The University of Michigan
College of Engineering
Curriculum Committee

Agenda
September 13, 2011
1:30-3:00 p.m.
Room 265 Chrysler Center

1. Course Approval Forms
2. Nuclear Engineering Concentration within BSE ChE Program
3. Proposal for ME Combined Undergraduate/Graduate Program with the UM-SJTU Joint Institute

COURSE APPROVAL FORMS

For September 13, 2011 CoE CC Meeting

CHE 360 Modification—Changing Prerequisite from: CHE 342 ***to: CHE 342 & 343***
CHE 563(X-Listing with BME 563 and MSE 563) New Course (tabled at last meeting)
CHE 578 New Course (tabled at last meeting)

THE UNIVERSITY OF MICHIGAN -- COLLEGE OF ENGINEERING
Course Approval Request
College Curriculum Committee, 1420 Lurie Engineering Center Building

Form Number: 2229
Date: 9/6/2011
Effective Term: Winter 2012
Course Offer Freq: ☒ Indefinitely ☐ One term only

Action Requested
○ New Course
◉ Modification of Existing Course
○ Deletion of Course

Complete the following sections:
New Courses - B & C completely
Modifications - A modified information, B & C completely
Deletions - A & C completely

A. CURRENT LISTING	B. REQUESTED LISTING
Home Department: CHE Chemical Engineering	Home Department:
Course Number: 360	Course Number:
☐ Cross Listed Course Information:	Cross Listed Course Information:
☐ Course Title: Chemical Engineering Laboratory I	Course Title:
TITLE ABBREVIATION — Time Sched Max = 19 Spaces: Chem Engr Lab I	TITLE ABBREVIATION — Time Sched Max = 19 Spaces:
TITLE ABBREVIATION — Transcript Max = 20 Spaces: CHEM ENGR LAB I	TITLE ABBREVIATION — Transcript Max = 20 Spaces:
☐ Course Description: Experimentation in thermodynamics and heat, mass, and momentum transport on a bench scale. Measurement error estimation and analysis. Lecture, laboratory, conferences, and reports. Technical communications.	Course Description for Official Publication (Max = 50 words):
PROGRAM OUTCOMES: ☒a ☐c ☐e ☒g ☐i ☒k ☒b ☒d ☐f ☐h ☐j	PROGRAM OUTCOMES: ☒a ☐c ☐e ☒g ☐i ☒k ☒b ☒d ☐f ☐h ☐j
Degree Requirements: ○ Degree Requirement ○ Free Elective ○ Other ○ Core Course ○ Tech Elective	Degree Requirements: ○ Degree Requirement ○ Free Elective ○ Other ○ Core Course ○ Tech Elective
Prereq: 342	Prereq: ChE 342& 343
x ○ Enforced ◉ Advised	○ Enforced ◉ Advised
☐ Credit Restrictions:	Credit Restrictions:
Level of Credit: ☒ Undergrad only ☐ Ugrad or Rckhm Grad ☐ R; ☐ Rackham Grad ☐ Ugrad or Non-Rckhm Grad; ☐ Non-Rckhm Grad ☐ All Credit types	Level of Credit: ☐ Undergrad only ☐ Ugrad or Rckhm Grad ☐ I; ☐ Rackham Grad ☐ Ugrad or Non-Rckhm Grad; ☐ Non-Rckhm Grad ☐ All Credit types
Credit Hours Min 4 Max 4; Contact Hrs/Wk 6; Number of Wks 14	Credit Hours Min Max; Contact Hrs/Wk; Number of Wks

C.

Repeatability (Indi Research, Dir. Study, Dissertation): Is this course repeatable? ○ Yes ◉ No; Max Hours? ____ Max Times? ____ Can it be repeated in the same term? ○ Yes ◉ No

☐ Class Type(s): ☒ Lec ☐ Sem ☐ Dis ☐ Other ____ ☐ Rec ☒ Lab ☐ Ind
Graded Section: ☐ Lec ☐ Sem ☐ Dis ☐ Other ____ ☐ Rec ☒ Lab ☐ Ind
Grading: ☒ A-E ☐ CR/NC ☐ P/F ☐ S/U
Course Is Y Graded ☐
Location: ☒ Ann Arbor ☐ Biological Station ☐ Camp Davis ☐ Extension

Cognizant Faculty Member: Ralph Yang, ChE — Title: Professor
Grad Course: Attach nomination if Cognizant Faculty is not a regular graduate faculty

Approval Info	Approved by Name	Approved Date
☐ Curriculum Comm.		
☐ Faculty		
☐ Cross listed Unit 1		
☐ Cross listed Unit 2		

Submitted By: ☒ Home Dept. ☐ Cross-listed Dept.

Department Chair Name	Chair Signature
Home Dept. Mark Burns, ChE	
Cross-listed Dept(s).	

Form Number

2229

SUPPORTING STATEMENT

In the past only ChE 342 was a prereq for ChE 360. Over time the lab evolved to include ChE 343 material but we had not seen an effect on our students because they took 342 and 343 concurrently prior to 360. Recently we started offering ChE 342 Spring term, so that we had students taking 343 and 360 concurrently, and it became obvious that students taking 343 concurrently with 360 were at a great disadvantage. We seek to correct this by adding ChE 343 as a prerequisite for CHE 360.

Are any special resources or facilities required for this course? ☐ Yes ☐ No

Detail the Special requirements

Susan Montgomery

From: Susan Montgomery,
ChE representative to College Curriculum Committee
To: College Curriculum Committee
Re. ChE 563 additional materials
Biomolecular Engineering of Interfaces
Date: September 6, 2011

At the last Winter 2011 College Curriculum Committee a few issues arose about the materials presented for the approval of ChE 563. This document attempts to address those issues to the committee's satisfaction, in the hopes that permission for the class will be granted.

1. Need more descriptive title, current title much too broad

Original title: Biomolecular Engineering

Updated title: Biomolecular Engineering of Interfaces
20 character version: Biomolecular Interfaces

2. Rewrite course description in paragraph form

This class focuses on biomolecular engineering of surfaces and interfaces in contact with biological systems. Recent advances in the interfacial design of materials as well as methods that enable studying such systems will be highlighted/

3. Minor suggestion to reword "paper club" to "journal article discussion"

He will take this suggestion into consideration for future course offerings.

THE UNIVERSITY OF MICHIGAN -- COLLEGE OF ENGINEERING
Course Approval Request
College Curriculum Committee, 1420 Lurie Engineering Center Building

Form Number: 2220

Date: 3/4/2011

Effective Term: Fall 2011

Course Offer Freq: ☒ Indefinitely ☐ One term only

Action Requested

- ◉ New Course
- ○ Modification of Existing Course
- ○ Deletion of Course

Complete the following sections:
New Courses - B & C completely
Modifications - A modified information, B & C completely
Deletions - A & C completely

A. CURRENT LISTING	B. REQUESTED LISTING
Home Department / Course Number	Home Department: CHE Chemical Engineering / Course Number: 563
Cross Listed Course Information	Cross Listed Course Information: BIOMEDE Biomedical Engineering 563; MATSCIE Materials Science Engineering 563
Course Title	Course Title: Biomolecular Engineering
TITLE ABBREVIATION — Time Sched Max = 19 Spaces / Transcript Max = 20 Spaces	Time Sched: Biomolecular Engr / Transcript: Biomolecular Engr
Course Description	Course Description for Official Publication (Max = 50 words): • Surface modification techniques • Immobilization strategies • Protein-resistant surfaces • Molecular Self-assembly • Biomimetic materials • BioMEMS • Stem Cell Niche • Cell/Matrix interactions • Neuronal Cell Guidance
PROGRAM OUTCOMES: ☐a ☐c ☐e ☐g ☐i ☐k ☐b ☐d ☐f ☐h ☐j	PROGRAM OUTCOMES: ☐a ☐c ☐e ☐g ☐i ☐k ☐b ☐d ☐f ☐h ☐j
Degree Requirements: ○ Degree Requirement ○ Free Elective ○ Other ○ Core Course ○ Tech Elective	Degree Requirements: ○ Degree Requirement ○ Free Elective ○ Other ○ Core Course ◉ Tech Elective
Prereq: ○ Enforced ○ Advised	Prereq: ○ Enforced ○ Advised
Credit Restrictions	Credit Restrictions
Level of Credit: ☐ Undergrad only ☐ Ugrad or Rckhm Grad ☐ R ☐ Rackham Grad ☐ Ugrad or Non-Rckhm Grad ☐ Non-Rckhm Grad ☐ All Credit types; Credit Hours Min Max; Contact Hrs/Wk; Number of Wks	Level of Credit: ☐ Undergrad only ☐ Ugrad or Rckhm Grad ☐ I ☐ Rackham Grad ☐ Ugrad or Non-Rckhm Grad ☒ All Credit types; Credit Hours Min 3 Max 3; Contact Hrs/Wk 3; Number of Wks 14

Repeatability (Indi Research, Dir. Study, Dissertation: Is this course repeatable? ○ Yes ◉ No Max Hours? ___ Max Times? ___ Can it be repeated in the same term? ○ Yes ○ No

C.

Class Type(s): ☒ Lec ☐ Sem ☐ Dis ☐ Other ___ ☐ Rec ☐ Lab ☐ Ind

Graded Section: ☒ Lec ☐ Sem ☐ Dis ☐ Other ___ ☐ Rec ☐ Lab ☐ Ind

Grading: ☒ A-E ☐ CR/NC ☐ P/F ☐ S/U

Course Is Y Graded ☐

Location: ☒ Ann Arbor ☐ Biological Station ☐ Camp Davis ☐ Extension

Cognizant Faculty Member: Joerg Lahann — Title: Associate Prof

Grad Course: Attach nomination if Cognizant Faculty is not a regular graduate faculty

Approval Info — Approved by Name — Approved Date

- ☐ Curriculum Comm.
- ☐ Faculty
- ☐ Cross listed Unit 1
- ☐ Cross listed Unit 2

Submitted By: ☒ Home Dept. ☐ Cross-listed Dept.

	Department Chair Name	Chair Signature
Home Dept.	Chemical Engineering, Mark Burns	
Cross-listed Dept(s).	BME, Douglas Noll	

Form Number

2220

SUPPORTING STATEMENT

Our students would benefit from a deeper background in biomolecular engineering than is currently available in our curriculum. Recent advances and methods will be highlighted in the course. The class has been offered as a special topics course in Chemical Engineering and cross-listed with the Biomedical Engineering department and Material Science department in Winter 2005, Winter 2006, Winter 2008, and Winter 2010 terms. Over 51 students enrolled in it (enrollment in the Winter 2010 term was 24). It was positively received with the evaluation scores averaging 4.35 for Q1 and 4.31 for Q3. We propose to offer this course every other winter.

Are any special resources or facilities required for this course? ☐ Yes ☐ No

Detail the Special requirements

Biomolecular Engineering: Syllabus WS 2010

- *Week 1:*
- F (Jan 08): Introduction; Survey

- *Week 2:*
- W (Jan 13): no class
- F (Jan 15): Surface modification techniques

- *Week 3:*
- W (Jan 20): CVD polymerization
- **NSF graduate fellowship application due**
- F (Jan 22): Non-fouling surfaces

- *Week 4:*
- W (Jan 27): Immobilization methods
- F (Jan 29): paper club (4x)

- *Week 5:*
- W (Feb 3): Click Chemistry
- F (Feb 5): paper club (4x)

- *Week 6:*
- W (Feb 10): Biomimetic Materials, Molecular Self-assembly
- F (Feb 12): BioMEMS, Soft lithography,

- *Week 7:*
- W (Feb 17): Advanced Drug Delivery Systems
- F (Feb 19): paper club (4x)
- **Invention disclosure due**

- *Week 8:*
- W (Feb 24): Drug Targeting & Gene Delivery
- F (Feb 26): paper club (4x)

- *Week 9:*
- No class, spring break

- *Week 10:*
- W (Mar 10): Cellular architecture, Focal adhesion
- F (Mar 12): paper club (3x)

- *Week 11:*
- W (Mar 17): Case Study
- F (Mar 19): paper club (4x)

- *Week 12:*
- W (Mar 24): Neuronal cell guidance
- F (Mar 26): paper club (4x)

- *Week 13:*
- W (March 31): Wrap-up
- F (Apr 2): no lecture, proposal writing (extra paper club)

- *Week 14:*
- W (Apr 7): no lecture, proposal writing (extra paper club)
- F (Apr 9): no lecture, proposal writing
- **R03/R21/R01 due**

- *(peer review)*

CLASS GRADING

- FINAL ASSIGNMENT ➢ 30 %
- CLASS PRESENTATION ➢ 30 %
- PARTICIPATION ➢ 10 %
- INVENTION DISCOLOSURE ➢ 15 %
- NSF FELLOWSHIP APPLICATION ➢ 15 %

Biomolecular Engineering
Joerg Lahann
Winter 2010
ChE 696, section 3

This class focuses on biomolecular engineering of surfaces and interfaces in contact with biological systems. Specifically, recent advances in the interfacial design of materials as well as methods that enable studying such systems will be highlighted. Some of the aspects of interest include:

- Surface modification techniques
- Immobilization strategies
- Patterning methods
- Biomedical Coatings
- Protein-resistant surfaces
- Molecular Self-assembly
- Meso-scale assembly
- Biomimetic materials
- Stimulus-responsive materials
- BioMEMS
- Biomineralization
- Stem Cell Niche
- Mechanosensation of cells
- Cell/Matrix interactions
- Neuronal Cell Guidance
- Drug Delivery Polymers

Susan Montgomery

From: Susan Montgomery,
ChE representative to College Curriculum Committee
To: College Curriculum Committee
Re. ChE 578 additional materials
Molecular Homogeneous Catalysis and Electro-catalysis
Date: September 6, 2011

At the last Winter 2011 College Curriculum Committee a few issues arose about the materials presented for the approval of ChE 578. This document attempts to address those issues to the committee's satisfaction, in the hopes that permission for the class will be granted.

1. Reword course description to present tense, more paragraph form

Updated course description, to be included in CAF:

This course addresses catalysis topics including chemical bonding on metal surfaces and tools used to study chemical transformations on surfaces at the molecular level. Examples address contemporary issues related to energy and environment. Strategies to use molecular insights to identify optimal electro(catalysts) for different electro(chemical) processes are discussed.

2. Include information on textbook or other resources if any

There was no textbook for the class, Prof. Linic used the notes he developed over time.

3. Expectation of what student is supposed to do to earn grade, beyond three items listed.

The grading is based 50% on an exam, 30% on presentation, 20% class participation. A question was raised about the presentation. Prof. Linic reports that the final oral presentation focuses on a critical analysis of a body of literature focusing on a particular topic of interest. For example, they might discuss a concrete model of chemisorption, or a concrete experimental technique to study chemisorption on surface.

4. Would like to see how much time spent on each topic. I explained that it shifts by semester based on student interest, but they wanted to see, e.g. after the fact, for this term, what was the distribution.

For the original schedule, they spent 1 week on item 1, and 2 weeks each on the rest of the items in the last class offering.

THE UNIVERSITY OF MICHIGAN -- COLLEGE OF ENGINEERING
Course Approval Request
College Curriculum Committee, 1420 Lurie Engineering Center Building

Form Number: 2219
Date: 3/4/2011
Effective Term: Fall 2011
Course Offer Freq: ☒ Indefinitely ☐ One term only

Action Requested
- ◉ New Course
- ○ Modification of Existing Course
- ○ Deletion of Course

Complete the following sections:
New Courses - B & C completely
Modifications - A modified information, B & C completely
Deletions - A & C completely

A. CURRENT LISTING	B. REQUESTED LISTING
Home Department / Course Number	Home Department: CHE Chemical Engineering / Course Number: 578
☐ Cross Listed Course Information	Cross Listed Course Information
☐ Course Title	Course Title: Molecular Heterogeneous Catalysis and Electro-Catalysis
TITLE ABBREVIATION — Time Sched Max = 19 Spaces; Transcript Max = 20 Spaces	TITLE ABBREVIATION — Time Sched Max = 19 Spaces: Molecular Catalysis; Transcript Max = 20 Spaces: Molecular Catalysis
☐ Course Description	Course Description for Official Publication (Max = 50 words): The course will address numerous topics including: 1) Chemical bonding on metal surfaces 2) Various experimental and theoretical tools that are used to study chemical transformations on surfaces at molecular level. The material will be discussed through a number of examples addressing contemporary issues related to the fields of energy and environment. We will also discuss strategies that can be utilized to employ molecular insights to identify optimal electro(catalysts) for different electro(chemical) processes.
PROGRAM OUTCOMES: ☐a ☐c ☐e ☐g ☐i ☐k ☐b ☐d ☐f ☐h ☐j	PROGRAM OUTCOMES: ☒a ☐c ☒e ☐g ☒i ☒k ☒b ☐d ☐f ☒h ☒j
Degree Requirements: ○ Degree Requirement ○ Free Elective ○ Other ○ Core Course ○ Tech Elective	Degree Requirements: ○ Degree Requirement ○ Free Elective ○ Other ○ Core Course ◉ Tech Elective
Prereq: ○ Enforced ○ Advised	Prereq: Senior or Graduate Standing — ○ Enforced ◉ Advised
Credit Restrictions	Credit Restrictions
Level of Credit: ☐ Undergrad only ☐ Ugrad or Rckhm Grad ☐ R ☐ Rackham Grad ☐ Ugrad or Non-Rckhm Grad ☐ Non-Rckhm Grad ☐ All Credit types; Credit Hours Min Max; Contact Hrs/Wk; Number of Wks	Level of Credit: ☐ Undergrad only ☐ Ugrad or Rckhm Grad ☐ I ☐ Rackham Grad ☐ Ugrad or Non-Rckhm Grad ☐ Non-Rckhm Grad ☒ All Credit types; Credit Hours Min 3 Max 3; Contact Hrs/Wk 3; Number of Wks 14

C.

Repeatability (Indi Research, Dir. Study, Dissertation: Is this course repeatable? ○ Yes ◉ No Max Hours? ____ Max Times? ____ Can it be repeated in the same term? ○ Yes ○ No

Class Type(s): ☒ Lec ☐ Sem ☐ Dis ☐ Other ☐ Rec ☐ Lab ☐ Ind
Graded Section: ☒ Lec ☐ Sem ☐ Dis ☐ Other ☐ Rec ☐ Lab ☐ Ind
Grading: ☒ A-E ☐ CR/NC ☐ P/F ☐ S/U
Course Is Y Graded ☐
Location: ☒ Ann Arbor ☐ Biological Station ☐ Camp Davis ☐ Extension

Cognizant Faculty Member: Suljo Linic — Title: Asst Professor

Grad Course: Attach nomination if Cognizant Faculty is not a regular graduate faculty

Approval Info — Approved by Name — Approved Date
- ☐ Curriculum Comm.
- ☐ Faculty
- ☐ Cross listed Unit 1
- ☐ Cross listed Unit 2

Submitted By: ☒ Home Dept. ☐ Cross-listed Dept.

Department Chair Name: Home Dept. Chemical Engineering, Mark Burns — Chair Signature

Cross-listed Dept(s).

Form Number

2219

SUPPORTING STATEMENT

Our students would benefit from a chemical engineering course in molecular foundations for heterogeneous catalysis and electro-catalysis. The material will include examples addressing current issues related to energy and environment. The class has been offered as a special topics course in chemical engineering in the Fall 2010 term and the Winter 2008 term, with enrollment of 21 and 19 respectively. It was positively received, shown by course evaluation scores of 4.70 (Q1), 4.70 (Q2) and 4.61 (Q3). We propose to offer this course in the Fall terms starting with the Fall 2012 if possible.

Are any special resources or facilities required for this course? ☐ Yes ☐ No

Detail the Special requirements

ChE 696/496 – "Molecular foundation for heterogeneous catalysis and electro-catalysis"
Winter 2010

Instructor: Suljo Linic
Phone 647-7984
Email: linic@umich.edu
Office 3330 GG Brown
Office Hours: by appointment

Objectives: The course will address:
1) Chemical bonding on metal surfaces
2) Various experimental tools that are used to study chemical transformations on surfaces at molecular level.
3) Various theoretical tools used to study chemical interactions on surfaces.

Tentative topics will not necessarily be covered in sequential order (subject to revision according to interests of class or the judgment of instructor):

1. Electronic structure of metals
2. Bonding on surface (adsorbate-substrate interactions)
    a. d-band model
    b. Activation barriers
        i. Electronic vs. geometric effects
3. Adsorbate-adsorbate interactions on surfaces:
    a. Chemical promotion
    b. Poisoning
    c. Alloying
    d. Small clusters supported on oxides
4. Relating electronic structure of metals to their chemical (catalytic) activity
    a. Bronsted-Evans-Polanyi (BEP) relationships
    b. Universality in heterogeneous catalysis
    c. Volcano plots
        i. The Sabatier analysis
        ii. Catalysis and Electro-catalysis
5. Catalyst design
    a. Ethylene epoxidation
        i. Concept of selectivity
    b. Ammonia synthesis
        i. Concept of activity
6. Experimental techniques

Grades will be assigned based on one exam, one presentation, and class participation.
50% 30% 20%

From: Susan Montgomery, Chemical Engineering representative Susan Montgomery
To: College curriculum committee
Re: Nuclear Engineering concentration within BSE ChE program
Date: August 30, 2011

We are seeking approval to offer our students the option of pursuing a Nuclear Engineering concentration within the BSE ChE program, to prepare students who might wish to pursue careers in the nuclear industry, or who might wish to apply for masters degrees in Nuclear Engineering. We have consulted on this concentration these selections with faculty in the Nuclear Engineering and Radiological Sciences program, specifically Prof. Alex Bielajew and Program Advisor Ms. Pam Derry.

The proposed concentration in Nuclear Engineering meets the College requirements for a concentration and consists of:

10 credits required:

4	NERS 250	Fundamentals of Nuclear Engineering and Radiological Sciences (Winter only)
3	NERS 311	Elements of Nuclear Engineering and Radiological Sciences I (Fall only)
3	NERS 312	Elements of Nuclear Engineering and Radiological Sciences II (Winter only)

At least 2 additional credits, which require the above 3 courses. Choose from:

3	NERS 421	Nuclear Engineering Materials
4	NERS 425	Applications of Radiation
4	NERS 441	Nuclear Reactor Theory (requires NERS 312 and Math 450 or 454)
3	NERS 471	Introduction to Plasmas
2	NERS 481	Engineering Principles of Radiation Theory
4	NERS 484	Radiological Health Engineering Fundamentals
2-3	NERS 499	Research in Nuclear Engineering and Radiological Sciences

Proposal for ME Combined Undergraduate/Graduate Program with the UM-SJTU Joint Institute

Summary

We propose a Combined Undergraduate/Graduate Program (CUGP) for students receiving ME BS degrees from the UM-SJTU Joint Institute (JI) that will allow such students to earn a masters in ME, while double counting up to 6 credit hours between their bachelor's and master's programs.

CUGP is available to UM-SJTU JI students who study in Shanghai, but not those who come to Ann Arbor as part of the JI. The latter receive two degrees, one from UM and one from SJTU JI, whereas the former receive only one degree from the UM-SJTU JI. Since credits earned here by the latter (SJTU students studying at UM) count towards two degrees, it is not considered appropriate that they count also towards a third degree (the masters).

The CUGP program is largely patterned after the SGUS programs offered by most CoE graduate programs. However, it allows double counting fewer credits than is typical for an SGUS program.

It is proposed here that the ME Graduate Program partners with the ME Undergraduate Program of the SJTU JI.

CUGP Requirements

1. Students admitted to the ME CUGP will enroll in the chosen master degree plan program upon completion of their JI undergraduate degree. The undergraduate degree must be awarded before matriculation into the master's program.
2. Students must enroll in the masters program for at least two full terms, paying full tuition.
3. Students must complete at least 24 credit hours in residence at UM Ann Arbor.
4. Students may not be simultaneously enrolled in any other UM program.
5. Students may count up to 6 credits from their SJTU JI bachelor's degree towards the master's. These are the "double counted" credits. This happens by transferring the courses to their Rackham transcript. If the specific courses from which the double counted credits are to come total more than 6 credit hours, e.g. two 4 credit classes, then all of the credits appear on the graduate transcript, but only 6 count towards the 30 required for the master's degree. The balance of any credit hours cannot be counted toward any other graduate program at UM or SJTU. The balance can count towards the undergraduate program at the JI.
6. To be double counted, credits must
    a. be graduate level
    b. be taken during the Junior or Senior year
    c. have received a grade of B or better
    d. be acceptable towards the 30 credit Master's requirement
    e. be approved by the graduate program (normally at the time of admission) and approved also by the undergraduate program

f. not be part of the required core coursework for the JI BS; however, they can be courses taken to meet technical or general elective requirements

7. Double counted credits may have been taken prior to admission to the CUGP.
8. No credits can be triple counted, i.e. counted towards any degree other than the JI BS and the ME MS.
9. A student's Rackham transcript, including transfer credits and credits in residence must fulfill all master's requirements, with the usual provision for equivalency for courses that do not appear on the transcript.
10. Students earning any two bachelor degrees (e.g. from UM and the JI) are not eligible for the JI-Combined Undergraduate/Graduate Program. By way of comparison, any UM master's student whose undergraduate degree is from another institution may transfer up to 6 credits of graduate level coursework from his/her undergraduate transcript to his/her Rackam graduate transcript, provided these credits received a B or better, did not count towards any degree requirement (not even as free elective), and are approved by our graduate program. A UM master's student whose undergraduate degree is from UM may transfer up to 15 credits, subject to the same restrictions.

Admissions

1. JI students apply for admission to the MS ME CUGP by submitting the Rackham application (including statement of purpose, personal statement, letters of recommendation, etc.), application fee, other required credentials, ToEFL or MeLab scores, GRE scores and the JI-CUGP Course Election Form (see attached draft). (Financial resource information will be needed if accepted.)
2. GRE scores are not required
3. Applications can be submitted at any time in the second semester (ending in August) of the 3rd year of study at the JI, through January 15 of the senior year. An academic transcript through at least the second semester of the 3rd year is needed for the admissions decision. If the student applies during the second semester of the 3rd year, the transcript will need to be sent immediately after the term ends.
4. On the CUGP Election Form, the applicant lists JI courses proposed for double counting and a plan of study for the master's, both approved by the CUGP undergraduate advisor. Approval by the grad chair is required for admission.
5. The ME Program will make admission decisions based on the qualifications of the applicant and the number of students the program can accommodate. For admission, applicants must have a minimum GPA of 3.6 and maintain this.
6. It is anticipated that when JI students apply during or after the second (summer) semester of the 3rd year, an admissions decision can be made soon enough to permit admitted students to choose the Fall schedule of their senior year to take a class or classes that can be double counted. For this to happen, admissions decisions would need to be made by mid-September, and be based on informal transcripts from the summer semester (followed later by an official transcript).
7. An admission letter and pre-enrollment materials will be sent to applicants offered admission.

JICombined Undergraduate/Graduate Program Course Election Form

As part of the application process, the student, in consultation with the SJTU JI undergraduate CUGP advisor, will submit a CUGP course election form, which proposes a plan of study for the MS degree, and courses proposed for double counting. If the student is admitted, the plan of study and the courses proposed for double counting will either be approved, or a modification will be proposed. Changes to the MS plan of study or the courses proposed for double counting may also be made after the student arrives in Ann Arbor, subject to the approval of a graduate advisor.

JICombined Undergraduate/Graduate Program Course Election Form

Student Name _____ ID # _____

Rackham Degree Program Mechanical Engineering

JI Degree Expected _____ Date/Year to be Awarded _____

JI Courses to double count & transfer (≤ 6)		UM Courses to Complete program (≥24)	
Course	Credits	Course	Credits
Total		Total	

SIGNATURES:

Student _____

(signature) (name printed) (date)

JI Advisor _____

(signature) (name printed) (date)

UM Grad Chair _____

(signature) (name printed) (date)

Rackham Graduate Approval (For Rackham MS degrees)

_____

(signature) (name printed) (date)