UNIVERSITY OF HAWAI’I AT MĀNOA
UHM-1 FORM (ADD A COURSE OF STUDY)

Read instructions on reverse side carefully before filling out this form. For undergraduate courses, submit at least one original and three copies; for graduate courses, submit at least one original and six copies.

1. Course Subject
BE/MBBE

2. Proposed Course Number
BE 639/MBBE 639

3. Effective Term (Sem/Year)
Spring 2009

4. Frequency
☐ Fall & Spring semester ☐ Once a year
☐ Fall semester only ☐ Once every other year
☐ Spring semester only ☐ Other:

5. Course Title
Bioprocess Engineering

6. Offering (check one)
☐ Regular
☐ Experimental
☐ (two academic years)
☐ Single (one term)

7. Core or Graduation Requirement (check one)
☐ 1. Request approval of the CI/CI Designation or Hawaiian/Second Language designation (DA, DH, DB, DP, DY, DS or HIS).
☐ 2. Request approval of the Foundations designation (FW, FS, or FG).
☐ 3. Do not consider course for a General Education Core or Graduation Requirement.

8. Grade Option (check all that apply)
☐ Letter Grade (L)
☐ Credit/No Credit (C)
☐ Audit (A)
☐ Satisfactory/Unsatisfactory (S)
[Graduate courses numbered 500, 700, and 800 only]
[No Grading (G), Graduate courses only]

9. Number of Credits
[If variable credit (V), give range: ]

10. Repeat Limit
0

11. Credit Limit
3

12. Corequisite Course(s)

13. Major Restriction(s)

14. Prerequisite Course(s) Enter course alpha and number for each prerequisite. Use "of" or "and" instead of punctuation. Type "(or concurrent)" after each prerequisite course that may be taken concurrently. Also specify what type of waiver is acceptable (check only one).

"Science" or Engineering background or "Consent"

15. Contact Hours and Instruction Type
Specify number of minutes per week for appropriate instruction type(s). For courses with variable credits, check all applicable instruction types.

L Lecture (LEC)
☐ Laboratory (LAB)
☐ Discussion (DIS)
☐ Seminar (SEM)

☐ Thesis/Dissertation (THE)
☐ Lecture/Laboratory combined (LEL)
☐ Lecture/Discussion combined (LED)

☐ Directed Reading or Research/Independent Study (DRR)
☐ Field Experience/Internship/Practicum (FRP)
☐ Two-way Video/Interactive TV (ITV)

16. Cross-listed Course(s)

Course Alpha & Number
Chair
Signature
Date

Course Alpha & Number
Chair
Signature
Date

17. Catalog Description
This section will appear in the Catalog. Limit description to 35 words; up to 85 words for alpha courses. Read instructions carefully before completing this section.

BE 639/MBBE 639: Application of fundamental concepts of microbiology and biochemistry in the design and analysis of biological production and processing systems. Topics such as kinetics, reaction rate and orders, oxidative and non-oxidative metabolisms, enzyme application, design of bioreactors, mass transfer, mixing and aeration, product recovery, biomass pretreatment, downstream processing, and several case studies with special emphasis on bioenergy/biofuel and biobased products are included.

18. Justification
Read instructions on reverse side. Attach sheets as needed.

See attached file

Requested by
MBBE
Harry Ako
Department/Unit
Chair/Director
Signature
Date

Approved by
CTAHR
Charles Kinoshita
1st College or School
Dean
Signature
Date

2nd College or School
Dean
Signature
Date

OFFICE USE ONLY:

SIS CATALOG
SIS PREREQS
LEVEL
COLLEGE
DEPT

Graduate Division (600 level and above)
Dean
Signature
Date

General Education
Signature
Date

Mānoa Chancellor's Office
Chancellor
Signature
Date