**Department** Materials Engineering  
**Date Submitted** 2/19/03  
**Date Effective** Fall 2003

**INSTRUCTIONS:** Please check the items below which describe the purpose of this request.

<table>
<thead>
<tr>
<th>PURPOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Deletion of a course</td>
</tr>
<tr>
<td>2. New course with supporting documents</td>
</tr>
<tr>
<td>3. Add existing course offered at another campus</td>
</tr>
<tr>
<td>4. Change in course number at same level</td>
</tr>
<tr>
<td>5. Downgrading of course level</td>
</tr>
<tr>
<td>6. Upgrading of course level</td>
</tr>
<tr>
<td>7. Change in course title</td>
</tr>
<tr>
<td>8. Change in semesters offered</td>
</tr>
<tr>
<td>9. Change in course credit type</td>
</tr>
<tr>
<td>10. Change in course attributes</td>
</tr>
<tr>
<td>11. Change in instructional hours</td>
</tr>
<tr>
<td>12. Change in prerequisites</td>
</tr>
<tr>
<td>13. Change in description of course content</td>
</tr>
<tr>
<td>14. Transfer of course from one dept. to another</td>
</tr>
</tbody>
</table>

**EXISTING:**  
Subject Abbreviation: MSE  
Course Number: 335  
Proposed Title: Materials Characterization Laboratory

**PROPOSED:**  
Subject Abbreviation:  
Course Number:  
Proposed Title: Materials Characterization Laboratory

**SEMEMTERS OFFERED**  
Check All That Apply:  
- Summer  
- Fall  
- Winter  
- Spring

**CROSS LISTED COURSES**

<table>
<thead>
<tr>
<th>CREDIT TYPE</th>
<th>1. Fixed Credit: Cr. Hrs. 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2. Variable Credit Range:</td>
</tr>
<tr>
<td></td>
<td>Minimum Cr. Hrs. (Check One) To Or</td>
</tr>
<tr>
<td></td>
<td>Maximum Cr. Hrs.</td>
</tr>
<tr>
<td></td>
<td>3. Equivalent Credit: Yes No</td>
</tr>
<tr>
<td></td>
<td>4. Thesis Credit: Yes No</td>
</tr>
</tbody>
</table>

**COURSE ATTRIBUTES:** Check All That Apply:

| 1. Pass/Not Pass Only |
| 2. Repeatable for Credit |
| 3. Available for Credit by Examination |
| 4. Designator Required |
| 5. Special Fees |
| 6. Approval Required for Enrollment |

**CAMPUS(ES) INVOLVED**  
- Calumet
- Fort Wayne
- Indianapolis
- North Central
- West Lafayette
- Off Campus

**COURSE DESCRIPTION (PREREQUISITES INCLUDED):**

Sem. 1. Class 2, lab 3.  
Prerequisite: MSE 235 or MSE 292  
The principles of analytical methods for characterization of materials for structure and composition; optical microscopy, scanning electron microscopy, X-ray spectroscopy and diffraction, atomic absorption, emission spectroscopy, and mass spectrometry. Laboratory experiments in X-ray spectroscopy, X-ray diffraction, optical microscopy, and scanning electron microscopy.

**Calumet Undergrad Curriculum Committee**  
Date  
**Calumet Department Head**  
Date  
**Calumet School Dean**  
Date

**Fort Wayne Department Head**  
Date  
**Fort Wayne School Dean**  
Date

**Indianapolis Department Head**  
Date  
**Indianapolis School Dean**  
Date

**North Central Department Head**  
Date  
**North Central Vice Chancellor**  
Date

**1st Lafayette Department Head**  
2/4/03  
**West Lafayette School Dean**  
3/5/03

**Graduate Area Committee Convener**  
Date  
**Graduate Dean**  
Date

**West Lafayette Registrar**  
Date

**OFFICE OF THE REGISTRAR**
CROSS LISTED COURSES
1. Fixed Credit: Cr. Hrs. 3
2. Variable Credit Range:
   Minimum Cr. Hrs (Check One) To Or
   Maximum Cr. Hrs.
3. Equivalent Credit: Yes No
4. Thesis Credit: Yes No

COURSE ATTRIBUTES: Check All That Apply.
1. Pass/Not Pass Only
2. Repeatable for Credit
3. Available for Credit by Examination
4. Designator Required
5. Special Fees
6. Approval Required for Enrollment

CAMPUS(ES) INVOLVED
Calumet
Fort Wayne
Indiana
North Central
West Lafayette
Off Campus

COURSE DESCRIPTION (PREREQUISITES INCLUDED):
Sem. 1. Class 3, cr. 3. Prerequisite: MA 266
Mechanism and rates of heat, mass, and momentum transfer. Macroscopic and differential energy, mass, and momentum balances. Application to systems with phase transformations and chemical reaction.
PURDUE UNIVERSITY
REQUEST FOR ADDITION, DELETION, OR REVISION OF A COURSE

DEPARTMENT: Materials Engineering
DATE SUBMITTED: 2/19/03
DATE EFFECTIVE: Spring '03

INSTRUCTIONS: Please check the items below which describe the purpose of this request.

PURPOSE:
1. Deletion of a course
2. New course with supporting documents
3. Add existing course offered at another campus
4. Change in course number at same level
5. Downgrading of course level
6. Upgrading of course level
7. Change in course title
8. Change in semesters offered
9. Change in course credit type
10. Change in course attributes
11. Change in instructional hours
12. Change in prerequisites
13. Change in description of course content
14. Transfer of course from one dept. to another

EXISTING:
Subject Abbreviation: MSE
Course Number: 350
Proposed Title: Thermodynamics of Materials
Variable Title: Yes
Abrreviated Title: Thermodynamics of Mat

PROPOSED:
Subject Abbreviation: 
Course Number: 
Proposed Title: 
Variable Title: 

SEMESTERS OFFERED
Check All That Apply.
Summer Fall Ag Winter Spring

CROSS LISTED COURSES
<table>
<thead>
<tr>
<th>Type</th>
<th>Primary</th>
<th>Class Hours</th>
<th>FTE</th>
<th>Instructional Type</th>
<th>Class Hours</th>
<th>FTE</th>
<th>Instructional Type</th>
<th>Type</th>
<th>Primary</th>
<th>Class Hours</th>
<th>FTE</th>
<th>Instructional Type</th>
<th>Class Hours</th>
<th>FTE</th>
<th>Instructional Type</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

COURSE ATTRIBUTES: Check All That Apply.
1. Pass/Not Pass Only
2. Repeatable for Credit
3. Available for Credit by Examination
4. Designator Required
5. Special Fee
6. Approval Required for Enrollment: Department/Instructor

CAMPUS(ES) INVOLVED
Calumet
Fort Wayne
Indianapolis
North Central
West Lafayette
Off Campus

COURSE DESCRIPTION (PREREQUISITES INCLUDED):
Sem. 2. Class 3, cr. 3. Prerequisite: CHM 373 or consent of instructor.

Fundamental laws of thermodynamics and their applications to material systems; criteria for equilibrium; reaction and phase equilibria; properties of solutions; thermodynamic origins of phase diagrams.

Calumet Undergrad Curriculum Committee Date
Calumet Department Head Date
Calumet School Dean Date

Fort Wayne Department Head Date
Fort Wayne School Dean Date

Indianapolis Department Head Date
Indianapolis School Dean Date

North Central Department Head Date
North Central Vice Chancellor Date
Date Approved by Graduate Council

West Lafayette Department Head Date
West Lafayette School Dean Date

Graduate Area Committee Convener Date
Graduate Dean Date
West Lafayette Registrar Date

OFFICE OF THE REGISTRAR
**Department:** Materials Engineering  
**Date Submitted:** 2/19/03  
**Date Effective:** Spring '04

**INSTRUCTIONS:** Please check the items below which describe the purpose of this request.

**PURPOSE**
1. Deletion of a course
2. New course with supporting documents
3. Add existing course offered at another campus
4. Change in course number at same level
5. Downgrading of course level
6. Upgrading of course level
7. Change in course title
8. Change in semesters offered
9. Change in course credit/type
10. Change in course attributes
11. Change in instructional hours
12. Change in prerequisites
13. Change in description of course content
14. Transfer of course from one dept. to another

**EXISTING:**

<table>
<thead>
<tr>
<th>Subject Abbreviation</th>
<th>MSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Number</td>
<td>367</td>
</tr>
</tbody>
</table>

**PROPOSED:**

<table>
<thead>
<tr>
<th>Subject Abbreviation</th>
<th>MSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Number</td>
<td></td>
</tr>
</tbody>
</table>

**Proposed Title:** Materials Processing Laboratory  
**Variable Title:** Yes  
**Abbreviated Title:** Materials Process Lab

**SEMESTERS OFFERED**

<table>
<thead>
<tr>
<th></th>
<th>Summer</th>
<th>Fall</th>
<th>Ag</th>
<th>Winter</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check All That Apply</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CROSS LISTED COURSES**

<table>
<thead>
<tr>
<th>Instructional Type</th>
<th>Class Hours</th>
<th>FTE</th>
<th>Instructional Type</th>
<th>Class Hours</th>
<th>FTE</th>
<th>Instructional Type</th>
<th>Class Hours</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>2</td>
<td></td>
<td>Auto-tutorial</td>
<td></td>
<td></td>
<td>Observation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td></td>
<td></td>
<td>Ind. Study</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laboratory</td>
<td>3</td>
<td></td>
<td>Clinic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Experiential</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**COURSE DESCRIPTION (PREREQUISITES INCLUDED):**

Sem. 2. Class 2, lab 3, cr. 3. Prerequisite or corequisite: MSE 240 and junior standing.

This laboratory is intended as an intensive experience in processing techniques used for ceramics, metals, and polymers. Sintering of a ceramic, casting and post-processing (work hardening, heat treatment, etc.) of a metal, and preparation and extrusion of a polymer are the suggested processes. The measurements (e.g., powder size, compaction force, temperature, grain size, molecular weight) applicable to the successful processing of the material and the final properties (e.g., hardness, ductility, strength, stiffness) will be emphasized.

**CAMPUS(ES) INVOLVED**

| Calumet Undergrad Curriculum Committee | Date | Calumet Department Head | Date | Calumet School Dean | Date |
| Fort Wayne Department Head            | Date | Fort Wayne School Dean  | Date |                      |      |
| Indianapolis Department Head          | Date | Indianapolis School Dean| Date |                      |      |
| North Central Department Head         | Date | North Central Vice Chancellor | Date | Approved by Graduate Council |      |
| West Lafayette Department Head        | Date | West Lafayette School Dean | Date |                      |      |

**Graduate Area Committee Convener:** Date

**Graduate Dean:** Date  
**Graduate Council Secretary:** Date

**OFFICE OF THE REGISTRAR**
PURDUE UNIVERSITY
REQUEST FOR ADDITION, DELETION, OR REVISION OF A COURSE

DEPARTMENT: Materials Engineering
DATE SUBMITTED: 2/19/03
DATE EFFECTIVE: Fall 2003

INSTRUCTIONS: Please check the items below which describe the purpose of this request.

PURPOSE

1. Deletion of a course
2. New course with supporting documents
3. Add existing course offered at another campus
4. Change in course number at same level
5. Downgrading of course level
6. Upgrading of course level
7. Change in course title
8. Change in semesters offered
9. Change in course credit type
10. Change in course attributes
11. Change in instructional hours
12. Change in prerequisites
13. Change in description of course content
14. Transfer of course from one dept. to another

EXISTING:

Subject Abbreviation: MSE
Course Number: 430
Proposed Title: Materials Processing and Design I

PROPOSED:

Subject Abbreviation
Course Number
Proposed Title: Materials Processing and Design I

SEMESTERS OFFERED

Check All That Apply.
- Summer
- Fall
- Ag Winter
- Spring

Abbreviated Title: Mat Process Design I

CROSS LISTED COURSES

<table>
<thead>
<tr>
<th>Instructional Type</th>
<th>Instructional Type</th>
<th>Instructional Type</th>
<th>Instructional Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
<td>FTE</td>
<td>Hours</td>
<td>Class</td>
</tr>
<tr>
<td>Primary</td>
<td>2</td>
<td></td>
<td>Auto-tutorial</td>
</tr>
<tr>
<td>Secondary</td>
<td>3</td>
<td></td>
<td>Ind. Study</td>
</tr>
<tr>
<td>Laboratory</td>
<td></td>
<td></td>
<td>Clinic</td>
</tr>
<tr>
<td>Lab. Prep.</td>
<td></td>
<td></td>
<td>Experiential</td>
</tr>
</tbody>
</table>

COURSE ATTRIBUTES: Check All That Apply.

1. Pass/Not Pass Only
2. Repeatable for Credit
3. Available for Credit by Examination
4. Designated Required
5. Special Fees
6. Approval Required for Enrollment

CAMPUS(ES) INVOLVED

Calumet
Fort Wayne
Indianapolis
North Central
West Lafayette
Off Campus

COURSE DESCRIPTION (PREREQUISITES INCLUDED):

Sem. 1. Class 2, lab 3, cr. 3. Prerequisites: MSE 350, MSE 367, and MSE 382, or consent of instructor.

Experience in the initiation and execution of a specific materials project or study involving research, processing, and design; a written proposal on the project prepared by the student under the supervision of an individual faculty member; oral progress report at the end of the semester.

Calumet Undergrad Curriculum Committee Date
Calumet Department Head Date
Fort Wayne Department Head Date
Fort Wayne School Dean Date
Indiana Department Head Date
Indiana School Dean Date
North Central Department Head Date
North Central Vice Chancellor Date
Lafayette Department Head Date
West Lafayette School Dean Date
Date Approved by Graduate Council
Graduate Area Committee Convenor Date
Graduate Dean Date
Office of the Registrar

OFFICE OF THE REGISTRAR
PURDUE UNIVERSITY
REQUEST FOR ADDITION, DELETION, OR REVISION OF A COURSE

DEPARTMENT: Materials Engineering
DATE SUBMITTED: 2/19/03
DATE EFFECTIVE: Spring '04

INSTRUCTIONS: Please check the items below which describe the purpose of this request.

PURPOSE
1. Deletion of a course
2. New course with supporting documents
3. Add existing course offered at another campus
4. Change in course number at same level
5. Downgrading of course level
6. Upgrading of course level
7. Change in course title
8. Change in semesters offered
9. Change in course credit/type
10. Change in course attributes
11. Change in instructional hours
12. Change in prerequisites
13. Change in description of course content
14. Transfer of course from one dept. to another

EXISTING:
Subject Abbreviation: MSE
Course Number: 440
Proposed Title: Materials Processing and Design II
Variable Title: Yes
Abbreviated Title: Mat Process Design II

PROPOSED:
Subject Abbreviation
Course Number
Proposed Title: Materials Processing and Design II
Abbreviated Title: Mat Process Design II
Credit Type: 1. Fixed Credit: Cr. Hrs. 3
2. Variable Credit Range:
Minimum Cr. Hrs. (Check One) 1 Or
Maximum Cr. Hrs.
3. Equivalent Credit: Yes No
4. Thesis Credit: Yes No

CROSS LISTED COURSES

<table>
<thead>
<tr>
<th>Instructional Type</th>
<th>Class</th>
<th>FTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Laboratory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lab. Prep.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

COURSE ATTRIBUTES: Check All That Apply.
1. Pass/Not Pass Only
2. Repeatable for Credit
3. Available for Credit by Examination
4. Designator Required
5. Special Fees
6. Approval Required for Enrollment

CAMPUS(ES) INVOLVED
Calumet
Fort Wayne
Indianapolis
North Central
West Lafayette
Off Campus

COURSE DESCRIPTION (PREREQUISITES INCLUDED):
Sem. 2. Class 1, lab 6, cr. 3. Prerequisite: MSE 335, MSE 340, MSE 370 and MSE 430, or consent of instructor.

Continuation and completion of the materials project or study initiated in MSE 430 and presentation of a written dissertation on the results and conclusions. Competence in technical writing is emphasized in the preparation of the dissertation.

Calumet Undergrad Curriculum Committee Date
Calumet Department Head Date
Calumet School Dean Date

Fort Wayne Department Head Date
Fort Wayne School Dean Date
Apr. For Faculty M. D. Zoltowski, Chair #970

Indianapolis Department Head Date
Indianapolis School Dean Date
Undergrad Curriculum Committee Date

North Central Department Head Date
North Central Vice Chancellor Date

West Lafayette Department Head Date
West Lafayette School Dean Date

Graduate Area Committee Convener Date
Graduate Dean Date
West Lafayette Registrar Date

OFFICE OF THE REGISTRAR