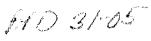
PURDUE UNIVERSITY

REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF A GRADUATE COURSE (50000-60000 LEVEL)



| DEPARTMENT ENE | EFFECTIVE SESSION | Fall 2010 |
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| INSTRUCTIONS: Please check the items below which descri | be the purpose of this request. | |
| 1. New course with supporting docume | | 7. Change in course attributes |
| 2. Add existing course offered at anoth | er campus | 8. Change in instructional hours |
| 3. Expiration of a course | | 9. Change in course description |
| 4. Change in course number | | ☐ 10. Change in course requisites |
| 5. Change in course title | | 11. Change in semesters offered |
| 6. Change in course credit/type | | 12. Transfer from one department to another |
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| | (ISTING: | TERMS OFFERED |
| Subject Abbreviation S | ubject Abbreviation Seminar in Engr Educ | Check All That Apply: |
| | | Summer Fall Spring |
| Course Number C | Course Number ENE 50100 | CAMPUS(ES) INVOLVED |
| | | N. Central |
| Long Title Seminar in Engineering Education | | Cont Ed Tech Statewide |
| | | Ft. Wayne W. Lafayette |
| Short Title Seminar in Engineering Education | | Indianapolis |
| Abbreviated title will be entered by the Office of the Registrar | if omitted. (30 CHARACTERS ONLY) | |
| CREDIT TYPE | COURSE ATTR | IBUTES: Check All That Apply |
| 1. Fixed Credit: Cr. Hrs. | s/Not Pass Only Remove 6. F | Registration Approval Type |
| L 1 1.00 L H | sfactory/Unsatisfactory Only | Department Instructor |
| Minimum Cr. Hrs 3. Repe | eatable 7. \ | /ariable Title |
| | _ | Honors |
| | | Full Time Privilege |
| | _ · | Off Campus Experience |
| 4. Thesis Credit: Yes No | 10.0 | Sil Gampas Experience |
| Schedule Type Minutes Meetings Per Wee | eks % of Credit | |
| Per Mtg Week Offe | | Cross-Listed Courses |
| Lecture | | |
| Recitation | | |
| Presentation Laboratory | | |
| Lab Prep | | |
| Studio | | |
| Distance | | |
| Clinic Experiential | | |
| Research | | |
| Ind. Study | | · |
| Pract/Observ | | |
| COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS): | | |
| Remove Pass/Not Pass only. (Course should be | | |
| Calumet Department Head Date Calume | et School Dean Date | Calumet Undergrad Curriculm Committee Date |
| Fort Wayne Department Head Date Fort W | Cabasi Dasa | Fort Wayne Chancellor Date |
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| Indianapolis Department Head Date Indiana | polis School Dean Date | /Undergrad Curriculm Committee Date |
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| North Central Faculty Senate Chair Date Vice Ch | nancellor for Academic Affairs Date | Date Approved by Graduate Council |
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| West refayette Department Head Date West L | afayette Corlege/School Dean Date | Graduate Council Secretary ,Date |
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| Graduata Area Committee Cooyener | to Doon | West Lafavorte Registres |
| Graduate Area Committee Convener Date Gradua | ate Dean Date | West Lafayette Registrar O Date |
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| (Grad Form 40G [Excel format] - Does not include | the Graduate Council's required supr | porting document. See pdf version of Form 40G) |

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PURDUE UNIVERSITY REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF A GRADUATE COURSE (50000-60000 LEVEL)

EFD 31-05

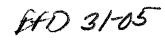
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| PROPOSED: Subject Abbreviation | | | XISTING: Subject Abbreviation | Seminar in | Engr Educ | | | ERMS OFFERED heck All That Apply: Fall Spring | |
| Course Number | | | Course Number | ENE 50100 | | | | PUS(ES) INVOLVED N. Central | |
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| | ar in Engineering I title will be entered by the C | | r if omitted. (30 CHARAC | TERS ONLY) | | | Indianapolis | | |
| Fixed Credit: Cr. Hrs. Variable Credit Range: Minimum Cr. Hrs (Check One) Maximum Cr. Hrs Equivalent Credit: Ye Thesis Credit: Ye | DIT TYPE 1.0 To Or | 2. Satis 3. Reput | ss/Not Pass Only Revistactory/Unsatisfactory beatable Maximum Repeatable dit by Examination scial Fees | MOVE y Only | 7. Van | gistration / De iable Title nors I Time Priv | Approval Type partment I | nstructor | |
| Schedule Type | | ings Per Wee Week Offe | | | | | | Cross-Listed Courses | \exists |
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| Distance Clinic | | | | | | | · | | \dashv |
| Experiential Research Ind. Study Pract/Observ | | | | | | | | | |
| COURSE DESCRIPTION (III Remove Pass/Not F | Pass only. (Cours | se should be | graded - this wa | as an error i | n the earlier c | docume | ent) | | |
| Calumet Department Head | | Date Calume | et School Dean | | Date | Calu | met Undergrad Curricul | Im Committee | Date |
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| Fort Wayne Department Hea | id D | Date Fort Wa | ayne School Dean | | Date | Fort | Wayne Chancellor | 4/ | Date 27/10 |
| ndianapolis Department Hea | ıd D | Date Indianap | polis School Dean | | Date | Unde | ergrad Curriculm Comm | ittee | Date |
| North Central Faculty Senate | Chair D | Date Vice Cha | nancellor for Academic | Affairs | Date | Date | Approved by Graduate | Council | |
| West refayette Department H | dead D | ate West La | afayette College/School | M/Cc Dean | S/M/D Date | Grad | uate Council Secretary | Rhally b | 5/10 Date |
| Graduate Area Committee Co | onvener Dr | ate Graduate | le Dean | | Date | West | Lafayette Registrar | - 100 1H | Date |
| Grad Form 40G IEv | rool format). Doc | es not include | | OF THE RE | | | | version of Form 40G) | |

les not include the Graduate Council's required supporting document. See pdf version of Form 40G)

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Office of the Registrar FORM 40G REV. 12/09

PURDUE UNIVERSITY REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF A GRADUATE COURSE (50000-60000 LEVEL)



| DEPARTMENTENE | | | _ EFFECTIVE S | ESSION Fall 2 | 010 | | |
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| INSTRUCTIONS: Please | check the items below whi | ch describe the purpose of | this request. | | | | <u></u> |
| ☐ 1. New | course with supporting | documents (complete pr | oposal form) | | 7. Change in cour | | |
| | existing course offered | at another campus | | | 8. Change in instri | uctional hours | |
| | ration of a course | | | | 9. Change in cours | se description | |
| | nge in course number | | | | 10. Change in cours | se requisites | |
| | nge in course title | | | | 11. Change in seme | | |
| ☑ 6. Char | nge in course credit/type |) | | | 12. Transfer from o | ne department to another | |
| PROPOSED: | · . · · | EXISTING: | | | 7 | TERMS OFFERED | - Т |
| Subject Abbreviation | | | Seminar in Er | ar Educ | | Check All That Apply: | |
| | | | | g | Summer | ☑ Fall ☐ Spring | - 1 |
| Course Number | | Course Number | ENE 50100 | | · · · · · · · · · · · · · · · · · · · | MPUS(ES) INVOLVED | |
| | | | | | Calumet | N. Central | |
| Long Title Seminar | rin Engineering Educ | ation | | | Cont Ed | Tech Statewid | e |
| | | | | | Ft. Wayne | W. Lafayette | |
| | n Engineering Educa | | | | Indianapolis | | |
| Addreviated title | will be entered by the Office of th | Registrar if omitted. (30 CHARAC | TERS ONLY) | | | | |
| CREDIT | TYPE | | COUF | SE ATTRIBUTES | S: Check All That Apply | | |
| Fixed Credit: Cr. Hrs. | 1.0 | 1. Pass/Not Pass Only | | Registrat | ion Approval Type | | |
| Variable Credit Range: | | 2. Satisfactory/Unsatisfactory | Only | | Department | Instructor | ľ |
| Minimum Cr. Hrs | | 3. Repeatable | | 7. Variable | Title | | |
| (Check One) To | Or | Maximum Repeatable | Credit: | 8. Honors | | | ı |
| Maximum Cr. Hrs | | 4. Credit by Examination | | 9. Full Time | Privilege | | - [|
| 3. Equivalent Credit: Yes | | 5. Special Fees | | 10. Off Camp | us Experience | | - 1 |
| Thesis Credit: Yes | No | | | | | | |
| Schedule Type | Minutes Meetings Per | Weeks % of Credit | | | | | |
| Lecture | Per Mtg Week | Offered Allocated | | | | Cross-Listed Courses | |
| Recitation | | | | | | | |
| Presentation | | | | | | | |
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| Lab Prep Studio | | | | | | | |
| Distance | | | | | | | \dashv |
| Clinic | | | | | | | |
| Experiential Research | | | | | | | |
| Ind. Study | | | | | | | - |
| Pract/Observ | | | | | | | |
| COURSE DESCRIPTION (INCL Remove Pass/Not Pas | UDE REQUISITES/RESTRIC | TIONS): | | | | | |
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| Calumet Department Head | Date | Calumet School Dean | | Date C | Calumet Undergrad Curricu | ulm Committee | Date |
| Fort Wayne Department Head | Date | Cat Maria Cabarl Davi | | | | | |
| | | Fort Wayne School Dean | | Date F | fort Wayne Chancellor $\mathcal{R}, \mathcal{A}, \mathcal{C}$ | isia 4/2 | Date 7/10 |
| Indianapolis Department Head | Date | Indianapolis School Dean | | Date /\(\int_{\text{L}}\) | Indergrad Curricalm Comm | nittee | Date |
| North Central Faculty Senate Ch | air Date | Vice Chancellor for Academic | Affairs | Date D | ate Approved by Graduate | e Council | _ |
| XOCAL | C 3/29/10 | V Mahdul /~ | Me s | Tapo | | | |
| West befayette Department Hea | d Date / | West Lafayette College/School | Dean | Date G | iraduate Council Secretary | / | Date |
| Graduate Area Committee Conv | ener Date | Graduate Dean | | Date V | Vest Lafayette Registrar | | Date |
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Office of the Registrar FORM 40G REV. 7/08

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PURDUE UNIVERSITY

REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF A GRADUATE COURSE (50000-60000 LEVEL)

EFD 31-05 by brad school

| DEPARTMENT Engineering Edu | cation | | EFFECTIVE | SESSION | 20091 | n | | |
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| INSTRUCTIONS: Please check the item | ns below whi | ch describe the purpose of t | | - GEGGIGIT E | 20031 | <u> </u> | | |
| ✓ 1. New course with | supporting | documents (complete pr | oposal form) | | | 7. Change in cour | se attributes | |
| 2. Add existing cou | rse offered | at another campus | | | | B. Change in instr | | |
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| PROPOSED: | • | EXISTING: | | | | 7 | ERMS OFFERED | |
| Subject Abbreviation ENE | | Subject Abbreviation | | | | | Check All That Apply: | 1 |
| | | | | | | Summer | ✓ Fall Spr | ina |
| Course Number | 50 | 1 Course Number | | | | CAN | IPUS(ES) INVOLVED | |
| SEMINIAR I | t' | | | | | Calumet | N. Centra | al |
| Long Title Introduction to En | gineering | Education | | | | Cont Ed | Tech Star | tewide |
| Short Title | A44 (B) () A | A 1 4 - A 16 | | | | Ft. Wayne | ✓ W. Lafay | ette |
| | the Office of the | NENE e Registrar if omitted. (30 CHARACT | TERE ONLY) | | | Indianapolis | | ı |
| | Tine Office of the | C Registral il cillitted. (50 CHARAC) | ERS UNLT) | | | | | |
| CREDIT TYPE | | 4 | co | URSE ATTRI | IBUTES: | Check All That Apply | | |
| 1. Fixed Credit: Cr. Hrs. | | 1. Pass/Not Pass Only | <u></u> | ✓ 6. R | Registration | Approval Type | | |
| 2. Variable Credit Range: | | 2. Sätisfactory/Unsatisfactory | Only | _ | D | epartment | Instructor 🗸 | |
| Minimum Cr. Hrs | | 3. Repeatable | L | 7. V | ariable Title | e | | |
| (Check One) To Or | | Maximum Repeatable | Credit: | _ | lonors | | | 1 |
| Maximum Cr. Hrs | 7 | 4. Credit by Examination | Ļ | = | ull Time Pr | | | |
| Equivalent Credit: Yes No L Thesis Credit: Yes No F | ٦ . | 5. Special Fees | L | 10. 0 | off Campus | Experience | | - |
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| Schedule Type Minutes 1 Per Mtg | Meetings Per Week | Weeks % of Credit Offered Allocated | | | | | O U O | |
| Lecture 50 | 1 | Olicied Allocated | | | | | Cross-Listed Cours | ses |
| Recitation | | | (N) | | | | | |
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| Studio Distance | | | | | | | | |
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| Experiential | | | | | • | | | l |
| Research Ind. Study | | | | | | | | |
| Pract/Observ | | | | | | | * | |
| COURSE DESCRIPTION (INCLUDE REQUISI | TES/RESTRIC | TIONS): | | | | | | |
| Provides beginning engineering | education | graduate students opp | ortunities to | define then | nselves | with the engine | aring education depar | tment and |
| within the field of engineering ed | ucation.St | udents, faculty and out | side speaker | 's present i | researc | h topics, academ | nic opportunities, and | other |
| information that will enhance stud | dents' grad | duate experiences. | | p. 000 | | ir topico, acadon | no opportantios, and | otrici |
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| | Date | Calumet School Dean | | Date | Cal | umet Undergrad Curricu | ulm Committee | Date |
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| Fort Wayne Department Head | Date | Fort Wayne School Dean | | Date | For | t Wayne Chancellor | | Date |
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| Indianapolis Department Head | Date | Indianapolis School Dean | *************************************** | Date | | dergrad Curriculm Comr | wittee | 700 |
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| North Central Department Head | Date | North Control Chancelles | | | | | | |
| 1 1 1 1 1 | | North Central Chancellor | 116 | Date | Date / | e Approved by Graduate | e Council | |
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| West Lafavette Degranment Head | Date | West Lafayette College/School | Dean | Date | Gra | duate Council Secretary | 1 | Date |
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| Graduate Area Committee Convener | Date | Graduate Dean | | Date | Wes | st Lafayette Registrar | - | Date |
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| (Grad Form 40G [Excel format] - | Does not i | nclude the Graduate (| Council's real | ired suppo | ortina de | cument. See nd | f version of Form 400 | G) |

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The Engineering Faculty To:

From: The Department of Engineering Education

Re: New Graduate Level Course – ENE 501, Introduction to Engineering Education

The faculty of the Department of Engineering Education has approved the following new graduate ENE course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

SEMINAR IN

-Introduction-to Engineering Education **ENE 501**

Sem. 1. Cr. 1

Prerequisite: Admission by consent of instructor

This course provides beginning engineering education graduate students opportunities to define themselves within the engineering education department and within the field of engineering education. Students, faculty, and outside speakers present research topics, academic opportunities, and other information that will enhance students' graduate experiences.

Reason: This is a required course for the graduate programs in the Department of Engineering Education (ENE). The intent of the course is to introduce beginning ENE students to the field of engineering education through interactions with members of the engineering education community at local and national levels and to help students identify resources that will help them transition into the professional engineering education community.

This course was offered in Fall 2005 as ENE 695A – Seminar in Engineering Education; eleven ENE students were enrolled.

APPROVED FOR THE FACULTY OF THE SCHOOLS OF ENGINEERING BY THE ENGINEERING CURRICULUM COMMITTEE

Kamyar Haghighi, Head Engineering Education

ECC Minutes

Chairman ECC Mul

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Supporting Document for a New Graduate Course

| То: | Purdue Universit | y Graduate (| Council | | (Select One) |
|----------|------------------|----------------|---|-------|--|
| From: | Faculty Member: | Monica F. Co | ЭX | | |
| | Department: | School of En | gineering Education | | |
| | Campus: | Purdue Univ | ersity, West Lafayett | 5 | Reviewer: |
| Date: | | | | | |
| Subject: | • | Graduate Co | ourse-Documentati uncil to Accompany | | Comments: |
| | Contact for info | rmation if | Name: | Cind | ey Hays (Temporary) |
| | questions arise: | | Phone Number: | 4388 | The state of the s |
| | | | E-mail: | isent | berg@purdue.edu |
| | | | Campus Address: | ARM | S 1321 |
| | Course Subject A | | | 1 | |
| | Course Tine. Sen | imar in Engine | eering Education | | |

A. Justification for the Course:

- Provide a complete and detailed explanation of the need for the course (e. g., in the preparation of students, in providing new knowledge/training in one or more topics, in meeting degree requirements, etc.), how the course contributes to existing fields of study and/or areas of specialization, and how the course relates to other graduate courses offered by the department, other departments, or interdisciplinary programs.
- Justify the level of the proposed graduate course (50000- or 60000-level) including statements on, but not limited to: (1) the target audience, including the anticipated number of undergraduate and graduate students who will enroll in the course; and (2) the rigor of the course.

B. Learning Outcomes and Method of Evaluation or Assessment:

- Describe the course objectives and student learning outcomes that address the objectives (i.e., knowledge, communication, critical thinking, ethical research, etc.).
- Describe the methods of evaluation or assessment of student learning outcomes. (Include evidence for both direct and indirect methods.)
- Grading criteria (select from dropdown box); include a statement describing the criteria that will be used to assess students and how the final grade will be determined.

| <u>Criteria</u> | Papers and Projects |
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ENE 501 – Seminar in Engineering Education

A. Justification for the Course:

- This course is needed to give new engineering education graduate students opportunities to define their roles within the School and within the field of engineering education. To help students learn about diverse research conducted in the field, students, faculty, and outside speakers present research topics, academic opportunities, and other information. Students within the course also engage in class discussions about engineering education and directions that they would like to take during their graduate experiences. This introductory course, unlike other courses in the School, is semi-structured and provides a forum for students to reflect upon all of the activities in which they will engage in engineering education.
- The proposed course will be a 50000-level course, since it is the introductory course for engineering education doctoral students. Approximately ten students will enroll in the course each year. This number may vary depending upon the number of students who enroll in the school each year. The rigor of the course is moderate, since students will be asked to read common literature and will complete portfolio assignments that reflect students' personal interests and goals in the discipline.

B. Learning Outcomes and Method of Evaluation or Assessment:

Course Objectives and Student Learning Outcomes

- 1. Develop a plan for completing a professional engineering education portfolio. (Students will demonstrate an ability to reflect critically upon their learning goals and articulate learning plan.)
- 2. Identify and interact with members of the engineering education community at local and national levels. (Students will develop and enhance their communication skills and other professional development skills.)
- 3. Identify and utilize resources that will help students to complete their doctoral program and to transition into the professional engineering education community. (Students will obtain knowledge of academic and professional resources in engineering education.)

Methods of Evaluation or Assessment of Student Learning Outcomes

The methods of evaluation or assessment of student learning outcomes are described below. The learning outcomes are incorporated in multiple course assignments. The percentage of the overall grade for each assessment is shown in parentheses.

- 1. Participation/ Attendance (10%)
- 2. Pre/ Post Letter Home (25%): To help students to reflect upon their current and future roles within the engineering education community, they are asked to write a letter to a friend or family member about their experiences as a doctoral student in the School of Engineering Education. The letter may describe what they hope to accomplish, identify any resources that they would like to tap into during your tenure at Purdue, list potential research topics of interest, outline activities that they plan to become involved in within the school or the engineering education community, their anticipated timeline, or anything else that relates to their desired experiences as a doctoral student. They are encouraged to include any other thoughts that they have about engineering education. There is no page limit for this assignment, but clarity is highly rewarded. They will write a second letter at the end of the semester, and critically compare the two.
- 3. Midterm Portfolio Reflection (30%): To help them to become engaged with their prospective ENE graduate portfolio, they are asked to develop and to think about their personal learning objectives within the overall

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- context of the program. Students will present a multiple-page document that maps their learning objectives to ENE deliverables (e.g., a plan of study).
- 4. Final Portfolio Reflection and Presentations (35%): At the end of the semester, they are asked to use a disciplined approach to reflect upon their current and future ENE learning experiences. In addition to thinking about the development of their portfolio, you will be asked to think about how they will achieve their learning objectives via the development of a reflexive plan that may be achieved over their time at Purdue. They will be asked to present their reflection to their peers at the end of the semester.

Criteria and Grading for the Midterm Portfolio Reflection

| | al information about the midterm portfolio reflection is provided below. (pick one) |
|-----------|---|
| | Exams and Quizzes |
| \square | Papers and Projects |
| | Homework |
| | Laboratory Exercises |
| | Attendance and Class Participation |
| | Extra Credit Policies |

The rubric below displays the criteria used to assess students for the Midterm Portfolio Assessment. The course instructor will grade each student using the criteria.

- a. **Personal Learning Goals-** List your most important personal learning goals for your PhD time at Purdue. Map these to the Ten Competencies of the ENE graduate program. For each goal, briefly indicate what actions you plan to take to accomplish it, how you intend to measure success / quality, and what sorts of evidence you will use to demonstrate to self and others that you have obtained the goal. For each goal indicate when this will be accomplished and your current status (not begun, planning, launching, achieving). You should present this personal goals summary in the form of a table.
 - Marginal (1 point)- Learning goals not realistic or not well articulated; goals not mapped to competencies;
 analysis is incomplete or difficult to follow (could have used a table)
 - Adequate (2 points)- Learning goals are basic; mapped to competencies but actions, measures, suggested evidence and status is very basic or incomplete
 - Superior (3 points)- Learning goals are clear and achievable. Goals map to competencies and actions, measures, suggested evidence and status are complete and well thought out.
- **b.** Specific Plan for this Semester- Pick one goal from the list that will be accomplished, at least in part, by the end of this semester. For this goal, provide more detail on what is to be done, how it will accomplish the goal, how success / quality will be measured, what evidence will be gathered and how this will be analyzed.
 - Marginal (1 point)- A detailed plan is not fully articulated or not thought through in terms of how realistic or achievable it is. Plan may not actually lead to achievement of the specified learning goal or related.
 - Adequate (2 points)- The plan is achievable and in sufficient detail to allow others to follow the logic. Plan
 will likely lead to achievement of the specified learning goal and related competencies.
 - Superior (3 points)- The plan is simple and clear and easy to execute. Plan is insightful or an elegant way to achieve the specified learning goal and related competencies.

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In addition, feedback on improving the reflection for future use is provided.

Method of Instruction for the Course

| | Lecture |
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| \square | Recitation |
| | Presentation |
| | Laboratory |
| | Lab Prep |
| | Studio |
| | Distance |

A recitation promotes the likely success of desired student outcomes since this the format is conversational and allows graduate students to ask questions about engineering education throughout the semester.

C. Prerequisite(s):

No prerequisites are required for this class, since it is the introductory course for students entering the engineering education doctoral program.

D. Course Instructor(s):

Teri Reed-Rhoads, Associate Professor, School of Engineering Education, is the course instructor for fall 2009. Monica F. Cox, Assistant Professor, School of Engineering Education, has been a course instructor for three previous semesters. Dr. Reed-Rhoads and Dr. Cox are members of the Graduate Faculty.

E. Course Outline:

Below is a tentative outline of topics covered in the course.

| Week | Dates | Topic | Assignments |
|------|----------|--|------------------------------|
| 1 | Aug. 26 | Introductions and Announcements | |
| 2 | Sept. 2 | Tools for Planning and Reflecting | |
| 3 | Sept. 9 | ENE Graduate Roadmap & Portfolio | Letter Home (Pre) |
| 4 | Sept. 16 | Expectations of graduate school | |
| 5 | Sept. 23 | Research communities – a panel discussion | |
| 6 | Sept. 30 | Some research areas in engineering education | |
| 7 | Oct. 7 | Portfolio Review Session | |
| 8 | Oct. 14 | October Break | |
| 9 | Oct. 21 | No Class | Midterm Portfolio Reflection |
| 10 | Oct. 28 | Class discussion | |
| 11 | Nov. 4 | Class discussion | |
| 12 | Nov. 11 | Class discussion | |
| 13 | Nov. 18 | Class discussion | |
| 14 | Nov. 25 | No Class- Thanksgiving Break | Letter Home (Post) |
| 15 | Dec. 2 | Student Presentations | |
| 16 | Dec. 9 | Student Presentations/ Final Thoughts about Portfolios and Program | Final Portfolio Reflection |

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F. Required Readings

The Elements of Style, Fourth Edition (Paperback) by William Strunk, Jr. (Author), E. B. White (Author), Roger Angell (Foreword), ISBN 0-205-30902-X (paperback).

Changing the Conversation: Messages for Improving Public Understanding of Engineering (Paperback) by Committee on Public Understanding of Engineering Messages (Author), National Academy of Engineering (Author), ISBN 978-0-309-11934-4 (paperback) and ISBN 978-0-309-11935-1 (pdf).

Additional readings related to particular presenters in a given year.

G. Library resources:

Students will have access to the Purdue University engineering education library page for this course. This page lists the primary journals in the fields along with suggested engineering education readings for scholars of engineering education. The site is located at http://www.lib.purdue.edu/engr/Subjectpages/engred.html.

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Seminar in Engineering Education

ENE 69500-001 Seminar in Engineering Education
(1 Credit Hour)
FALL 2008
ARMS 3115
TUESDAY, 3:30 - 4:20 P.M.

INSTRUCTOR

Monica F. Cox

ARMS 1329

496-3461

mfc@purdue.edu

Office Hours by Appointment

COURSE DESCRIPTION

This course gives engineering education graduate students opportunities to define their roles within the department and within the field of engineering education. Students, faculty, and outside speakers will present research topics, academic opportunities, and other information that will enhance students' graduate experiences.

COURSE LEARNING OJECTIVES

- Demonstrate an ability to critically reflect upon your learning goals and to articulate learning plan
- Identify and interact with members of the engineering education community at local and national levels
- Identify and utilize resources that will help you successfully complete your doctoral program and transition into the professional engineering education community

GRADING POLICY

| • | Participation/Attendance | 10% |
|---|---|-----|
| • | Pre/Post Letter | 25% |
| • | Midterm Portfolio Reflection | 30% |
| • | Final Portfolio Reflection/ Presentations | 35% |

Posting: Grades will be posted to the ENE 69500 site on Blackboard. Access your personal account at http://www.itap.purdue.edu/tlt/blackboard.

ASSIGNMENTS

<u>Pre/ Post Letter Home</u>: To help you to reflect upon your current and future role within the engineering education community, you will be asked to write a letter to a friend or family member about your experiences as a doctoral student in the School of Engineering Education. The letter may describe what you hope to accomplish, identify any resources that you would like to tap into during your tenure at Purdue, list potential research topics of interest, outline activities that you plan to become involved in within the school or the engineering education community, your anticipated timeline, or anything else that relates to your desired experiences as a doctoral student. You are welcome to include any other thoughts that you have about engineering education. There is no page limit for this assignment, but clarity will be highly rewarded. You will write a second letter at the end of the semester, and critically compare the two.

Midterm Portfolio Reflection

To help you to become engaged with your prospective ENE graduate portfolio, you will be asked to develop and to think about your personal learning objectives within the overall context of the program.

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Seminar in Engineering Education

These objectives will be mapped to ENE deliverables such as the plan of study. Additional details about this reflection will be presented later in the semester.

Final Portfolio Reflection and Presentations

At the end of the semester, you will be asked to use a disciplined approach to reflect upon your current and future ENE learning experiences. In addition to thinking about the development of your portfolio, you will be asked to think about how you will achieve your learning objectives via the development of a reflexive plan that may be achieved over your time at Purdue. You will be asked to present your reflection to your peers at the end of the semester. Additional details about the content of the reflection and the presentations will be presented later in the semester.

LATE POLICY & MAKE-UP ASSIGNMENTS

Please note that all assignments must be submitted via Blackboard by 3:30 P.M. on the day that they are due. One letter grade will be deducted for each day that the assignment is late. Make-up assignments may be given *only* with special permission from the instructor.

ATTENDANCE

You are expected to attend all scheduled seminars unless you have contacted the instructor prior to the seminar. Excessive unexcused absences may result in deductions from your participation/attendance grade.

ADDITIONAL INFORMATION

Students with disabilities must be registered with Adaptive Programs in the Office of the Dean of Students before classroom accommodations can be provided. If you are eligible for academic accommodations because you have a documented disability that will impact your work in this class, please schedule an appointment with me as soon as possible to discuss your needs.

| Week | Dates | Topic | Assignments |
|------|----------|--|------------------------------|
| 1 | Aug. 26 | Introductions and Announcements | |
| 2 | Sept. 2 | Tools for Planning and Reflecting | |
| 3 | Sept. 9 | ENE Graduate Roadmap & Portfolio | Letter Home (Pre) |
| 4 | Sept. 16 | Expectations of graduate school | |
| 5 | Sept. 23 | Research communities – a panel discussion | |
| 6 | Sept. 30 | Some research areas in engineering education | |
| 7 | Oct. 7 | Portfolio Review Session | |
| 8 | Oct. 14 | October Break | |
| 9 | Oct. 21 | No Class | Midterm Portfolio Reflection |
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| 11 | Nov. 4 | Class discussion | |
| 12 | Nov. 11 | Class discussion | |
| 13 | Nov. 18 | Class discussion | |
| 14 | Nov. 25 | No Class- Thanksgiving Break | Letter Home (Post) |
| 15 | Dec. 2 | Student Presentations | |
| 16 | Dec. 9 | Student Presentations/ Final Thoughts about | Final Portfolio Reflection |
| | | Portfolios and Program | |

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PURDUE UNIVERSITY REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF A GRADUATE COURSE (50000-60000 LEVEL)

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| DEPARTMENT Engineering Ed | | | 200910 | |
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| | tems below which describe the purpose of | of this request. | | |
| | ith supporting documents (complete | proposal form) | 7. Change in cour | |
| 2. Add existing co | ourse offered at another campus | | 8. Change in instru | |
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| 6. Change in cou | | | | ne department to another |
| PROPOSED: | EXISTING: | | 7 | TERMS OFFERED |
| Subject Abbreviation ENE | Subject Abbreviation | 1 | | Check All That Apply: Fall Spring |
| Course Number | 501 Course Number | | | MPUS(ES) INVOLVED N. Central |
| | Engineering Education | | Cont Ed Ft. Wayne | Tech Statewide W. Lafayette |
| Short Title Intro ENED | | | Indianapolis | , |
| | ed by the Office of the Registrar if omitted. (30 CHARA | ACTERS ONLY) | | |
| CREDIT TYPE | | | BUTES: Check All That Apply | |
| Fixed Credit: Cr. Hrs. Variable Credit Range: | 1. Pass/Not Pass Only | | Registration Approval Type | |
| 2. Variable Credit Range: Minimum Cr. Hrs | 2. Satisfactory/Unsatisfactory | | | Instructor 🗸 |
| (Check One) To Or | Maximum Repeatable | | ariable Title | ř I |
| Maximum Cr. Hrs | 4. Credit by Examination | | lonors ull Time Privilege | H |
| 3. Equivalent Credit: Yes No | | | off Campus Experience | H |
| 4. Thesis Credit: Yes No | | | п Сапіриз Ехрепенсс | |
| Schedule Type Minutes | Meetings Per Weeks % of Cred | | | |
| Per Mtg Lecture 50 | Week Offered Allocated 1 | | | Cross-Listed Courses |
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| COURSE DESCRIPTION (INCLUDE REQU | | | | |
| within the field of engineering e | ng education graduate students of education.Students, faculty and c students' graduate experiences. | outside speakers present r | esearch topics, academ | nic opportunities, and other |
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| Fort Wayne Department Head | Date Fort Wayne School Dean | Date | Fort Wayne Chancellor | Date |
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| Indianapolis Department Head | Date Indianapolis School Dean | Date | Undergrad Curriculm Comm | mittee Date |
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| North Central Department Head | Date North Central Chancellor | Dele | 5: \ | |
| I a 1 A 14 | Date North Central Chancellor | Date Date | Date Approved by Graduate | e Council |
| 11116 | 8/25/08 M/le had | The whole | אריה ב | |
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| West Lafavette Department Head | Date West Lafayette Coffege/Sch | nool Dean / Dafe | Graduate Council Secretary | y Date |
| Graduate Area Committee Convener | Date Graduate Dean | Date | West Lafayette Registrar | Date |
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| (Grad Form 40G [Excel format] |] - Does not include the Graduate | Council's required suppo | orting document. See pdf | f version of Form 40G) |

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To: The Engineering Faculty

From: The Department of Engineering Education

Re: New Graduate Level Course – ENE 501, Introduction to Engineering Education

The faculty of the Department of Engineering Education has approved the following new graduate ENE course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

ENE 501 Introduction to Engineering Education

Sem. 1. Cr. 1

Prerequisite: Admission by consent of instructor

This course provides beginning engineering education graduate students opportunities to define themselves within the engineering education department and within the field of engineering education. Students, faculty, and outside speakers present research topics, academic opportunities, and other information that will enhance students' graduate experiences.

Reason: This is a required course for the graduate programs in the Department of Engineering Education (ENE). The intent of the course is to introduce beginning ENE students to the field of engineering education through interactions with members of the engineering education community at local and national levels and to help students identify resources that will help them transition into the professional engineering education community.

This course was offered in Fall 2005 as ENE 695A – Seminar in Engineering Education; eleven ENE students were enrolled.

APPROVED FOR THE FACULTY
OF THE SCHOOLS OF ENGINEERING
BY THE ENGINEERING
CURRICULUM COMMITTEE

ECC Minutes

Chairman ECC

Kamyar Haghighi, Head Engineering Education

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Supporting Document for a New Graduate Course

| To: | Purdue Universit | Purdue University Graduate Council | | | (Select One) | |
|----------|---|------------------------------------|--------------------------|--------------|---------------------|--|
| From: | Faculty Member: Teri Reed-Rhoads | | | | | |
| | Department: | School of Engineering Education | |) | Davissa | |
| | Campus: | Purdue Univ | ersity, West Lafayett | e | Reviewer: | |
| Date: | | | | | | |
| Subject: | Proposal for New Graduate Course-Documentation Required by the Graduate Council to Accompany Registrar's Form 40G | | | Comments: | | |
| | Contact for information if | | Name: | Cinde | ey Hays (Temporary) | |
| | questions arise: | | Phone Number: E-mail: | 4388 | 4 | |
| | | | | isenb | perg@purdue.edu | |
| | | | Campus Address: | s: ARMS 1321 | | |
| | Course Subject Ab | breviation an | d Number: ENE 50 | <u> </u> | | |
| | Course Title: Intro | duction to En | gineering Education | | | |

For Reviewer's comments only

A. Justification for the Course:

- Provide a complete and detailed explanation of the need for the course (e. g., in the
 preparation of students, in providing new knowledge/training in one or more topics, in
 meeting degree requirements, etc.), how the course contributes to existing fields of study
 and/or areas of specialization, and how the course relates to other graduate courses offered
 by the department, other departments, or interdisciplinary programs.
- Justify the level of the proposed graduate course (50000- or 60000-level) including statements on, but not limited to: (1) the target audience, including the anticipated number of undergraduate and graduate students who will enroll in the course; and (2) the rigor of the course.

B. Learning Outcomes and Method of Evaluation or Assessment:

- Describe the course objectives and student learning outcomes that address the objectives (i.e., knowledge, communication, critical thinking, ethical research, etc.).
- Describe the methods of evaluation or assessment of student learning outcomes. (Include evidence for both direct and indirect methods.)
- Grading criteria (select from dropdown box); include a statement describing the criteria that will be used to assess students and how the final grade will be determined.

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| <u>Criteria</u> | Papers and Projects | |

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| • | Identify the method(s) of instruction (select from dropdown box) and describe how the |
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| | methods promote the likely success of the desired student learning outcomes. |

| Method of Instruction | Recitation |
|-----------------------|------------|
| mounda or moudouon | necitation |

C. Prerequisite(s):

- List prerequisite courses by subject abbreviation, number, and title.
- List other prerequisites and/or experiences/background required. If no prerequisites are indicated, provide an explanation for their absence.

D. Course Instructor(s):

- Provide the name, rank, and department/program affiliation of the instructor(s).
- Is the instructor currently a member of the Graduate Faculty? X Yes No (If the answer is no, indicate when it is expected that a request will be submitted.)

E. Course Outline:

Provide an outline of topics to be covered and indicate the relative amount of time or
emphasis devoted to each topic. If laboratory or field experiences are used to supplement a
lecture course, explain the value of the experience(s) to enhance the quality of the course
and student learning. For special topics courses, include a sample outline of a course that
would be offered under the proposed course.

F. Reading List (including course text):

- A primary reading list or bibliography should be limited to material the students will be required to read in order to successfully complete the course. It should not be a compilation of general reference material.
- A secondary reading list or bibliography should include material students may use as background information.

G. Library Resources

- Describe the library resources that are currently available or the resources needed to support this proposed course.
- H. Example of a Course Syllabus (While not a necessary component of this supporting document, an example of a course syllabus is available, for information, by clicking on the link below, which goes to the Graduate School's Policies and Procedures Manual for Administering Graduate Student Programs. See Appendix K.)

http://www.gradschool.purdue.edu/downloads/Graduate_School_Policies and Procedures Manual.pdf

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ENGR 501 Introduction to Engineering Education Syllabus

COURSE DESCRIPTION

This course provides engineering education graduate students an opportunity to define their roles within the department and within the field of engineering education. Students, faculty, and outside speakers will present research topics, academic opportunities, and other information that will enhance students' graduate experiences.

COURSE LEARNING OJECTIVES

- Define your role in the engineering education community
- Identify and interact with members of the engineering education community at local and national levels
- Identify and utilize resources that will help you successfully complete your doctoral program and transition into the professional engineering education community

GRADING POLICY

| • | Peer Interview | 20% |
|---|-----------------------------------|-----|
| • | Professional (Internal) Interview | 20% |
| • | Professional (External) Interview | 20% |
| • | Reflection Paper | 30% |
| • | Participation/Attendance | 10% |

ASSIGNMENTS

<u>Peer Interview Synopsis</u>: To foster a sense of community and to learn more about the students in your cohort, you will ask a fellow engineering education graduate student <u>four</u> interview questions and will submit a two-page, double-spaced synopsis of this interview. Open-ended questions should help the interviewee reflect upon his/her educational objectives. To avoid duplicate interviews, every student in the class will be interviewed once. Some sample questions include, but are not limited to, the following:

- Professionally, where do you see yourself in five years? In twenty years?
- Why did you choose to pursue an advanced degree in engineering education versus some other discipline?
- What are the biggest challenges facing engineering education today? What are some possible solutions to these challenges?

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<u>Professional (Internal) Interview Synopsis</u>: You will interview a Purdue faculty member or researcher who is affiliated with the Engineering Education department or who has designed and/or conducted engineering education research projects and will write a two-page, double-spaced synopsis of this interview. Since the person is housed on campus, you must conduct your interview face-to-face. The <u>four</u> questions that you ask should be of interest to you and should help to answer any questions that you might have about the structure of the ENE department, faculty's expectations of you as a student, professional ENE opportunities, ongoing or future research engineering education projects, etc. The interview should last approximately ten to twenty minutes depending upon the length of the questions that you ask. To avoid duplicate interviews, every student is *required* to interview a different faculty member and/or researcher. Please contact me once you have set up your interview, and I will let others know that your interviewee is no longer available.

<u>Professional (External) Interview</u>: You will interview a non-Purdue faculty member or researcher within the engineering education community and will write a two-page, double-spaced synopsis of this interview. The interview may be conducted in-person, via e-mail, or via telephone. You might find this person via web searches for NSF-funded engineering education research centers and/or projects, at national engineering education conferences, etc. Please make sure that you thoroughly explain your purpose for the interview. The <u>four</u> questions that you ask should be of interest to you and should address national engineering education issues such as engineering education research challenges at different types of universities, companies, etc., the national job market for engineering education graduates, the future of engineering education, etc. A face-to-face interview should last approximately ten to twenty minutes depending upon the length of the questions that you ask. To avoid duplicate interviews, every student is *required* to interview a different person. Please contact me once you have set up your interview, and I will let others know that your interviewee is no longer available.

Reflection Paper: The purpose of this paper is for you to reflect upon everything that you have learned this semester. The paper should identify any resources that you would like to tap into during your tenure at Purdue, should list your engineering education timeline (i.e., the activities that you plan to become involved in within the department or the engineering education community, research projects that you would like to start, etc.), and the professional goals that you hope to achieve as an engineering educator. You are welcome to include any other thoughts that you have about engineering education as a result of the in-class presentations or presentations from other engineering education-related classes. There is no page limit for this assignment.

ATTENDANCE

You are expected to attend all scheduled seminars unless you have contacted the instructor prior to the seminar.

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Schedule of Topics and Assignments (Sample Fall 2005)

| Week | Dates | Topic | Assignments Due |
|------|----------|-----------------------------------|---|
| 1 | Aug. 23 | Departmental Introductions & | |
| | | Announcements | |
| 2 | Aug. 30 | "Curriculum Vita Workshop" | |
| | | Presented by Ms. Susan Hychka | |
| | | from Purdue's Center for Career | |
| | | Opportunities | |
| 3 | Sept. 6 | Research Presentation | |
| | 1 | Dr. Sean Brophy, Asst. Professor | |
| | | of Engineering Education | |
| 4 | Sept. 13 | Research Presentation | Peer Interview Synopsis |
| | • | Dr. PK Imbrie, Asst. Professor of | |
| | | Engineering Education | |
| 5 | Sept. 20 | Graduate Student Expectations | |
| | | Discussion, Dr. Heidi Diefus-Dux | |
| 6 | Sept. 27 | ENE Student Recruitment/ Focus | |
| | 1 | Group Discussion, Korina Wilbert | |
| 7 | Oct. 4 | Research Presentation | |
| | | Dr. Cordelia Brown, Asst. | |
| | | Professor of Engineering | |
| | | Education | · |
| 8 | Oct. 11 | October Break | |
| 9 | Oct. 18 | No Class | |
| 10 | Oct. 25 | Engineering Education Resources | Professional (Internal) Interview |
| | | | Synopsis |
| 11 | Nov. 1 | Student Presentation- Tamara | |
| | | Moore | |
| | | "Fishbowl" Continuation | |
| 12 | Nov. 8 | "Finding Research Funding" | |
| | | Presented by H. Christine King, | |
| | | Director of Research Development | |
| | | Services | |
| 13 | Nov. 15 | Provost Sally Mason/ Prof. David | Professional (External) Interview |
| | | Radcliffe Presentations | Synopsis |
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| 14 | Nov. 22 | Student Presentations of External | 1.20-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0- |
| | | Professional Interviews | |
| 15 | Nov. 29 | TBA | |
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| 16 | Dec. 6 | Research Presentation | Reflection Paper |
| | | Dr. Robin Adams, Asst. Professor | |
| | | of Engineering Education | |

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ENE 501 – Introduction to Engineering Education

A. Justification for the Course:

- This course is needed to give new engineering education graduate students opportunities to define their roles within the School and within the field of engineering education. To help students learn about diverse research conducted in the field, students, faculty, and outside speakers present research topics, academic opportunities, and other information. Students within the course also engage in class discussions about engineering education and directions that they would like to take during their graduate experiences. This introductory course, unlike other courses in the School, is semi-structured and provides a forum for students to reflect upon all of the activities in which they will engage in engineering education.
- The proposed course will be a 50000-level course, since it is the introductory course for engineering education doctoral students. Approximately ten students will enroll in the course each year. This number may vary depending upon the number of students who enroll in the school each year. The rigor of the course is moderate, since students will be asked to read common literature and will complete portfolio assignments that reflect students' personal interests and goals in the discipline.

B. Learning Outcomes and Method of Evaluation or Assessment:

Course Objectives and Student Learning Outcomes

- 1. Develop a plan for completing a professional engineering education portfolio. (Students will demonstrate an ability to reflect critically upon their learning goals and articulate learning plan.)
- 2. Identify and interact with members of the engineering education community at local and national levels. (Students will develop and enhance their communication skills and other professional development skills.)
- 3. Identify and utilize resources that will help students to complete their doctoral program and to transition into the professional engineering education community. (Students will obtain knowledge of academic and professional resources in engineering education.)

Methods of Evaluation or Assessment of Student Learning Outcomes

The methods of evaluation or assessment of student learning outcomes are described below. The learning outcomes are incorporated in multiple course assignments. The percentage of the overall grade for each assessment is shown in parentheses.

- 1. Participation/ Attendance (10%)
- 2. Pre/ Post Letter Home (25%): To help students to reflect upon their current and future roles within the engineering education community, they are asked to write a letter to a friend or family member about their experiences as a doctoral student in the School of Engineering Education. The letter may describe what they hope to accomplish, identify any resources that they would like to tap into during your tenure at Purdue, list potential research topics of interest, outline activities that they plan to become involved in within the school or the engineering education community, their anticipated timeline, or anything else that relates to their desired experiences as a doctoral student. They are encouraged to include any other thoughts that they have about engineering education. There is no page limit for this assignment, but clarity is highly rewarded. They will write a second letter at the end of the semester, and critically compare the two.
- 3. Midterm Portfolio Reflection (30%): To help them to become engaged with their prospective ENE graduate portfolio, they are asked to develop and to think about their personal learning objectives within the overall

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- context of the program. Students will present a multiple-page document that maps their learning objectives to ENE deliverables (e.g., a plan of study).
- 4. Final Portfolio Reflection and Presentations (35%): At the end of the semester, they are asked to use a disciplined approach to reflect upon their current and future ENE learning experiences. In addition to thinking about the development of their portfolio, you will be asked to think about how they will achieve their learning objectives via the development of a reflexive plan that may be achieved over their time at Purdue. They will be asked to present their reflection to their peers at the end of the semester.

Criteria and Grading for the Midterm Portfolio Reflection

| | al information about the midterm portfolio reflection is provided below. (pick one) |
|------|---|
| | Exams and Quizzes |
| abla | Papers and Projects |
| | Homework |
| | Laboratory Exercises |
| | Attendance and Class Participation |
| | Extra Credit Policies |

The rubric below displays the criteria used to assess students for the Midterm Portfolio Assessment. The course instructor will grade each student using the criteria.

- a. **Personal Learning Goals-** List your most important personal learning goals for your PhD time at Purdue. Map these to the Ten Competencies of the ENE graduate program. For each goal, briefly indicate what actions you plan to take to accomplish it, how you intend to measure success / quality, and what sorts of evidence you will use to demonstrate to self and others that you have obtained the goal. For each goal indicate when this will be accomplished and your current status (not begun, planning, launching, achieving). You should present this personal goals summary in the form of a table.
 - Marginal (1 point)- Learning goals not realistic or not well articulated; goals not mapped to competencies;
 analysis is incomplete or difficult to follow (could have used a table)
 - Adequate (2 points)- Learning goals are basic; mapped to competencies but actions, measures, suggested evidence and status is very basic or incomplete
 - Superior (3 points)- Learning goals are clear and achievable. Goals map to competencies and actions, measures, suggested evidence and status are complete and well thought out.
- b. **Specific Plan for this Semester** Pick one goal from the list that will be accomplished, at least in part, by the end of this semester. For this goal, provide more detail on what is to be done, how it will accomplish the goal, how success / quality will be measured, what evidence will be gathered and how this will be analyzed.
 - Marginal (1 point)- A detailed plan is not fully articulated or not thought through in terms of how realistic or achievable it is. Plan may not actually lead to achievement of the specified learning goal or related.
 - Adequate (2 points)- The plan is achievable and in sufficient detail to allow others to follow the logic. Plan will likely lead to achievement of the specified learning goal and related competencies.
 - Superior (3 points)- The plan is simple and clear and easy to execute. Plan is insightful or an elegant way to achieve the specified learning goal and related competencies.

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In addition, feedback on improving the reflection for future use is provided.

Method of Instruction for the Course

| | Lecture |
|-----------------------------|-------------|
| $ \overline{\mathbf{V}} $ | Recitation |
| | Presentatio |
| | Laboratory |
| | Lab Prep |
| | Studio |
| | Distance |

A recitation promotes the likely success of desired student outcomes since this the format is conversational and allows graduate students to ask questions about engineering education throughout the semester.

C. Prerequisite(s):

No prerequisites are required for this class, since it is the introductory course for students entering the engineering education doctoral program.

D. Course Instructor(s):

Teri Reed-Rhoads, Associate Professor, School of Engineering Education, is the course instructor for fall 2009. Monica F. Cox, Assistant Professor, School of Engineering Education, has been a course instructor for three previous semesters. Dr. Reed-Rhoads and Dr. Cox are members of the Graduate Faculty.

E. Course Outline:

Below is a tentative outline of topics covered in the course.

| Week | Dates | Topic | Assignments |
|------|----------|--|------------------------------|
| 1 | Aug. 26 | Introductions and Announcements | |
| 2 | Sept. 2 | Tools for Planning and Reflecting | |
| 3 | Sept. 9 | ENE Graduate Roadmap & Portfolio | Letter Home (Pre) |
| 4 | Sept. 16 | Expectations of graduate school | |
| 5 | Sept. 23 | Research communities – a panel discussion | |
| 6 | Sept. 30 | Some research areas in engineering education | |
| 7 | Oct. 7 | Portfolio Review Session | |
| 8 | Oct. 14 | October Break | |
| 9 | Oct. 21 | No Class | Midterm Portfolio Reflection |
| 10 | Oct. 28 | Class discussion | |
| 11 | Nov. 4 | Class discussion | |
| 12 | Nov. 11 | Class discussion | |
| 13 | Nov. 18 | Class discussion | |
| 14 | Nov. 25 | No Class- Thanksgiving Break | Letter Home (Post) |
| 15 | Dec. 2 | Student Presentations | |
| 16 | Dec. 9 | Student Presentations/ Final Thoughts about Portfolios and Program | Final Portfolio Reflection |

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F. Required Readings

The Elements of Style, Fourth Edition (Paperback) by William Strunk, Jr. (Author), E. B. White (Author), Roger Angell (Foreword), ISBN 0-205-30902-X (paperback).

Changing the Conversation: Messages for Improving Public Understanding of Engineering (Paperback) by Committee on Public Understanding of Engineering Messages (Author), National Academy of Engineering (Author), ISBN 978-0-309-11934-4 (paperback) and ISBN 978-0-309-11935-1 (pdf).

G. Library resources:

Students will have access to the Purdue University engineering education library page for this course. This page lists the primary journals in the fields along with suggested engineering education readings for scholars of engineering education. The site is located at http://www.lib.purdue.edu/engr/Subjectpages/engred.html.

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Office of the Registrar FORM 40G REV. 7/08

PURDUE UNIVERSITY JEST FOR ADDITION EXPIRAT

TFU 31-03

REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF A GRADUATE COURSE (50000-60000 LEVEL)

| DEPARTMENT Engineering | Education | EFFECTIVE SESSION | 200910 | |
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| INSTRUCTIONS: Please check the | e items below which describe the purpos | se of this request. | | |
| ✓ 1. New course | with supporting documents (comple | te proposal form) | 7. Change in cours | se attributes |
| 2. Add existing | course offered at another campus | , in the second second | 8. Change in instru | 1 |
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| Fixed Credit: Cr. Hrs. | 1. Pass/Not Pass Only | · | Registration Approval Type | |
| Variable Credit Range: | 2. Satisfactory/Unsatisfa | _ | | Instructor 🗸 |
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To: The Engineering Faculty

From: The Department of Engineering Education

Re: New Graduate Level Course - ENE 501, Introduction to Engineering Education

The faculty of the Department of Engineering Education has approved the following new graduate ENE course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

ENE 501 Introduction to Engineering Education

Sem. 1. Cr. 1

Prerequisite: Admission by consent of instructor

This course provides beginning engineering education graduate students opportunities to define themselves within the engineering education department and within the field of engineering education. Students, faculty, and outside speakers present research topics, academic opportunities, and other information that will enhance students' graduate experiences.

Reason: This is a required course for the graduate programs in the Department of Engineering Education (ENE). The intent of the course is to introduce beginning ENE students to the field of engineering education through interactions with members of the engineering education community at local and national levels and to help students identify resources that will help them transition into the professional engineering education community.

This course was offered in Fall 2005 as ENE 695A – Seminar in Engineering Education; eleven ENE students were enrolled.

APPROVED FOR THE FACULTY
OF THE SCHOOLS OF ENGINEERING
BY THE ENGINEERING
CURRICULUM COMMITTEE

ECC Minutes #25

Date 5 9 08

Chairman ECC Mul

Kamyar Haghighi, Head Engineering Education

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ENGR 501 Introduction to Engineering Education Syllabus

COURSE DESCRIPTION

This course provides engineering education graduate students an opportunity to define their roles within the department and within the field of engineering education. Students, faculty, and outside speakers will present research topics, academic opportunities, and other information that will enhance students' graduate experiences.

COURSE LEARNING OJECTIVES

- Define your role in the engineering education community
- Identify and interact with members of the engineering education community at local and national levels
- Identify and utilize resources that will help you successfully complete your doctoral program and transition into the professional engineering education community

GRADING POLICY

| • | Peer Interview | 20% |
|---|-----------------------------------|-----|
| • | Professional (Internal) Interview | 20% |
| • | Professional (External) Interview | 20% |
| • | Reflection Paper | 30% |
| • | Participation/Attendance | 10% |

ASSIGNMENTS

<u>Peer Interview Synopsis</u>: To foster a sense of community and to learn more about the students in your cohort, you will ask a fellow engineering education graduate student <u>four</u> interview questions and will submit a two-page, double-spaced synopsis of this interview. Open-ended questions should help the interviewee reflect upon his/her educational objectives. To avoid duplicate interviews, every student in the class will be interviewed once. Some sample questions include, but are not limited to, the following:

- Professionally, where do you see yourself in five years? In twenty years?
- Why did you choose to pursue an advanced degree in engineering education versus some other discipline?
- What are the biggest challenges facing engineering education today? What are some possible solutions to these challenges?

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<u>Professional (Internal) Interview Synopsis</u>: You will interview a Purdue faculty member or researcher who is affiliated with the Engineering Education department or who has designed and/or conducted engineering education research projects and will write a two-page, double-spaced synopsis of this interview. Since the person is housed on campus, you must conduct your interview face-to-face. The <u>four</u> questions that you ask should be of interest to you and should help to answer any questions that you might have about the structure of the ENE department, faculty's expectations of you as a student, professional ENE opportunities, ongoing or future research engineering education projects, etc. The interview should last approximately ten to twenty minutes depending upon the length of the questions that you ask. To avoid duplicate interviews, every student is *required* to interview a different faculty member and/or researcher. Please contact me once you have set up your interview, and I will let others know that your interviewee is no longer available.

<u>Professional (External) Interview</u>: You will interview a non-Purdue faculty member or researcher within the engineering education community and will write a two-page, double-spaced synopsis of this interview. The interview may be conducted in-person, via e-mail, or via telephone. You might find this person via web searches for NSF-funded engineering education research centers and/or projects, at national engineering education conferences, etc. Please make sure that you thoroughly explain your purpose for the interview. The <u>four</u> questions that you ask should be of interest to you and should address national engineering education issues such as engineering education research challenges at different types of universities, companies, etc., the national job market for engineering education graduates, the future of engineering education, etc. A face-to-face interview should last approximately ten to twenty minutes depending upon the length of the questions that you ask. To avoid duplicate interviews, every student is *required* to interview a different person. Please contact me once you have set up your interview, and I will let others know that your interviewee is no longer available.

Reflection Paper: The purpose of this paper is for you to reflect upon everything that you have learned this semester. The paper should identify any resources that you would like to tap into during your tenure at Purdue, should list your engineering education timeline (i.e., the activities that you plan to become involved in within the department or the engineering education community, research projects that you would like to start, etc.), and the professional goals that you hope to achieve as an engineering educator. You are welcome to include any other thoughts that you have about engineering education as a result of the in-class presentations or presentations from other engineering education-related classes. There is no page limit for this assignment.

ATTENDANCE

You are expected to attend all scheduled seminars unless you have contacted the instructor prior to the seminar.

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Schedule of Topics and Assignments (Sample Fall 2005)

| Week | Dates | Topic | Assignments Due |
|------|----------|-----------------------------------|---|
| 1 | Aug. 23 | Departmental Introductions & | |
| | | Announcements | |
| 2 | Aug. 30 | "Curriculum Vita Workshop" | |
| | | Presented by Ms. Susan Hychka | |
| | | from Purdue's Center for Career | |
| | | Opportunities | |
| 3 | Sept. 6 | Research Presentation | |
| | - | Dr. Sean Brophy, Asst. Professor | |
| | | of Engineering Education | |
| 4 | Sept. 13 | Research Presentation | Peer Interview Synopsis |
| | _ | Dr. PK Imbrie, Asst. Professor of | |
| | | Engineering Education | |
| 5 | Sept. 20 | Graduate Student Expectations | |
| | _ | Discussion, Dr. Heidi Diefus-Dux | |
| 6 | Sept. 27 | ENE Student Recruitment/ Focus | |
| |] - | Group Discussion, Korina Wilbert | |
| 7 | Oct. 4 | Research Presentation | |
| | | Dr. Cordelia Brown, Asst. | |
| | | Professor of Engineering | |
| | | Education | |
| 8 | Oct. 11 | October Break | |
| 9 | Oct. 18 | No Class | |
| 10 | Oct. 25 | Engineering Education Resources | Professional (Internal) Interview Synopsis |
| 11 | Nov. 1 | Student Presentation- Tamara | |
| | | Moore | |
| | | "Fishbowl" Continuation | |
| 12 | Nov. 8 | "Finding Research Funding" | |
| | | Presented by H. Christine King, | |
| | | Director of Research Development | |
| | | Services | |
| 13 | Nov. 15 | Provost Sally Mason/ Prof. David | Professional (External) Interview |
| | _ | Radcliffe Presentations | Synopsis |
| 14 | Nov. 22 | Student Presentations of External | |
| | | Professional Interviews | |
| 15 | Nov. 29 | TBA | |
| 16 | Dec. 6 | Research Presentation | Reflection Paper |
| | | Dr. Robin Adams, Asst. Professor | |
| | | of Engineering Education | |

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Supporting Document for a New Graduate Course

| To: | Purdue Universit | y Graduate | Council | | For Reviewer's comments only (Select One) | |
|----------|---|--|---|----------------------|---|--|
| | | eering Education University West Lafayette | | Reviewer: Comments: | | |
| Subject: | Proposal for New Graduate Course-Documentation Required by the Graduate Council to Accompany Registrar's Form 40G | | | | | |
| | Contact for info questions arise: | rmation if | Name: Phone Number: E-mail: Campus Address: | 4575 suzie | e Schilling 55 e@purdue.edu 0 ARMS | |
| | Course Subject Ab | | d Number: ENE 50 | 1 | · · · · · · · · · · · · · · · · · · · | |

A. Justification for the Course:

- Provide a complete and detailed explanation of the need for the course (e. g., in the
 preparation of students, in providing new knowledge/training in one or more topics, in
 meeting degree requirements, etc.), how the course contributes to existing fields of study
 and/or areas of specialization, and how the course relates to other graduate courses offered
 by the department, other departments, or interdisciplinary programs.
- Justify the level of the proposed graduate course (50000- or 60000-level) including statements on, but not limited to: (1) the target audience, including the anticipated number of undergraduate and graduate students who will enroll in the course; and (2) the rigor of the course.

B. Learning Outcomes and Method of Evaluation or Assessment:

- Describe the course objectives and student learning outcomes that address the objectives (i.e., knowledge, communication, critical thinking, ethical research, etc.).
- Describe the methods of evaluation or assessment of student learning outcomes. (Include evidence for both direct and indirect methods.)
- Grading criteria (select from dropdown box); include a statement describing the criteria that will be used to assess students and how the final grade will be determined.

| <u>Criteria</u> | Attendance and Class Participation |
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| • | Identify the method(s) of instruction (select from dropdown box) and describe how the |
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| | methods promote the likely success of the desired student learning outcomes. |

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| Method of Instruction | Pract/Observ | : |
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C. Prerequisite(s):

- List prerequisite courses by subject abbreviation, number, and title.
- List other prerequisites and/or experiences/background required. If no prerequisites are indicated, provide an explanation for their absence.

D. Course Instructor(s):

- Provide the name, rank, and department/program affiliation of the instructor(s).
- Is the instructor currently a member of the Graduate Faculty? ___ Yes ___ No (If the answer is no, indicate when it is expected that a request will be submitted.)

E. Course Outline:

Provide an outline of topics to be covered and indicate the relative amount of time or
emphasis devoted to each topic. If laboratory or field experiences are used to supplement a
lecture course, explain the value of the experience(s) to enhance the quality of the course
and student learning. For special topics courses, include a sample outline of a course that
would be offered under the proposed course.

F. Reading List (including course text):

- A primary reading list or bibliography should be limited to material the students will be required to read in order to successfully complete the course. It should not be a compilation of general reference material.
- A secondary reading list or bibliography should include material students may use as background information.

G. Library Resources

- Describe the library resources that are currently available or the resources needed to support this proposed course.
- H. Example of a Course Syllabus (While not a necessary component of this supporting document, an example of a course syllabus is available, for information, by clicking on the link below, which goes to the Graduate School's Policies and Procedures Manual for Administering Graduate Student Programs. See Appendix K.)

http://www.gradschool.purdue.edu/downloads/Graduate School_Policies_and_Procedures_Manual.pdf

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