

## REQUEST FOR CHANGE IN UNDERGRADUATE PROGRAM

### I. General Information

College: Engineering Department: Chemical and Materials Engineering  
Current Program Name: Chemical Engineering Proposed Program Name: Chemical Engineering  
Current Major Name: Chemical Engineering Proposed Major Name: Chemical Engineering  
Current Degree Title: B.S. Proposed Degree Title: B.S.  
Formal Option: N/A Specialty Field: N/A  
Bulletin (yr and pgs): 2009 201-202 CIP Code: UK ID #: HEGIS CODE:  
Accrediting Agency (if applicable): American Board of Engineering and Technology Today's Date: 8/3/2009

### 2. Particular University Studies Requirements or Recommendations for this Program.

|                                                          | Current                     | Proposed                    |
|----------------------------------------------------------|-----------------------------|-----------------------------|
| I. Mathematics                                           | MA 113, 114, 213, 214       | Same                        |
| II. Foreign Language                                     | 2 years in secondary school | Same                        |
| III. Inference-Logic                                     | MA 113, 114, 213, 214       | Same                        |
| IV. Written Communication                                | ENG 104 or Honors           | Same                        |
| V. Oral Communication                                    | Suspended through Fall 2009 | Suspended through Fall 2009 |
| VI. Natural Sciences                                     | PHY 231, 232, 241           | Same                        |
| VII. Social Sciences                                     | 6 hours from section VII    | Same                        |
| VIII. Humanities                                         | 6 hours from section VIII   | Same                        |
| IX. Cross-Cultural                                       | 3 hours from section IX     | Same                        |
| X. USP Electives (3 must be outside the student's major) | 6 hours of Electives        | Same                        |

*To the extent that proposed changes in sections 3 through 8 involve courses offered in another program, please submit correspondence with the program(s) pertaining to the availability of such courses to your students.*

3. University Graduation Writing Requirement - select from approved courses.

4. College Depth & Breadth of Study Requirements (if applicable). Include particular courses required/recommended for this program.

Current  
Not Applicable

Proposed  
Not Applicable

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5. Premajor or Preprofessional Course Requirements (if applicable).

|                                                                                                                       |                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|
| <p>Current<br/>                 ENG 104, MA 113, 114, 213, PHY 231, 241, CHE 105, 107, 111, 113, CME 199, CME 200</p> | <p>Proposed<br/>                 ENG 104, MA 113, 114, 213, PHY 231, 241, CHE 105, 107, 111, 113, CME 200</p> |
|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|

6. Credit Hours.

|                                                                   |              |                                                                        |
|-------------------------------------------------------------------|--------------|------------------------------------------------------------------------|
| a. Credit Hours Required:                                         | Current: 132 | Proposed: 132                                                          |
| b. Total Required for Graduation:                                 | Current: 132 | Proposed: 132                                                          |
| c. Required by Level:                                             |              |                                                                        |
| Currently:                                                        | 100: 25      | 200: 30                                                                |
| Proposed:                                                         | 100: 22      | 200: 33                                                                |
|                                                                   |              | 300: 6                                                                 |
|                                                                   |              | 400-500: 33                                                            |
|                                                                   |              | 300: 6                                                                 |
|                                                                   |              | 400-500: 33                                                            |
| d. Current Premajor or Preprofessional:                           | 36           | d. Proposed Premajor or Preprofessional: 33                            |
| e. Current Field of Concentration:                                | N/A          | e. Proposed Field of Concentration: N/A                                |
| f. Current Division of Hrs between Major Subject & Related Field: | N/A          | f. Proposed Division of Hrs between Major Subject & Related Field: N/A |
| g. Current Hrs Needed for a Specific Option or Specialization:    | N/A          | g. Proposed Hrs Needed for a Specific Option/Specialization: N/A       |
| h. Current Technical or Professional Support Electives:           | 15           | h. Proposed Technical or Professional Support Electives: 15            |
| i. Current Minimum Hours of Free or Supportive Electives:         | 3            | i. Proposed Minimum Hours of Free or Supportive Electives: 3           |

7. Major or Professional Course Requirements.

|                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Current<br/>                 CHE 230, CHE 231, CHE 232, CHE 446G,<br/>                 Chemistry Elective, CME 200, CME 320, CME 415, CME 471, CME 330, CME 006, CME 420, CME 425, CME 470, CME 433, CME 455, CME 550, CME 456, CME 462,<br/>                 2 CME Electives, CME 432, MSE 201,<br/>                 Technical Elective, Supportive Elective, Bio or Materials Elective</p> | <p>Proposed<br/>                 CHE 230, CHE 231, CHE 232, CHE 446G,<br/>                 Chemistry Elective, CME 200, CME 320, CME 415, CME 471, CME 330, CME 006, CME 420, CME 425, CME 470, CME 220,<br/>                 CME 433, CME 455, CME 550, CME 456, CME 462,<br/>                 2 CME Electives, CME 432, MSE 201,<br/>                 Technical Elective, Supportive Elective, Bio or Materials Elective</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

8. Minor Requirements (if applicable).

|                                         |                                          |
|-----------------------------------------|------------------------------------------|
| <p>Current<br/>                 N/A</p> | <p>Proposed<br/>                 N/A</p> |
|-----------------------------------------|------------------------------------------|

## REQUEST FOR CHANGE IN UNDERGRADUATE PROGRAM

**9. Rationale for Change(s) – if rationale involves accreditation requirements, please include specific references to those.**

We are replacing CME 199 taken during the spring semester of Year 1 with CME 220 to be taken during the spring semester of Year 2. It is very difficult to teach computational tools in chemical engineering without some chemical engineering background. Therefore, we want the students to take this course AFTER CME 200. We have requested a course number change to reflect that it should follow CME 200 and have also requested pre-req changes.

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10. List below the typical semester by semester program for a major.

| Current                              | Hours        | Proposed                              | Hours     |
|--------------------------------------|--------------|---------------------------------------|-----------|
| YEAR 1 - Fall                        |              | YEAR 1 - Fall                         |           |
| CME 101 (i.e. "BIO:103")             | 1 (i.e. "3") | Same as Current                       |           |
| CHE 105                              | 3            |                                       |           |
| CHE 111                              | 1            |                                       |           |
| ENG 104                              | 4            |                                       |           |
| MA 113                               | 4            |                                       |           |
| University Studies                   | 3            |                                       |           |
| <b>Current Total, Year 1 Fall:</b>   | <b>16</b>    | <b>Proposed Total, Year 1 Fall:</b>   | <b>16</b> |
| YEAR 1 - Spring                      |              | YEAR 1 - Spring                       |           |
| CME 199                              | 3            | MSE 201                               | 3         |
| CHE 107                              | 3            | CHE 107                               | 3         |
| CHE 113                              | 2            | CHE 113                               | 2         |
| MA 114                               | 4            | MA 114                                | 4         |
| COM 199                              | 1            | COM 199                               | 1         |
| University Studies                   | 3            | University Studies                    | 3         |
| <b>Current Total, Year 1 Spring:</b> | <b>16</b>    | <b>Proposed Total, Year 1 Spring:</b> | <b>16</b> |
| YEAR 2 - Fall                        |              | YEAR 2 - Fall                         |           |
| CME 200                              | 3            | Same as Current                       |           |
| MA 213                               | 4            |                                       |           |
| PHY 231                              | 4            |                                       |           |
| PHY 241                              | 1            |                                       |           |
| CHE 230                              | 3            |                                       |           |
| CHE 231                              | 2            |                                       |           |
| <b>Current Total, Year 2 Fall:</b>   | <b>17</b>    | <b>Proposed Total, Year 2 Fall:</b>   | <b>17</b> |
| YEAR 2 - Spring                      |              | YEAR 2 - Spring                       |           |
| CME 320                              | 4            | CME 320                               | 4         |
| CHE 232                              | 3            | CHE 232                               | 3         |
| MSE 201                              | 3            | CME 220                               | 3         |
| MA 214                               | 3            | MA 214                                | 3         |
| PHY 232                              | 4            | PHY 232                               | 4         |
| <b>Current Total, Year 2 Spring:</b> | <b>17</b>    | <b>Proposed Total, Year 2 Spring:</b> | <b>17</b> |

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10. Semester Plans, continued.

| Current                          | Hours | Proposed                       | Hours |
|----------------------------------|-------|--------------------------------|-------|
| YEAR 3 - Fall                    |       | YEAR 3 - Fall                  |       |
| CME 415                          | 3     | Same as Current                |       |
| CME 471                          | 1     |                                |       |
| CHE 446G                         | 3     |                                |       |
| CME 330                          | 3     |                                |       |
| Technical Elective               | 3     |                                |       |
| Writing Intensive Course         | 3     |                                |       |
| Current Total, Year 3 Fall:      | 16    | Proposed Total, Year 3 Fall:   | 16    |
| YEAR 3 - Spring                  |       | YEAR 3 - Spring                |       |
| CME 006                          | 0     | Same as Current                |       |
| CME 420                          | 3     |                                |       |
| CME 425                          | 4     |                                |       |
| CME 432                          | 2     |                                |       |
| 2 University Studies             | 6     |                                |       |
| Chemistry Elective               | 3     |                                |       |
| Current Total, Year 3 Spring:    | 18    | Proposed Total, Year 3 Spring: | 18    |
| YEAR 4 - Fall                    |       | YEAR 4 - Fall                  |       |
| CME 006                          | 0     | Same as Current                |       |
| CME 470                          | 1     |                                |       |
| CME 433                          | 3     |                                |       |
| CME 455                          | 3     |                                |       |
| CME 550                          | 3     |                                |       |
| CME Elect. & Supportive<br>Elect | 6     |                                |       |
| Current Total, Year 4 Fall:      | 16    | Proposed Total, Year 4 Fall:   | 16    |
| YEAR 4 - Spring                  |       | YEAR 4 - Spring                |       |
| CME 006                          | 0     | Same as Current                |       |
| CME 456                          | 4     |                                |       |
| CME 462                          | 3     |                                |       |
| University Studies               | 3     |                                |       |
| CME Elective                     | 3     |                                |       |
| Bio or Materials Elective        | 3     |                                |       |
| Current Total, Year 4 Spring:    | 16    | Proposed Total, Year 4 Spring: | 16    |
| Current Total Hours:             | 132   | Proposed Total Hours:          | 132   |

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12. Requested effective date for changes (term/year): Spring / 2010

13. Within the department, who should be contacted for further information about the proposed program change?

Name: Kimberly Anderson, DUGS Phone: 7-4815 Email: kanderson@engr.uky.edu

14. Signatures of Approval.

|                                                                            |                                                          |                                                            |                                 |
|----------------------------------------------------------------------------|----------------------------------------------------------|------------------------------------------------------------|---------------------------------|
| <u>8/22/08</u><br>DATE of Approval by<br>Department Faculty                | <u>D.S. KANIKA</u><br>printed name                       | <u>[Signature]</u><br>Reported by Department Chair         | <u>[Signature]</u><br>signature |
| <u>11/20/09</u><br>DATE of Approval by<br>College Faculty                  | <u>RICHARD J. SWEIGARD</u><br>printed name               | <u>[Signature]</u><br>Reported by College Dean             | <u>[Signature]</u><br>signature |
| <u>1/19/2010</u><br>*DATE of Approval by<br>Undergraduate Council          | <u>/</u><br>printed name                                 | <u>/</u><br>Reported by Undergraduate Council Chair        | <u>/</u><br>signature           |
| <u>/</u><br>*DATE of Approval by<br>Graduate Council                       | <u>/</u><br>printed name                                 | <u>/</u><br>Reported by Graduate Council Chair             | <u>/</u><br>signature           |
| <u>/</u><br>*DATE of Approval by<br>Health Care Colleges<br>Council (HCCC) | <u>/</u><br>printed name                                 | <u>/</u><br>Reported by Health Care Colleges Council Chair | <u>/</u><br>signature           |
| <u>/</u><br>*DATE of Approval by<br>Senate Council                         | <u>/</u><br>Reported by Office of the Senate Council     |                                                            |                                 |
| <u>/</u><br>*DATE of Approval by the<br>University Senate                  | <u>/</u><br>Reported by the Office of the Senate Council |                                                            |                                 |

\*If applicable, as provided by the *University Senate Rules*.

## Bachelor of Science in Chemical Engineering Curriculum

### Old Curriculum

#### FRESHMAN YEAR

| <u>First Semester</u> |                                |   | <u>Second Semester</u> |                              |   |
|-----------------------|--------------------------------|---|------------------------|------------------------------|---|
| CME 101               | Intro to Chemical Engineering  | 1 | CME 199                | Comp. Tools in Chemical Eng. | 3 |
| CHE 105               | General College Chemistry I    | 3 | CHE 107                | General College Chemistry II | 3 |
| CHE 111               | Chemistry Lab                  | 1 | CHE 113                | Chemistry Lab                | 2 |
| ENG 104               | Writing: An Accelerated Course | 4 | MA 114                 | Calculus II                  | 4 |
| MA 113                | Calculus I                     | 4 | COM 199                | Communications               | 1 |
| University Studies    |                                | 3 | University Studies     |                              | 3 |

#### SOPHOMORE YEAR

| <u>First Semester</u> |                            |   | <u>Second Semester</u> |                            |   |
|-----------------------|----------------------------|---|------------------------|----------------------------|---|
| 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 | MSE 201                | Materials Science          | 3 |
| PHY 241               | General Physics Lab        | 1 | MA 214                 | Calculus IV                | 3 |
| CHE 230               | Organic Chemistry I        | 3 | PHY 232                | General University Physics | 4 |
| CHE 231               | Organic Chemistry Lab I    | 2 |                        |                            |   |

#### JUNIOR YEAR

| <u>First Semester</u>            |                      |   | <u>Second Semester</u> |                        |   |
|----------------------------------|----------------------|---|------------------------|------------------------|---|
| CME 415                          | Separation Processes | 3 | CME 006                | Engineering Profession | 0 |
| CME 471                          | Seminar              | 1 | CME 420                | Process Modeling       | 3 |
| CHE 446G                         | Physical Chemistry   | 3 | CME 425                | Heat and Mass Transfer | 4 |
| CME 330                          | Fluid Mechanics      | 3 | CME 432                | Chemical Engr. Lab I   | 2 |
| Technical Elective               |                      | 3 | University Studies     |                        | 3 |
| ENG 2XX Writing Intensive Course |                      | 3 | Chemistry Elective     |                        | 3 |
|                                  |                      |   | University Studies     |                        | 3 |

#### SENIOR YEAR

| <u>First Semester</u> |                                   |   | <u>Second Semester</u>             |                                  |   |
|-----------------------|-----------------------------------|---|------------------------------------|----------------------------------|---|
| CME 006               | Engineering Profession            | 0 | CME 006                            | Engineering Profession           | 0 |
| CME 470               | Professionalism, Ethics, & Safety | 1 | 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 | University Studies                 |                                  | 3 |
| CME 550               | Chemical Reactor Design           | 3 | CME Elective                       |                                  | 3 |
| Supportive Elective   |                                   | 3 | Bio Elective Or Materials Elective |                                  | 3 |
| CME Elective          |                                   | 3 |                                    |                                  |   |

**TOTAL Hours = 132**

## Bachelor of Science in Chemical Engineering Curriculum

### New Proposed Curriculum

#### FRESHMAN YEAR

| <u>First Semester</u> |                                |   | <u>Second Semester</u> |                              |   |
|-----------------------|--------------------------------|---|------------------------|------------------------------|---|
| CME 101               | Intro to Chemical Engineering  | 1 | MSE 201                | Materials Science            | 3 |
| CHE 105               | General College Chemistry I    | 3 | CHE 107                | General College Chemistry II | 3 |
| CHE 111               | Chemistry Lab                  | 1 | CHE 113                | Chemistry Lab                | 2 |
| ENG 104               | Writing: An Accelerated Course | 4 | MA 114                 | Calculus II                  | 4 |
| MA 113                | Calculus I                     | 4 | COM 199                | Communications               | 1 |
| University Studies    |                                | 3 | University Studies     |                              | 3 |

#### SOPHOMORE YEAR

| <u>First Semester</u> |                            |   | <u>Second Semester</u> |                              |   |
|-----------------------|----------------------------|---|------------------------|------------------------------|---|
| 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 Eng. | 3 |
| PHY 241               | General Physics Lab        | 1 | MA 214                 | Calculus IV                  | 3 |
| CHE 230               | Organic Chemistry I        | 3 | PHY 232                | General University Physics   | 4 |
| CHE 231               | Organic Chemistry Lab I    | 2 |                        |                              |   |

#### JUNIOR YEAR

| <u>First Semester</u>            |                      |   | <u>Second Semester</u> |                        |   |
|----------------------------------|----------------------|---|------------------------|------------------------|---|
| CME 415                          | Separation Processes | 3 | CME 006                | Engineering Profession | 0 |
| CME 471                          | Seminar              | 1 | CME 420                | Process Modeling       | 3 |
| CHE 446G                         | Physical Chemistry   | 3 | CME 425                | Heat and Mass Transfer | 4 |
| CME 330                          | Fluid Mechanics      | 3 | CME 432                | Chemical Engr. Lab I   | 2 |
| Technical Elective               |                      | 3 | University Studies     |                        | 3 |
| ENG 2XX Writing Intensive Course |                      | 3 | Chemistry Elective     |                        | 3 |
|                                  |                      |   | University Studies     |                        | 3 |

#### SENIOR YEAR

| <u>First Semester</u> |                                   |   | <u>Second Semester</u>             |                                  |   |
|-----------------------|-----------------------------------|---|------------------------------------|----------------------------------|---|
| CME 006               | Engineering Profession            | 0 | CME 006                            | Engineering Profession           | 0 |
| CME 470               | Professionalism, Ethics, & Safety | 1 | 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 | University Studies                 |                                  | 3 |
| CME 550               | Chemical Reactor Design           | 3 | CME Elective                       |                                  | 3 |
| Supportive Elective   |                                   | 3 | Bio Elective Or Materials Elective |                                  | 3 |
| CME Elective          |                                   | 3 |                                    |                                  |   |

**TOTAL Hours = 132**