

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

To Shad School 4/29/02  
Xper May 12-04  
SCHOOL DOCUMENT NO. 29-01  
GRADUATE COUNCIL DOCUMENT NO.

DEPARTMENT Biomedical Engineering DATE SUBMITTED 2/28/02 DATE EFFECTIVE S-2003

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

PURPOSE

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

EXISTING:

PROPOSED:

Subject Abbreviation BME Subject Abbreviation BME  
Course Number 695 Course Number 654  
Proposed Title Flow Cytometry  
Variable Title Yes ☐ No ☒

SEMESTERS OFFERED

Check All That Apply.

Summer ☐ Fall ☐ Ag Winter ☐ Spring ☒

Abbreviated Title Flow Cytometry

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

CROSS LISTED COURSES

BMS 633

CREDIT TYPE

1. Fixed Credit: Cr. Hrs. 2  
2. Variable Credit Range:  
Minimum Cr. Hrs      Or       
(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 ☐

Department  
Instructor

Instructional  
Type

Class  
Hours

FTE

Instructional  
Type

Class  
Hours

FTE

Instructional  
Type

Class  
Hours

FTE

CAMPUS(ES) INVOLVED

Calumet ☐  
Fort Wayne ☐  
Indianapolis ☐  
North Central ☐  
West Lafayette. ☒  
Off Campus ☐

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.

|  |      |                               |      |   |                         |
|--|------|-------------------------------|------|---|-------------------------|
| Calumet Undergrad Curriculum Committee | Date | Calumet Department Head       | Date | Calumet School Dean   | Date                    |
| Fort Wayne Department Head             | Date | Fort Wayne School Dean        | Date | Fort Wayne Chancellor<br>Apr. for Faculty<br>C.D. Sutton, Chair | Date<br>#962<br>4/26/02 |
| Indianapolis Department Head           | Date | Indianapolis School Dean      | Date | Undergrad Curriculum Committee                                  | 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 Council Secretary                                      | Date                    |
| Graduate Area Committee Convener       | Date | Graduate Dean                 | Date | West Lafayette Registrar  | Date                    |

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**

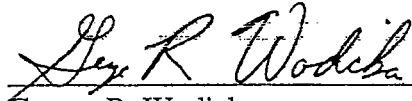
Sem. 2, Class 3, Lab 8, cr. 2 (5 wks)  
Prerequisite: Permission of the Instructor Required

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

  
George R. Wodicka  
Head and Professor  
Department of Biomedical Engineering

CFR Minutes #962

Date 4/26/02

Chairman CFR C.D. Lutton

## 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