in STEM (to be taught in the future as Engl 5xx – Rhetoric of Science and Technology, a course being developed by Julie Staggers, Associate Professor in Department of English.)
   ii. EM 508 – Legal Concepts for Engineering and Technical Management
   iii. ~~EM 545 – Technical Decision Analysis~~ EM 566 – Systems Engineering Analysis and Practice[13]

III. Internship[14]

A. Required Internship Commences with Program Approval
   i. E E 701 – ~~Master's Special Problem, Directed Study, and/or Examination~~ Master's Independent Capstone Project and /or Examination[15] [3 CREDITS]

Delete from professional coursework:
~~Phil 532 Seminar in Business Ethics~~[16]

[6] Justification: The term "Elective Professional Core Areas" has been replaced by "Professional Coursework" so as to avoid the implication that professional coursework is optional or elective when compared to technical coursework.
[7] Justification: Professional courses have been partitioned into three pools and it is required that students complete one course from each pool.
[8] Justification: This heading describes a pool of courses, one of which the student should complete.
[9] Justification: This heading describes a pool of courses, one of which the student should complete.
[10] Justification: Remove EM 526 Constraints Management. The intensive manufacturing content in EM 526 is seldom applied in the typical electrical power engineering career path. Occasionally one of our students will be pursuing a manufacturing-intensive career, such as at SEL in Pullman or Lewiston, and they might want the manufacturing content found in EM 526 at which time an exception can be requested.
[11] Justification: Add EM 568 Risk Assessment and Management. Engineering managers in the electric power engineering discipline have told EECS faculty that power engineers should know risk identification and risk management skills.
[12] Justification: This heading describes a pool of courses, one of which the student should complete.
[13] Justification: Engineering and Technology Management faculty retired EM 545 and offer EM 566 as an equivalent replacement.
[14] Justification: In this outline format the internship is given its own header since it contains both technical and professional activities for the student.
[15] Justification: The School of EECS lists the title for EE 701 as "Master's Independent Capstone Project and /or Examination" not the previous title that appeared in the PSM-EPE list of classes "Master's Special Problem, Directed Study, and/or Examination".
[16] Justification: After three years, none of our students have opted to take Phil 532 Seminar in Business Ethics thus we have deleted it.

EXCERPTED FROM GRM DEGREE REQUIREMENTS AND FACULTY SENATE RECORDS

PSM in Electrical Power Engineering (Non-Thesis):

I. Technical Coursework

- *Technical Core: must complete ~~all~~ three of the following (9cr):*
  - E_E 521, E_E 526 or E_E485, E_E 536
- *Elective Technical Courses: 9cr minimum with no more than two 400-level courses:*
  - E_E 439, E_E 486, E_E 491, E_E 492, E_E 493, E_E 511, E_E 522, EE 526 (above) or EE 485 (above) may be taken as a technical elective if not used as a required technical course ~~E_E 523, E_E 525~~
  - With program approval, two relevant courses may be substituted.
- ~~*Elective*~~ *Professional Core Areas: 9cr minimum with no more than two courses in any given area:*
  - ~~*Quantitative Methods:*~~
    - ~~EM 503, EM 526, EM 545~~
  - ~~*Ethics:*~~
    - ~~PHIL 532~~
  - Managing Organizations and Projects~~*Management*~~:
    - EM 501, EM 564, EM 575
  - Communications, Legal, and System Engineering Management~~*Communication*~~:
    - Engl 595 Communicating in STEM (to be taught in the future as Engl 5xx – Rhetoric of Science and Technology, a course being developed by Julie Staggers, Associate Professor in Department of English.)
    - ~~ENGL 595~~ E_M 508
  - ~~*Business Focus:*~~
    - ~~EM 505, EM 508~~
  - Managing Uncertainty, Risk, and Finance
    - E_M 503, EM 505, E_M 568
- *Internship :3 credits minimum:*

A. E_E 701 Required Internship Commences with Program Approval

1. Managing Uncertainty, Risk, and Finance[1] Managing Uncertainty, Risk, and Finance[2] Managing Uncertainty, Risk, and Finance E E 701 – ~~Master's Special Problem, Directed Study, and/or Examination~~ Master's Independent Capstone Project and /or Examination[3] [3 CREDITS]

- *Total Graded Credits: 27 credits minimum*
- *Total Credits: 30 credits minimum*

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