| 1. General Information | | |
|---|---|--------------------------------------|
| College: Engineering | Department: Chemical a | and Materials Engineering |
| Current Major Name: Chemical Engineering | Proposed Major Name: | |
| Current Degree Title: Chemical Engineering | Proposed Degree Title: | |
| Formal Option(s): N/A | Proposed Formal Option(s): | |
| Specialty Field w/in Formal Option: N/A | Proposed Specialty Field w/in Formal Options: | |
| Date of Contact with Associate Provost for Academ Administration ¹ : | <u></u> | |
| Bulletin (yr & pgs): $\frac{2012-13 \text{ pgs}}{220-221}$ CIP Code ¹ ; | 14.0701 | Today's Date: <u>10/9/12</u> |
| Accrediting Agency (if applicable): ABET, Inc. | | |
| Requested Effective Date: Semester following approval. | g OR | Specific Date ² : |
| Dept. Contact Person: <u>Kimberly W. Anderson</u> | Phone: <u>7-4815</u> | Email: kimberly.anderson@uky.edu |
| 2. General Education Curriculum for this Program: The new General Education curriculum is comprised | | dit hours of course work. There are, |

however, some courses that exceed 3 credits & this would result in more than 30 credits in some majors.

- There is no foreign language requirement for the new Gen Ed curriculum.
- There is no General Education Electives requirement.

Please list the courses/credit hours currently used to fulfill the University Studies/General Education curriculum:

| eneral Education Area | Course | Credit Hrs |
|--|------------------|------------|
| Intellectual Inquiry (one course in each area) | | |
| Arts and Creativity | CME 455 | <u>3</u> |
| Humanities | Choose from list | <u>3</u> |
| Social Sciences | Choose from list | <u>3</u> |
| Natural/Physical/Mathematical | CHE 105 &111 | 5 |

¹ Prior to filling out this form, you MUST contact the Associate Provost for Academic Administration (APAA). If you do not know the CIP code, the (APAA) can provide you with that during the contact.

Program changes are typically made effective for the semester following approval. No program will be made effective until all approvals are received.

| Composition and Communication II | CIS or WRD 111 | 3 |
|--|--|------------------------|
| Quantitative Reasoning (one course in each area) | | |
| Quantitative Foundations ³ | MA 113 | 4 |
| Statistical Inferential Reasoning | STA 210 | 3 |
| Citizenship (one course in each area) | | |
| Community, Culture and Citizenship in the USA | Choose from list | 3 |
| Global Dynamics | Choose from list | 3 |
| | otal General Education Hours | 33 |
| | | |
| Explain whether the proposed changes to the programother department/program. Routing Signature Log m | | |
| N/A | COST THE MARKET ROLL OF THE STATE OF THE STA | uitional uepai (mentis |
| ; IV/A. | | |
| Explain how satisfaction of the University Graduation | Writing Requirement will be chang | ed. |
| Current | Proposed | |
| Standard University course offering. | Standard University cours | se offerina |
| List: Choose from list | List: | ве од енну. |
| | | |
| Specific course – list: | Specific course) – list: | |
| List any changes to college-level requirements that m | ust be satisfied. | |
| Current | Proposed | |
| Standard college requirement. | Standard college requireme | nt. |
| List: was a sure | List: | |
| Specific required course – list: | Specific course – list: | |
| | | |
| List pre-major or pre-professional course requiremen | its that will change, including credit | hours. |
| Current | Proposed | |
| | | |
| List the major's course requirements that will change | , including credit hours. | |
| Current | Proposed | |
| CME 470 (one credit hour) | CME 470 (two credit hours) | |
| CME 471 (one credit hour) | CME 471 (remove) | |
| | | |
| Plane 6h a mana wangina a milana Ahira dan kananana d | to a standard of the second of | |
| Does the pgm <u>require</u> a minor AND does the proposed <u>c</u> If "Yes," indicate current courses and proposed change | | N/A L Yes L |
| n i res, indicate current courses and proposed change | G KC10441 | |
| Current | Proposed | |

³ Note that MA 109 is NOT approved as a Quantitative Foundations course. Students in a major requiring calculus will use a calculus course (MA 113, 123, 137 or 138) while students not requiring calculus should take MA 111, PHI 120 or another approved course.

| Does the proposed change affect any option(s)? If "Yes," indicate current courses and proposed ch subspecialties, if any. | ranges below, includ | ing credit hour | ⊠ N/A rs, and also speci | Yes alties and | □ No |
|---|----------------------------------|-------------------------------|-----------------------------|---|------|
| Current | Proposed | 1 | | ······································ | |
| 10. Does the change affect pgm requirements for n in a related field? If so, indicate current courses and proposed change | | outside the m | ajor subject | Yes | ⊠ No |
| Current | Proposed | | | | |
| 11. Does the change affect pgm requirements for to lift so, indicate current courses and proposed char | • | onal support e | lectives? | ☐ Yes | ⊠ No |
| Current | Proposed | 1 | | *************************************** | |
| 12. Does the change affect a minimum number of f If "Yes," indicate current courses and proposed | | support electiv | ves? | ☐ Yes | ⊠ No |
| Current | Proposed | 4 | | | |
| 13. Summary of changes in required credit hours: | } | | | | |
| a. Credit Hours of Premajor or Preprofession | nal Courses: | Current 35 | Proposed 35 | | |
| b. Credit Hours of Major's Requirements: | • | <u>68</u> | <u>68</u> | | |
| c. Credit Hours for Required Minor: | | | | | |
| d. Credit Hours Needed for a Specific Option | 1: | WM Arthursta white course was | - · | | |
| e. Credit Hours Outside of Major Subject in | Related Field: | <u>6</u> | <u>6</u> | | |
| f. Credit Hours in Technical or Professional | Support Electives: | <u>3</u> | <u>3</u> | | • |
| g. Minimum Credit Hours of Free/Supportiv | e Electives: | : . <u>3</u> | 3 | | |
| h. Total Credit Hours Required by Level: | 100: 200: 300: 400-500: | 35 | 25 35 7 39 | | |
| i. Total Credit Hours Required for Graduation | on: | 133 | <u>133</u> | | |

14. Rationale for Change(s) – if rationale involves accreditation requirements, please include specific references to that.

CME 470: Professionalism, Ethics and Safety - increase from one to two credits. This proposed change is in response to an increased emphasis on chemical process safety eduction, as encompassed in the recently revised ABET accreditation criteria for chemical engineering. A course change proposal for CME 470 has been submitted on the online eCATS systems and is also attached.

CME 471: Seminar - remove from curriculum. This one credit course is focused on the development of oral communication skills. The recent launch of the UK Core, and the emphasis on communication has rendered this course somewhat redundent. In addition to the exposure to oral communication in CIS/WRD 110 and 111, we continue to emphasize technical oral communication in the upper-division laboratory courses and in the capstone design experience.

15. List below the typical semester by semester program for the major. If multiple options are available, attach a separate sheet for each option.

| YEAR 1 - FALL: (e.g. "BIO 103; 3 credits") | See Attached | YEAR 1 – SPRING: | · · · · · · · · · · · · · · · · · · · |
|---|-------------------|------------------|--|
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| YEAR 3 - FALL: | | YEAR 3 - SPRING: | and the state of t |
| YEAR 4 - FALL: | | YEAR 4 - SPRING: | |

Bachelor of Science In Chemical Engineering Curriculum

| | N YEAR | |
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| | Gen. Education - Social Sciences | 3 |
| 19 | Total Hours | 16 |
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| 3 | Gen. Education - Commun, Culture, Citizenship | 3 |
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| 3 | Total Hours | 1 2 |
| | OMO 3 4 4 1 3 1 16 NIOR 0 1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 | MSE 201 Materials Science CHE 107 General College Chemistry II CHE 113 Chemistry Lab MA 114 Calculus II CIS/WRD 111 Comp. and Commun. II Total Hours OMORE YEAR Second Semester CME 320 Engineering Thermodynamics CHE 232 Organic Chemistry II CME 220 Comp. Tools in Chemical Engr. MA 214 Calculus IV PHY 232 General University Physics Total Hours NIOR YEAR Second Semester CME 420 Process Modeling CME 425 Heat and Mass Transfer CME 432 Chemical Engineering Lab I Supportive Elective Chemistry Elective Gen. Education – Social Sciences Total Hours NIOR YEAR Second Semester CME 432 Chemical Engineering Lab I Chemistry Elective Gen. Education – Social Sciences Total Hours NIOR YEAR Second Semester CME 462 Process Control CME 462 Process Control CME 462 Process Control CME Elective Bio Elective or Materials Elective |

TOTAL HOURS = 133*

^{*}total number of hours may vary, depending on how new UK Core is fulfilled

Bachelor of Science In Chemical Engineering Curriculum PROPOSED

| FKES | HMA | IN YEAR | |
|---|--|--|-------|
| First Semester | 1 | Second Semester | Ī |
| CME 101 Introduction to Chemical Engineering | 1 | MSE 201 Materials Science | 3 |
| CHE 105 General College Chemistry I | 4 | CHE 107 General College Chemistry II | 3 |
| CHE 111 Chemistry Lab | 1 | CHE 113 Chemistry Lab | 2 |
| MA 113 Calculus I | 4 | MA 114 Calculus II | 4 |
| CIS/WRD 110 Comp. and Commun. I | 3 | CIS/WRD 111 Comp. and Commun. II | 3 |
| Gen. Education – Humanities | 3 | Total Hours | 13 |
| Total Hours | 16 | 10441114440 | |
| SOPH | OMO | RE YEAR | J |
| First Semester | | Second Semester | Ĭ |
| CME 200 Process Principles | 3 | CME 320 Engineering Thermodynamics | 4 |
| MA 213 Calculus III | 4 | CHE 232 Organic Chemistry II | 3 |
| PHY 231 General University Physics | 4 | CME 220 Comp. Tools in Chemical Engr. | 3 |
| PHY 241 General Physics Lab | 1 | MA 214 Calculus IV | 3 |
| CHE 230 Organic Chemistry I | 3 | PHY 232 General University Physics | 1 |
| CHE 231 Organic Chemistry Lab I | 1 | Total Hours | 1 |
| Total Hours | 16 | | |
| JUN | IOR | YEAR | |
| First Semester | | Second Semester | T |
| CME 415 Separation Processes | 3 | CME 006 Engineering Profession | 0 |
| CHE 446G Physical Chemistry | 3 | CME 420 Process Modeling | 3 |
| CME 330 Fluid Mechanics | 3 | CME 425 Heat and Mass Transfer | 4 |
| Graduation Writing Course | 3 | CME 432 Chemical Engineering Lab I | 2 |
| STA 210 Statistics | 3. | Supportive Elective | 3 |
| Technical Elective | 3 | Chemistry Elective | 3 |
| Total Hours | 18 | Gen. Education – Social Sciences | 3 |
| | | Total Hours | 1 |
| | The state of the s | | - |
| SEI | VIOR | YEAR | |
| First Semester | 1 | Second Semester | Τ |
| CME 006 Engineering Profession | 0 | CME 006 Engineering Profession | 0 |
| CME 470 Professionalism, Ethics & Safety | 2 | CME 456 Chemical Engr. Process Design II | 4 |
| CME 433 Chemical Engineering Lab II | 3 | CME 462 Process Control | 3 |
| CME 455 Chemical Engr. Process Design I | 3 | CME Elective | 3 |
| CME 550 Chemical Reactor Design | 3 | Bio Elective or Materials Elective | 3 |
| | 3 | | 3 |
| | 1 3 | i ten, caucanon – Lommun, Chiere i hizeren | 1 *** |
| Gen Education – Global Dynamics CME Elective | 3 | Gen. Education – Commun, Culture, Citizenship Total Hours | |

TOTAL HOURS = 133*

^{*}total number of hours may vary, depending on how new UK Core is fulfilled

Signature Routing Log

General Information:

Name:

Current Degree Title and Major

Chemical Engineering

Proposal Contact Person Name:

Kimberly W. Anderson

Phone: 7-4815

Email:

kimberly.anderson@uky.edu

INSTRUCTIONS:

Identify the groups or individuals reviewing the proposal; note the date of approval; offer a contact person for each entry; and obtain signature of person authorized to report approval.

Internal College Approvals and Course Cross-listing Approvals:

| Reviewing Group | Date Approved | Contact Person (name/phone/email) | Signature |
|--|------------------|---|-----------|
| Chemical Engineering Undergraduate Committee | 4/5/12 | Kim Anderson / 7-4815 / kimberly.anderson@uky.edu | LCC- |
| Department Faculty | 4/12/12 | Doug Kalika / 7-5507 / douglass.kalika@uky.edu | A.OKu |
| College of Engineering | 4/04/12 | Richard Sweigard/ 78827. | Doingard |
| | : : | 1 1 geoly | |
| | 100 | / / | |

External-to-College Approvals:

| Council | Date Approved | Signature | Approval of Revision ⁴ |
|------------------------------|------------------|----------------------------|-----------------------------------|
| Undergraduate Council | 12/5/12 | Joanie Ett-Mims | |
| Graduate Council | | | |
| Health Care Colleges Council | | | |
| Senate Council Approval | | University Senate Approval | |

The "Change in Course Form" for CME 470 and the "Drop Course Form" for CME 471 have been submitted on the eCATS system.

⁴ Councils use this space to indicate approval of revisions made subsequent to that council's approval, if deemed necessary by the revising council.

Curricular Proposal

OME 470 Online form Submitted 10/9/12

https://iweb.uky.edu/CurricularProposal/Form_CourseChange.aspx

| Į | Courses | Distance | Syllabus | Request | Tracking |
|---|---------|----------|----------|---------|----------|
| 1 | | Learning | | _ | - |

Course Change Form

https://anyuk.uky.edu/sap/oc/sosp/dc?services=

Open in full window to print or save

Attachments:

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NOTE: Start form entry by choosing the Concern Prefix and Number

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| | Current Prefix and Number | | mical Engineering PROFESSIONAUSM, ETHICS | AND SAI | ETY : | Proposed Prefix | B Humber, | | |
| | What type of change is being p | imposed? | | | sodes" Alinor - aditorial emphasia Minor - a chang which is made neco | in number within the change in course a in prerequisite(s) as the change in the change | w earno hundred series, litie or description which lythich does not imply e nation or significant elle es described above | does not i Changa in | mply change course conte |
| | Should this course be a UK Co If YES, check the areas that | | Yes · Na | | | | | | |
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| | inquiry - Humanities | | Quantitative Foundations | | | | | | |
| | Inquiry - NaUMath/Phys S | d | Statistical inferential Reasonin | å | | | | | |
| | Inquiry - Social Sciences | | U.S. Citizenship, Community, (| O.versity | | | | | |
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| G. ⁴ | is there a change in formershi | p" e ř liva course | e? | | | | | | |
| | Yus ' Ho HYES, who | al college/dapa | riment wit offer the course inst | ead? : \$4 | tfect | | ; | | |
| e.* | * Contact Person Name: | | Kimberly Anderson | . 6 | Email: klmbariy.aı | nderson Buky.ed | u Phone: 7-4815 | ***** | |
| 2. | *Responsible Faculty ID (If di | ferent from Co | nylec() | į | Email: | | Phone: | | |
| 1. | Requested Effective Date: | | / Semester Following A | oproval | | Са | Specific Yearn: ³ | and the same of the same | **** |
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| 2. | Curren | n sadmun in | र धरवर्तीर नेल्लाहरू | | | 1 | Proposed number of cords hours: | 3 |
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| 3, | Currently, is this course length of campus? | Yes h | | |
| 4 | Proposed to be taught off campus? | Y23 h | | |
| . Martina Joseph | If YES, enter the off compus address: Chenitcal Engineering Program at Paducah | | | |
| 4.* | Are significent changes in content church tearning outcomes of the course being proposed? | Yos A | | |
| | If YES, explain and offer brief retionals: | | | |
| | is is proposed to increase CMS 470 from 1 ocedit to 2 credits. Rosent changes in Abia accreditation translated have increases tregarding student preparation in the area of chesical process safety and risk canagezent. The proposed lecrease in contact companied treatment of themse topics and in-depth exploration via rase studies. | dara will & | | |
| 5. | Course Relationship to Program(a). | | | |
| £,* | Are there other depts and/or pama that could be affected by the proposed change? | · Yos (| | |
| | (8 YES, Identily Dig depts, souther pyrits: | | | |
| | BB Chenical Engineering Program delivered at Engineering Extended Campus in Paducah | | | |
| b.* | Will modifying this course result in a new requirement ² for ANY program? | Yes | | |
| | If YES ² , list the program(s) hom: | | | |
| | 35 in Chemical Engineering | | | |
| \$. | Information to be Piscad on Syliabus. | | | |
| <u> </u> | if changed to 4000 or 500 level course you must end in a syllabus and you must include the differentiation between | | | |

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Else comment description regarding minor course change. After changes are sent directly from descript office in Sent's Council Chair. If Chair Cerms the Charge to 'not minor,' the form will be about to appropriate accelerate Council for normal processing used derinate present is informed.

If Counces are hybriding made effective for the exercable relicating appropriat. To come will be made effective on the appropriate accelerate control of the council of the council

Chemical & Materials Engineering University of Kentucky

CME 470 Professionalism, Ethics and Safety (2)

Fall 2013

Course Description: Detailed lectures and supervised discussions on standards of ethics and safety as they relate to the chemical engineering profession. Emphasis will be on safety in plant design and process operations, laboratory safety, hazardous risk management, regulation and oversight. Prerequisites: Engineering standing and concurrent enrollment in CME 455.

Time:

TR 1:00 - 1:50 PM

Location:

ORB 226

Instructor:

Eric A. Grulke 359 RGAN Bldg.

Office:

257-6097

Phone: Email:

egrulke@engr.uky.edu

Text:

Charles B. Fleddermann, Engineering Ethics, Fourth Edition, Prentice

Hall, New Jersey, 2011.

Reference text:

D.A. Crowl and J.F. Louvar, Chemical Process Safety: Fundamentals

with Applications, Second Edition, Prentice Hall, New Jersey, 2002.

Course Objectives/Expected Outcomes:

Graduates with chemical engineering B.S. degrees will be responsible for the formulation, implementation and oversight of safety and risk management procedures in the laboratory and in the chemical industry, and will encounter ethical issues impacting both their employer and the greater community.

At the end of this course, the student should be able to:

- 1. analyze and evaluate potential and current problems of safety and health in the workplace
- 2. propose solutions to safety, health or environmental hazards related to the workplace
- identify and propose solutions for ethical and professional issues for the practicing chemical engineer
- 4. conduct safety inspections in laboratories and plant facilities; report results and implement solutions
- 5. locate additional information about safety, ethics and professionalism in the literature (life-long learning)
- 6. contribute to a multi-disciplinary team to solve professional, ethical and safety problems.

Learning Tools:

Course lectures are a significant learning tool and attendance is important. Homework problems, analysis of journal articles, completion of web modules and case studies will reinforce the concepts of the course. Short, succinct communications are an essential part of a technical career. There will be several assignments for which each team will be required to prepare two-page memoranda that defend technical solutions, present opinions on ethical issues, and address environmental, health or safety issues. Quizzes on current events will be used to motivate life-long learning activities.

Course Grading:

| Homework Assignments | 40% |
|-------------------------------------|-----|
| Team-Based Memoranda & Case Studies | 30% |
| Quizzes | 10% |
| Final Exam | 20% |

Grading will be based on each student's composite (raw) score; scores in the range > 90% will be guaranteed a grade of "A", 80% or above at least a "B", 70% or above at least a "C", and 60% or above at least a "D".

Cheating:

The engineering profession is one where individuals are held to the highest ethical and professional standards. Consistent with this philosophy, cheating in CME 470 will not be tolerated. The definition of cheating at the University is presented in the "Student Rights and Responsibilities":

6.3.2 CHEATING: Cheating is defined by its general usage. It includes, but is not limited to, the wrongfully giving, taking, or presenting any information or material by a student with the intent of aiding himself/herself or another on any academic work which is considered in any way in the determination of the final grade. Any question of definition shall be referred to the University Appeals Board.

Complete policies and procedures regarding cheating and other academic misconduct can be reviewed at: (http://www.uky.edu/StudentAffairs/Code/)

Course Schedule:

| Week: | Module: | Topic: |
|-------|-------------------------|---|
| 1 | Introduction | Team Selections - Resume Update |
| 2 | Process & Plant Safety | Components of Process Safety |
| 3 | Process & Plant Safety | Safety Regulations & Standards |
| 4 | Process & Plant Safety | Risk Assessment & Risk Management |
| 5 | Process & Plant Safety | Toxicology, MSDS; Hazardous Waste Management |
| 6 | Process & Plant Safety | Chemical Reactivity Hazards & Explosions |
| 7 | Process & Plant Safety | Team Case Study #1 (Plant Safety) |
| 8 | Laboratory Safety | Evaluation of Laboratory Safety; Inspections |
| 9 | Sustainable Engineering | Sustainable Manufacturing; Ethics of Product Stewardship |
| 10 | Sustainable Engineering | Team Case Study #2 (Green Engineering) |
| 1.1 | Ethics & Integrity | Ethics and Personal Career Development |
| 12 | Ethics & Integrity | Ethical Issues in the Industrial Setting |
| 13 | Ethics & Integrity | Ethical Issues Related to Research |
| 14 | Ethics & Integrity | Intellectual Property |
| 15 | Ethics & Integrity | Team Case Study #3 (Ethics in Chem. Eng. Practice) |

Submitted online https://web.uk

https://iweb.uky.edu/CurricularProposal/Porm_DropCourse.aspx

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