### 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:** BME  
**Course Number:** 695  
**Proposed Title:** Flow Cytometry  
**Variable Title:** Yes [ ] No [x]  
**Abbreviated Title:** Flow Cytometry

### PROPOSED:

**Subject Abbreviation:** BME  
**Course Number:** 654  
**Proposed Title:** Flow Cytometry  
**Variable Title:** Yes [ ] No [x]  
**Abbreviated Title:** Flow Cytometry

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#### SEMESTERS OFFERED

- [x] Summer  
- [ ] Fall  
- [ ] Ag Winter  
- [ ] Spring

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#### CROSS LISTED COURSES

<table>
<thead>
<tr>
<th>BMS</th>
<th>533</th>
</tr>
</thead>
</table>

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#### CREDIT TYPE

1. Fixed Credit: Cr. Hrs. 2
2. Variable Credit Range: Minimum Cr. Hrs. (Check One) To [ ] Or [ ]
3. Equivalent Credit: Yes [x] No [ ]
4. Thesis Credit: Yes [x] No [ ]

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#### COURSE ATTRIBUTES: Check All That Apply.

- [ ] Pass/No Pass Only
- [x] Repeatable for Credit
- [x] Available for Credit by Examination
- [ ] Designator Required
- [ ] Special Fees
- [x] Approval Required for Enrollment

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#### CAMPUS(ES) INVOLVED

- [x] Calumet
- [x] Fort Wayne
- [x] Indianapolis
- [ ] North Central
- [ ] West Lafayette
- [x] Off Campus

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#### COURSE DESCRIPTION (PREREQUISITES INCLUDED):

Theory and application of cell counting and characterization technologies including flow cytometry. Optical, fluidic, laser and detection systems, sample preparation, and multi-parameter data processing.

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#### SIGNATURES

- Calumet Undergrad Curriculum Committee: [Signature]  
- Calumet Department Head: [Signature]  
- Calumet School Dean: [Signature]

- Fort Wayne Department Head: [Signature]  
- Fort Wayne School Dean: [Signature]

- Indianapolis Department Head: [Signature]  
- Indianapolis School Dean: [Signature]

- North Central Department Head: [Signature]  
- North Central Vice Chancellor: [Signature]

- West Lafayette Department Head: [Signature]  
- West Lafayette School Dean: [Signature]

- Graduate Area Committee Convener: [Signature]  
- Graduate Dean: [Signature]

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**OFFICE OF THE REGISTRAR**
To: Faculty of the Schools of Engineering
From: Department of Biomedical Engineering
Subject: New Graduate Level Course

The Department of Biomedical Engineering has approved the following new course. Approval of the Faculty of the Schools of Engineering is requested.

BME 654/BMS 633 Flow Cytometry: Techniques and Application Module

A. Course Description

Sem. 2, Class 3, Lab 8, cr. 2 (5 wks)
Prerequisite: Permission of the Instructor Required

Theory and application of cell counting and characterization technologies including flow cytometry. Optical, fluidic, laser and detection systems, sample preparation, and multi-parameter data processing.

B. Reason:

This course has been offered three times on an experimental basis and has received a high level of student interest. This course provides engineering students with fundamental knowledge of and practical experiences with state-of-the-art tools and techniques used in the development of in vitro cellular- and tissue-based systems for application in biomedical engineering research. Students are exposed to basic principles and key issues of working with such biological and physiological systems including methods involving qualitative and quantitative analyses.

APPROVED FOR THE FACULTY OF THE SCHOOLS OF ENGINEERING
BY THE COMMITTEE ON FACULTY RELATIONS

CFR Minutes #962
Date 4/26/02
Chairman CFR

George R. Wodicka
Head and Professor
Department of Biomedical Engineering
Supporting Documentation:

Instructor: J.Paul Robinson
Technical Assistant: Kathy Ragheb

Course Objectives:

This module will provide a strong engineering based background of the technologies involved in cell counting and identification used in pathology and hematology systems. The course will provide 10 lectures, which will cover all of the basic technologies, used in flow cytometry—optical systems, fluidic systems, lasers and detection systems, sample preparation and application and multiparameter data processing. The laboratory component will ensure the student fully understands how the instrumentation operates in the regular clinical and research settings. The student will participate in sample preparation, running samples, analyzing the data and interpreting the results.

Course Content:

Week 1: Blood Borne Pathogens Training - Introduction to pipetting and spectrofluorometry
Week 2: Light scatter and fluorescence in flow cytometry
Week 3: Blood collection, preparation and immunophenotyping
Week 4: Kinetics of cell function and data analysis
Week 5: DNA analysis and cell sorting