Course Change Request

1. School/Division: School of Engineering and Technology
2. Academic Subject Code: ME
3. Current Course Number: 462
4. Current Credit Hours: 4
5. Current Title: Capstone Design
6. Effective Semester/Year for changes listed below: Spring 2009
7. Instructor: Variable

Type of Change Requested (Check appropriate boxes and indicate changes)

☐ 8. Change course number to: ____________ (must be cleared with University Enrollment Services)
☐ 9. Current course title: ____________
   Change to: ____________
   Recommended abbreviation (optional) ____________ (Limited to 32 Characters including spaces)

☐ 10. Current credit hours fixed at: 4 or variable from: ____________ to ____________
    Change to credit hours fixed at: ____________ or variable from: ____________ to ____________

☐ 11. Current lecture contact hours fixed at: ____________ or variable from: ____________ to ____________
    Change to lecture contact hours fixed at: ____________ or variable from: ____________ to ____________

☐ 12. Current non-lecture contact hours fixed at: ____________ or variable from: ____________ to ____________
    Change to non-lecture contact hours fixed at: ____________ or variable from: ____________ to ____________

☐ 13. Is this course currently graded with S-F (only) grades? Yes ______ No ______
    Change to S-F (only) grading? Yes ______ No ______

☐ 14. Does this course presently have variable title approval? Yes ______ No ______
    Is variable title approval being requested? Yes ______ No ______

☐ 15. Is this course being discontinued? For all campuses ______ or for this campus only ______
☐ 16. Current course description ______

Change course description to (not to exceed 50 words) ______

17. Justification for change ______

Seminar component of the course to be separated and offered as ME 405 (1cr) ______

(Use additional paper if necessary)

18. Are the necessary reading materials currently available in the appropriate library? N/A ______

19. A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of this course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted.

Submitted by: ___________________________ Date: 1/19/2009
Department Chairman/Division Director

Approved by: ___________________________ Date: 1/20/2009
Dean

Dean of Graduate School (when required) ______

Chancellor/Vice-President ______

University Enrollment Services ______

After School/Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.

UPS 725 University Enrollment Services Final—White; Chancellor/Vice-President—Blue; School/Division—Yellow;
Department/Division—Pink; University Enrollment Services Advance—White
### INSTRUCTIONS: Please check the items below which describe the purpose of this request:

- 1. New course with supporting documents
- 2. Add existing course offered at another campus
- 3. Expiration of a course
- 4. Change in course number
- 5. Change in course title
- 6. Change in course credit/type
- 7. Change in course attributes (department head signature only)
- 8. Change in instructional hours
- 9. Change in course description
- 10. Change in course requisites
- 11. Change in semesters offered (department head signature only)
- 12. Transfer from one department to another

### PROPOSED:

<table>
<thead>
<tr>
<th>Subject Abbreviation ME</th>
<th>Subject Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Number 462</td>
<td>Course Number</td>
</tr>
<tr>
<td>Long Title Capstone Design</td>
<td>Long Title</td>
</tr>
<tr>
<td>Short Title</td>
<td>Short Title</td>
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</tbody>
</table>

Abbreviated title will be entered by the Office of the Registrar if omitted. (22 CHARACTERS ONLY)

### TERMS OFFERED

- [X] Summer
- [ ] Fall
- [X] Spring

### CAMPUS(ES) INVOLVED

- [ ] Calumet
- [ ] Cont Ed
- [ ] Ft. Wayne
- [X] Tech Statewide
- [X] W. Lafayette
- [X] Indianapolis

### CREDIT TYPE

1. Fixed Credit: Cr. Hrs. 3
2. Variable Credit Range: Minimum Cr. Hrs. (Check One) To Or
   - Yes
   - No

### COURSE ATTRIBUTES: Check All That Apply

- 1. Pass/Not Pass Only
- 2. Satisfactory/Unsatisfactory Only
- 3. Repeatable
- 4. Credit by Examination
- 5. Designation Required
- 6. Special Fees
- 7. Registration Approval Type
- 8. Variable Title
- 9. Remedial
- 10. Honors
- 11. Full Time Privilege
- 12. Off Campus Experience

### COURSE DESCRIPTION (INCLUDE REQUISITES):

Concurrent engineering design concept is introduced. Application of the design is emphasized. Design problems from all areas of mechanical engineering are considered.
Required Course: ME 462 Capstone Design (3 cr., class 3)

Catalog Description: Credit 3. Class 3
Concurrent engineering design concept is introduced. Application of the
design is emphasized. Design problems from all areas of mechanical
engineering are considered.

Prerequisites: 1) ME 344 Introduction to Engineering Materials, and 2) ME 372 Mechanical
Design II

Corequisites: 1) ME 414 Thermal-Fluid Systems Design and 2) ME 482 Control Systems
Analysis and Design


Coordinator: Jie Chen

Goals: To teach the process of design, go generate better quality designs in less time,
the organization within a company, how to be more creative in solving design
problems, and how to design as part of a group activity.

Course Outcomes:

After completion of the course, the students should be able to:
1. Describe the design process [g]
2. Identify design tasks and their objectives [e]
3. Establish a project schedule [c1, g, d]
4. Develop design specifications by completion of a house of quality [c1, f]
5. Generate design ideas based on functional decomposition [o1]
6. Evaluate the ideas based on customer requirement [e, k3]
7. Creatively generate product designs [a, c1]
8. Validate the final design [b]
9. Give technical presentations in the forms of weekly progress report, proposal, final report, and oral
presentation [g]
10. Document the design activities and outcomes (product development file, drawings, period
minutes, and personal design notebook) [g, i]
11. Work as team player by demonstrating his/her participation record in the personal design notebook
[d]
12. Work effectively in a multidisciplinary project team [d]

Note: The letters within the brackets indicate the program outcomes of mechanical engineering

Topics:
1. Introduction to the design process (1 period)
2. Design process and its planning (1 period)
3. Project specification development (1 period)
4. Concept generation (1 period)
5. Concept evaluation (1 period)
6. Product generation (1 period)
7. Product evaluation (1 period)
8. Robust design (1 period)
9. Finalizing product design (1 period)
10. Proposal and presentation preparation (1 period)
11. Oral presentation (1 period)
12. Final report and presentation preparation (1 period)
13. Oral presentation (1 period)

<table>
<thead>
<tr>
<th>Computer Usage:</th>
<th>Matlab, Pro/Engineer, Pro/Mechanica, ANSYS, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evaluation Methods:</td>
<td>Homework assignments, quizzes, two mid-term exams, and one final report and presentation.</td>
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<tr>
<td>Professional Component:</td>
<td>Engineering Design (Engineering Topics)</td>
</tr>
<tr>
<td>Prepared by:</td>
<td>Jie Chen</td>
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<tr>
<td>Revised:</td>
<td>September 22, 2008</td>
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</tbody>
</table>