



UNIVERSITY OF KENTUCKY

The Graduate School

*Gillis Building
Lexington, KY 40506-0033
(859) 257-4613
Fax: (859) 323-1928
www.research.uky.edu/gsl/*

TO: Ernest Yanarella, Chair
Senate Council

FROM: Jeannine Blackwell, Chair
Graduate Council

A handwritten signature in black ink, appearing to be 'JB'.

DATE: April 14, 2006

I am transmitting with this memo a proposal for a concurrent program in the undergraduate degree programs in Electrical Engineering and Mechanical Engineering with the Master's degree in Manufacturing Systems Engineering.

This proposal was accepted by Graduate Council with stipulations in December 2004. The stipulations were the creation of new undergraduate courses for students taking concurrent undergraduate courses in the summer after the sophomore year.

Because of reservations expressed by the programs in the College of Engineering, Graduate Council agreed to remove this stipulation, and to require only that there be two distinct sections of the two 500-level courses, one for graduates, the other for undergraduates, so that it would be very clear to undergraduate students that their enrollment was undergraduate only. Council accepted the differentiation in course requirements proposed by Dr. Holloway.

Graduate Council approved this proposal with the above stipulation on April 13, 2006.




UNIVERSITY OF KENTUCKY

Office of the Dean

College of Engineering
351 Ralph G. Anderson Building
Lexington, KY 40506-0503
(859) 257-1687 / 257-8827
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www.engr.uky.edu

May 25, 2004

TO: Dr. Jeannine Blackwell, Dean, Graduate School

FROM: Dr. Eric Grulke, Associate Dean for Research and Graduate Studies


SUBJECT: BS Engr/MS Manufacturing Systems Joint Degree Program

Attached is a proposal submitted by Dr. Larry Holloway, director of the UK Center for Manufacturing, to create a joint degree program for a BS in Engineering (Electrical or Mechanical Engineering) and a MS in Manufacturing Systems Engineering. The program will allow undergraduate students in electrical and mechanical engineering who are interested in manufacturing to pursue a MS degree in Manufacturing Systems Engineering.

The proposed program does not reduce the number of credit hours required for either program but does allow students to begin taking manufacturing courses early in their college career in a way that complements their undergraduate degree courses.

This proposal has been reviewed by the College of Engineering's Graduate Studies Team and was approved unanimously. I concur with their decision and ask that you approve this request.

cc: Dr. Larry Holloway

MAY 25 2004

ORIGINAL



UNIVERSITY OF KENTUCKY

March 8, 2004

Eric Grulke
Associate Dean of Research and Graduate Studies
College of Engineering
University of Kentucky
Lexington, KY 40506

UK Center for Manufacturing
College of Engineering
Lexington, KY 40506-0108
(859) 257-6262
Fax: (859) 323-1035
www.mfg.uky.edu

Dear Professor Grulke:

Please find attached a proposal to create a joint degree program for a MS in Manufacturing Systems Engineering with a BS in either Electrical Engineering or Mechanical Engineering. The program will allow students who are interested in manufacturing to pursue studies in Manufacturing Systems Engineering while they complete their undergraduate engineering degree, and will be particularly attractive to students who will be participating in the "lean manufacturing summer boot camps" that have developed under the recent sponsorship from Ford Motor Company.

The proposed joint degree program does not reduce credit requirements – the number of credits required is equal to the sum of the credits required for the undergraduate degree and the Manufacturing Systems Engineering degree. (This is in contrast to the "University Scholars" Manufacturing Systems Engineering program, which was approved by the Graduate School in Fall 2003.) Admission criteria for the program is above the standard entrance criteria of the Manufacturing Systems Engineering MS degree and the Graduate School, but below the criteria of the previously approved University Scholars program. The goal of the program is to allow students to begin taking manufacturing courses early in their college career in a way which complements their undergraduate degree courses. This can be especially helpful to students who are co-ops during their undergraduate years.

The proposal has received letters of approval from both the Mechanical Engineering and Electrical Engineering departments. I request that you present the proposal for approval of the appropriate college committee, and then forward to the appropriate university bodies for approval.

Please contact me if you have any questions.

Sincerely,

Larry Holloway
Director, UK Center for Manufacturing
Kentucky Utilities Professor of Electrical and Computer Engineering

**Proposal for a Dual Degree Program
for the M.S. in Manufacturing Systems Engineering and
B.S. in Electrical or Mechanical Engineering**

Contact Faculty:

Dr. Larry Holloway
Director, Center for Manufacturing
CRMS Building
College of Engineering
University of Kentucky
Lexington, KY 40506-0108
Phone: 859-257-6262 ext.203
Email: holloway@engr.uky.edu

Dr. I.S. Jawahir
Director of Graduate Studies, Manufacturing Systems Engineering
CRMS Building
College of Engineering
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Lexington, KY 40506-0108
Phone: 859-257-6262 ext.207
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Dr. Jon Yingling
Center for Manufacturing
CRMS Building
College of Engineering
University of Kentucky
Lexington, KY 40506-0108
Phone: 859-257-1105
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SEP 09 2004

ORIGINAL

Proposed by [unclear] 10/1/04

Proposal for a Dual Degree Program for the M.S. in Manufacturing Systems Engineering and B.S. in Electrical or Mechanical Engineering

OVERVIEW

The MS in Manufacturing Systems Engineering (MSMSE) is a multidisciplinary program administered by the College of Engineering at the University of Kentucky. This document proposes the establishment of a dual degree program resulting in the MSMSE degree and a BS degree in either Electrical or Mechanical Engineering. The dual degree program is structured to appeal to engineering students who plan a career in manufacturing, and is especially structured to allow students to be involved in engineering co-op employment while pursuing the dual degree.

MOTIVATION

The undergraduate engineering degree programs at the University of Kentucky teach students how to design products and how to develop machinery and processes for the production of those products. These programs, however, do not emphasize the strong interplay between product design and the ease, quality, and costs of manufacturing. Nor do they focus on the management and control of production systems that make these products. Here one must effectively integrate man, material, machinery, and methods. For the successful and efficient delivery of materials, goods, and services in business, product design, process design, and production systems must be carefully integrated. To address this need, the Manufacturing Systems Engineering Program at the University of Kentucky was established as an interdisciplinary program that combines faculty and curriculum from across the College of Engineering and the College of Business and Economics in a master's degree program that prepares students for the design, engineering, operation, and management of manufacturing systems. It is a program intended to complement our other engineering disciplines for those individuals who wish to apply those disciplines in manufacturing.

A large proportion of undergraduate engineers at the University of Kentucky co-op and intern with manufacturing firms and ultimately take jobs in the manufacturing sector upon their graduation. Rather than postpone the study of manufacturing until their graduation, talented engineering students would have a much richer educational experience if the study of manufacturing could be integrated with their undergraduate engineering education and the work experience they undertake during their undergraduate years. With a strong manufacturing background they would be more fully prepared for the jobs they assume, and their career progress would be accelerated. The purpose of this proposal is to create a degree program that meets this need.

A major impetus for this dual degree program is a gift given to the Center for Manufacturing from Ford Motor Company. Ford asked that U.K. establish a program to give co-op students a stronger manufacturing background, particularly in the area of lean

manufacturing, where the Manufacturing Systems Engineering program courses are held in high regard by industry. Consequently, an innovative educational program was developed and piloted in the 2003 4-week Session called the Lean Manufacturing Bootcamp. This program involved 6 credit hours of instruction, where two courses addressing technical and managerial components of lean manufacturing were taught in an integrated manner. It was as an immersion experience built around hands-on laboratories called "training factories" where students had to analyze, design, implement, operate, manage, and continuously improve realistic manufacturing systems. They were taught technical, interpersonal, teamwork, problem solving, and managerial skills. Subsequently, they applied these skills in their factories, receiving strong coaching from the teaching assistants and faculty who delivered the program. They then carried this education into their summer jobs and activities completing projects such as redesign of an order fulfillment system from the warehouses at the Bluegrass Army Depot, and later went on to coop work terms at Ford, Toyota, and Honda. This "bootcamp" program will be expanded into the future into three summer programs (to be taken in consecutive summers) offering a total of 18 credit hours addressing the philosophy and basic tools of lean manufacturing, lean operations management, design of lean production systems, organizational learning, production control, and total productive maintenance. Students in the bootcamps and in the dual-degree program will apply their first summer toward their undergraduate degree as electives, and subsequent summers toward their future MSMSE. (Example curricula are attached that show possible applications of summer credits to undergraduate electives, as well as show how the co-op work rotations fit into the dual degree program.)

BACKGROUND

The College of Engineering offers 4-year, 132 credit-hour Bachelor of Science degrees in several engineering disciplines. The College of Engineering is accredited by the Accreditation Board of Engineering and Technology (ABET).

The MS in Manufacturing Systems Engineering (MSMSE) is a multi-disciplinary program administered by the College of Engineering at the University of Kentucky. The program is taught by faculty from departments across the College, including Mechanical Engineering, Chemical and Materials Engineering, Mining Engineering, and Electrical and Computer Engineering. The MSMSE program is available as a thesis option (Plan A) requiring 24 hours of course work, or as a project option (Plan B) requiring 30 hours of course work plus a project (MFS784), for a total of 33 hours. All students are expected to take a series of four core courses (MFS505, MFS605, MFS611, and MFS606). In addition, Plan A students must take two manufacturing electives and two other electives as well as write a thesis. Plan B students must take the four core courses with three manufacturing electives and three other electives, as well as present a written project at a final oral examination.

PROGRAM STRUCTURE

The dual degree program proposed herein is not limited to students interested in lean manufacturing, but would also be open to students with other manufacturing interests represented in the MSMSE program. The proposed structure of the program in many

ways parallels the existing joint MBA/engineering degree program. Specifically, the proposal is as follows:

- Upon completion of their sophomore year in Electrical or Mechanical Engineering, students should apply to the Graduate School to be conditionally admitted into the program. Full admission would require formal application to the Graduate School and a minimum GPA of 3.0 and completion of their junior year. Students must have a strong interest in manufacturing, and preference will be given to students who will be in a co-op work program.
- Students would take MSMSE courses offered during the summer sessions. In particular this would involve the lean manufacturing boot camps, but it might also involve other MSMSE courses should the MSMSE program elect to offer these classes. Summer delivery is employed so that the course schedule is compatible with a co-op rotation (see the attached rotation schedules) and the effective immersion approach to deliver can be practiced. Moreover, by taking these courses in concert with their co-op experiences, we believe this program will make the student's manufacturing internships a much stronger learning experience.
- Courses during the first summer bootcamp (during the summer session immediately following completion of the sophomore year) would not count directly towards the MSMSE degree, but would potentially apply as electives in the student's undergraduate degree program depending on the technical elective program of that department. For example, the courses for a student's first boot camp would count as technical electives for the ME and EE degrees.
- Students would be formally admitted to the Graduate School and the MSMSE graduate program during their junior year. Students who follow the curricula attached would then have courses during their second bootcamp count directly towards the MSMSE program as would any MSMSE course thereafter. Admission into the Graduate School will be through application to the Graduate School, and the student will be expected at the minimum to meet the admission standards of the Graduate School.
- Note that under this program, all course requirements required for both degrees as they currently exist must be fulfilled. In no case would it reduce the number of credit hours required for both degrees. For undergraduate majors where the courses taken after the sophomore year count as electives within their BS program, it would not increase the number of credit hours for both degrees.

Attached to this proposal are course schedules for students who enter the program after their sophomore year for Mechanical Engineering or Electrical Engineering majors. It assumes co-op rotations starting after the sophomore year. The course plans are for students who will take the project option (Plan B) of the MSMSE, but students would also be permitted to take a thesis option (Plan A).

Curriculum Plan: BSEE/MSMSE (Plan B)

Degree Requirements

The following curriculum meets the requirements for a B.S. in Electrical Engineering (provided the student satisfies University Studies requirements and graduation requirements of the College of Engineering) and a MS in Manufacturing Systems Engineering (Plan B).

Freshman Year

First Semester

EE 101 Electrical Engineering Professions Seminar.....	1
MA 113 Calculus I	4
CHE 105 General College Chemistry I	3
CS 115 Introduction to Computer Programming	3
ENG 101 Writing I	3
University Studies*	3
Total hours - 17	

Second Semester

MA 114 Calculus II	4
PHY 231 General University Physics.....	4
PHY 241 General University Physics Laboratory	1
ENG 102 Writing II	3
University Studies Oral Communication	3
Total hours - 15	

Sophomore Year

First Semester

MA 213 Calculus III	4
PHY 232 General University Physics.....	4
PHY 242 General University Physics Laboratory	1
EE211 Circuits I.....	4
EE 280 Design of Logic Circuits	3
Total hours - 16	

Second Semester

MA 214 Calculus IV.....	3
EE 221 Circuits II.....	3
EE 222 Electrical Engineering Laboratory I	2
Engineering/Science Elective (A).....	3
EE 380 Introduction to Semiconductor Devices	3
EE 380 Computer Organization	3
Total hours - 17	

Summer Semester 1

MFS 503 Lean Manufacturing Principles and Practices.....	3
MFS 526 Operations Management in Lean Manufacturing	3
Total hours - 6	

Summer Semester 2

EE 421G Signals and Systems I.....	3
EE 415G Electromechanics	3
Total hours - 6	

Junior Year

First Semester

Co-Op Tour #1.....	1
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Second Semester

EE416G Energy Conversion Laboratory.....	2
--	---

orEE481 Logical Design Laboratory.....	2
EE 461G, Introduction to Electronics	3
Engineering/Science Elective (B).....	3
Electrical Engineering Technical Electives	3
Mathematics Selection.....	3
University Studies*.....	3
Total hours - 17	

Summer Semester 1

MFS 599/612 (FP 1).....	3
MFS 525 Organizational Learning for Lean Man.....	3
Total hours - 6	

Summer Semester 2

Co-Op tour #2.....	1
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Senior Year #1

First Semester

EE462G Electronic Circuits Laboratory	2
EE 468G Introduction to Engineering Electromagnetics	4
Engineering/Science Elective (A/B)	3
EE 422G Signals and Systems II	3
MFS Elective	3
Total hours - 15	

Second Semester

Co-Op tour #3.....	1
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Summer Semester 2

MFS 699 (614 - TPM).....	3
MFS 699 (613 - FP 2)	3
Total hours - 6	

Senior Year #2

First Semester

Engineering/Science Elective (A/B)	3
Electrical Engineering Technical Electives	6
University Studies*	6
MFS 505 Modeling of Manuf Process and Machines.....	3
Total hours - 18	

Second Semester

EE 499 Electrical Engineering Design	3
Electrical Engineering Technical Electives	3
University Studies*	6
MFS 611.....	3
Total hours - 15	

Senior Year #3

First Semester

MFS 784 Research Project.....	3
MFS 605 Systems for Factory Information and Control.....	3
MFS 606 Seminar and Project in MSE.....	3
MFS Elective	3
Total hours - 12	

Years - 5.5

Undergrad degree - complete
Graduate degree - complete

MFS503 to be counted as undergraduate "Technical Elective", and will not count toward MSMSE degree.

MFS526 to be counted as undergraduate "Supportive Elective", and will not count toward MSMSE degree.

Curriculum Plan: BSME/MSMSE (Plan B)

Degree Requirements

The following curriculum meets the requirements for a B.S. in Mechanical Engineering (provided the student satisfies University Studies requirements and graduation requirements of the College of Engineering) and a MS in Manufacturing Systems Engineering (Plan B).

Freshman Year

First Semester

EGR 101 Introduction to Engineering	4
CHE 105 General College Chemistry I	3
MA 113 Calculus I	4
ENG 101 Writing I	3
University Studies*	3
Total hours - 17	

Second Semester

ME 151 Manufacturing Engineering	3
CHE 107 General College Chemistry II	3
MA 114 Calculus II	4
ENG 102 Writing II	3
COM 181 Basic Public Speaking	3
Total hours - 16	

Sophomore Year

First Semester

PHY 231 General University Physics	4
PHY 241 General University Physics Laboratory	1
MA 213 Calculus III	4
CS 221 First Course in Computer Science for Engineers	2
ME 205 Computer Aided Engineering Graphics	3
University Studies*	3
Total hours - 17	

Second Semester

ME 220 Engineering Thermodynamics I	3
PHY 232 General University Physics	4
PHY 242 General University Physics Laboratory	1
MA 214 Calculus IV	3
EM 221 Statics	3
University Studies*	3
Total hours - 17	

Summer Semester 1

MFS 503 Lean Manufacturing Principles and Practices	3
MFS 526 Operations Management in Lean Manufacturing	3
Total hours - 6	

Summer Semester 2

Total hours - 0

Junior Year

First Semester

Co-Op Tour #1	1
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Second Semester

ME 321 Engineering Thermodynamics II	3
ME 330 Fluid Mechanics	3
EM 302 Mechanics of Deformable Solids	3
EM 313 Dynamics	3
EM 305 Electrical Circuits and Electronics	3
Technical Elective**	3

Total hours - 18

Summer Semester 1

MFS 599/612 (FP 1)	3
MFS 525 Organizational Learning for Lean Man	3
Total hours - 6	

Summer Semester 2

Co-Op tour #2	1
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Senior Year #1

First Semester

ME 310 Engineering Experimentation I	3
ME 344 Mechanical Design	3
ME 325 Elements of Heat Transfer	3
ME 340 Introduction to Mechanical Systems	3
Mathematics Elective**	3
Total hours - 15	

Second Semester

Co-Op tour #3	1
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Summer Semester 2

MFS (614 - TPM)	3
MFS (613 - FP 2)	3
Total hours - 6	

Senior Year #2

First Semester

ME 407 Engineering Ethics	1
ME 311 Engineering Experimentation II	3
ME 440 Design of Control Systems	3
ME 501 Mechanical Design with Finite Element Methods	3
University Studies*	3
MFS 505 Modeling of Manu. Process and Machines	3
Total hours - 16	

Second Semester

ME 408 Safety Engineering	2
ME 412 Senior Design Project	3
University Studies*	3
MFS 605 Systems for Factory Information and Control	3
MFS 611	3
MFS Elective	3
Total hours - 17	

Senior Year #3

First Semester

MFS 784 Research Project	3
MFS Elective	3
MFS 606 Seminar and Project in MSE	3
Total hours - 9	

Years - 5.5

Undergrade degree - complete

Graduate degree - complete

MFS503/ME503 counts as undergraduate "Technical Elective", and does not count towards the MSMSE.

MFS526 counts as undergraduate "Supportive Elective", and does not count toward the MSMSE.



UNIVERSITY OF KENTUCKY

**Department of Electrical
and Computer Engineering**

*College of Engineering
453 F. Paul Anderson Tower
Lexington, KY 40506-0046
(859) 257-8042
Fax: (859) 257-3092
www.engr.uky.edu*

October 23, 2003

Graduate Studies C.Q.I. Committee
College of Engineering
University of Kentucky
Lexington, KY 40506-0108

To Whom It May Concern:

This letter represents my support for the proposed joint degree program for a BS in Electrical Engineering and a MS in Manufacturing Systems Engineering. This program with Manufacturing Systems Engineering would provide an option for our undergraduates who may be interested in graduate study in the manufacturing systems area.

Sincerely,

A handwritten signature in black ink, appearing to read 'Vijay Singh', with a large, stylized flourish extending from the end of the signature.

Professor Vijay Singh
Department Chair
Electrical and Computer Engineering



UNIVERSITY OF KENTUCKY

**Department of Mechanical
Engineering**
151 Ralph G. Anderson Building
Lexington, KY 40506-0503
Office: (859) 257-2662
Fax: (859) 257-3304
www.engr.uky.edu/me

February 13, 2004

Dr. Larry Holloway
Director, Center for Manufacturing
CRMS Building
College of Engineering
Lexington, KY 40506-0108

Dear Larry,

I am writing this letter to support the proposed Dual Degree Program for the M.S. in Manufacturing Systems Engineering and B.S. in Chemical, Electrical, Materials, or Mechanical Engineering. As understood, under this program, all course requirements required for both degrees as they currently exist must be fulfilled.

Our Student Affairs Officer, Janet Prewitt, encourages our mechanical engineering students interested in Manufacturing and Co-Operative Education to participate in the Lean Manufacturing Boot Camps and advises of the opportunity to earn the BS/MSE degree.

The feedback received has been extremely positive from students, faculty and employers.

Sincerely,

Kozo Saito
Professor and Director of Undergraduate Studies
TVA Professor
Mechanical Engineering

0506 - P020

MEMORANDUM

To: Jeanine Blackwell, Dean of the Graduate School
From: Larry Holloway, Director, UK Center for Manufacturing
Cc: Brian Jackson, I.S. Jawahir
Date: April 10, 2006
Re: Manufacturing Systems Engineering Dual Degree Program

At the December 2004 meeting of the Graduate Council, a dual degree program was presented for students to receive a BS in Electrical Engineering or Mechanical Engineering with a MS in Manufacturing Systems Engineering. The example curriculum plan for the program proposed that students take MFS503 and MFS526 in the summer between Sophomore and Junior year. These courses would count as electives in the undergraduate ME or EE degree, but would prepare the student for later coursework for the graduate Manufacturing Systems degree.

The Graduate Council at that time was concerned that students might not have Junior standing while taking those courses, and so imposed a stipulation that MFS503 and MFS526 would be offered instead at a new level as new courses MFS303 and MFS326.

The Manufacturing Systems Engineering program submitted lower-level versions of the MFS503 and MFS526 courses for approval in the department and the college of engineering. During the review, the faculty raised the concern that the Graduate School would be recommending the Manufacturing Systems Engineering program (a MS only program) to offer undergraduate courses. They pointed out that in the proposed curriculum plan, students would be taking the MFS503 and MFS526 courses following their Sophomore year, when they would have Junior standing. Junior standing is appropriate for students to take 5xx courses. Furthermore, as per SACS requirements, there exists separate grading criteria for undergraduates (which are Juniors and above) and graduate students in these courses. The faculty have requested the Graduate Council remove the requirement that the Manufacturing Systems Engineering program create undergraduate courses, and instead permit the dual degree program with the stipulation that the Manufacturing Systems Engineering program require and enforce Junior standing for enrollment in MFS503 and MFS526.

The Graduate School
University of Kentucky
Lexington, KY 40506

programs approved_Dual BS-MS Engr. txt
From: Robert B. Grossman [robert.grossman@uky.edu]
Sent: Friday, November 10, 2006 2:49 PM
To: Brothers, Sheila C
Cc: Steltenkamp MD, Carol; Deem, Jodelle F; Kim, Yoonbai; Petrone,
Karen; VanDyke, Eileen M; Heath, James R; Bhatt, Ramesh S; Richard B
Greissman
Subject: programs approved

Hi Sheila,

The Academic Programs Committee approves the following new programs
with no opposition and a positive recommendation:

University Scholars Agreement with Kentucky State Univ. in
Rehabilitation Counseling

PhD in Educational Science

Dual BS/MS Engineering

We are still awaiting some answers on the Clinical Nurse Leader Track
in MS Nursing before making a decision on it.

-- Bob

RECEIVED MAY 10 2006
RECEIVED AUG 29 2006

UNIVERSITY OF KENTUCKY
APPLICATION FOR CHANGE IN EXISTING COURSE: MAJOR & MINOR

1. Submitted by College of Engineering Date 05/01/06

Department/Division offering course Manufacturing Systems

2. Changes proposed:

(a) Present prefix & number MFS 503 010 Proposed prefix & number _____

(b) Present Title Lean Manufacturing Principles and Practices

New Title _____

(c) If course title is changed and exceeds 24 characters (Including spaces), include a sensible title (not to exceed 24 characters) for use on transcripts:

(d) Present credits: 3 Proposed credits: _____

(e) Current lecture: laboratory ratio _____ Proposed: _____

(f) Effective Date of Change: (Semester & Year) Summer 2006

3. To be Cross-listed as: _____
Prefix and Number Signature: Department Chair

4. Proposed change in Bulletin description:

(a) Present description (including prerequisite(s)):

(b) New description:

(c) Prerequisite(s) for course as changed: Enrollment be restricted to junior-level or above students

5. What has prompted this proposal?

6. If there are to be significant changes in the content or teaching objectives of this course, indicate changes:
no

7. What other departments could be affected by the proposed change?

8. Is this course applicable to the requirements for at least one degree or certificate at the University of Kentucky? Yes No

9. Will changing this course change the degree requirements in one or more programs? Yes No
If yes, please attach an explanation of the change.*

10. Is this course currently included in the University Studies Program? Yes No
If yes, please attach correspondence indicating concurrence of the University Studies Committee.

11. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System has been consulted.



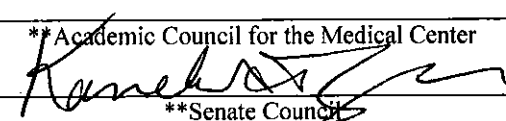
*NOTE: Approval of this change will constitute approval of the program change unless other program modifications are proposed.

**UNIVERSITY OF KENTUCKY
APPLICATION FOR CHANGE IN EXISTING COURSE: MAJOR & MINOR**

12. If the course is 400G or 500 level, include syllabi or course statement showing differentiation for undergraduate and graduate students in assignments, grading criteria, and grading scales. Check here if 400G-500.
13. Is this a minor change? Yes No
(NOTE: See the description on this form of what constitutes a minor change. Minor changes are sent directly from the Dean of the College to the Chair of the Senate Council. If the latter deems the change not to be minor, it will be sent to the appropriate Council for normal processing.)
14. Within the Department, who should be consulted for further information on the proposed course change?

Name: Jon Yingling Phone Extension: 859-2577-6262

Signatures of Approval:

 Department Chair	<u>5-1-06</u> Date
 Dean of the College	<u>8/23/06</u> Date
_____	_____
Date of Notice to the Faculty	
_____	_____
**Undergraduate Council	Date
_____	_____
**Graduate Council	Date
_____	_____
**Academic Council for the Medical Center	Date
 **Senate Council	<u>9-1-06</u>
_____	_____
Date of Notice to University Senate	

**If applicable, as provided by the Rules of the University Senate.

ACTION OTHER THAN APPROVAL

The Minor Change route for courses is provided as a mechanism to make changes in existing courses and is limited to one or more of the following:

- change in number within the same hundred series;
- editorial change in description which does not imply change in content or emphasis;
- editorial change in title which does not imply change in content or emphasis;
- change in prerequisite which does not imply change in content or emphasis;
- cross-listing of courses under conditions set forth in item 3.0;
- correction of typographical errors. [University Senate Rules, Section III - 3.1]

UNIVERSITY OF KENTUCKY
APPLICATION FOR CHANGE IN EXISTING COURSE: MAJOR & MINOR

1. Submitted by College of Engineering Date 05/02/06
Department/Division offering course Manufacturing Systems
2. Changes proposed:
(a) Present prefix & number MFS 526 Proposed prefix & number _____
(b) Present Title Operations Management in Lean Manufacturing
New Title _____
(c) If course title is changed and exceeds 24 characters (Including spaces), include a sensible title (not to exceed 24 characters) for use on transcripts: _____
(d) Present credits: _____ Proposed credits: _____
(e) Current lecture: laboratory ratio _____ Proposed: _____
(f) Effective Date of Change: (Semester & Year) Summer 2006
3. To be Cross-listed as: _____
Prefix and Number _____ Signature: Department Chair _____
4. Proposed change in Bulletin description:
(a) Present description (including prerequisite(s)):

(b) New description:

(c) Prerequisite(s) for course as changed: Enrollment be restricted to junior level or above students
5. What has prompted this proposal?

6. If there are to be significant changes in the content or teaching objectives of this course, indicate changes:

7. What other departments could be affected by the proposed change?

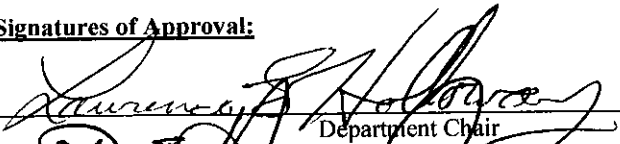
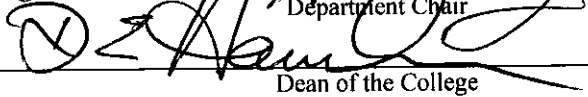
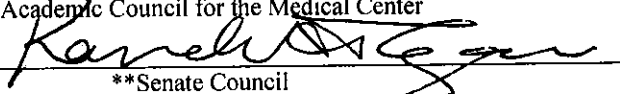
8. Is this course applicable to the requirements for at least one degree or certificate at the University of Kentucky? Yes No
9. Will changing this course change the degree requirements in one or more programs? Yes No
If yes, please attach an explanation of the change.*
10. Is this course currently included in the University Studies Program? Yes No
If yes, please attach correspondence indicating concurrence of the University Studies Committee.
11. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System has been consulted.

*NOTE: Approval of this change will constitute approval of the program change unless other program modifications are proposed.

**UNIVERSITY OF KENTUCKY
APPLICATION FOR CHANGE IN EXISTING COURSE: MAJOR & MINOR**

12. If the course is 400G or 500 level, include syllabi or course statement showing differentiation for undergraduate and graduate students in assignments, grading criteria, and grading scales. Check here if 400G-500.
13. Is this a minor change? Yes No
(NOTE: See the description on this form of what constitutes a minor change. Minor changes are sent directly from the Dean of the College to the Chair of the Senate Council. If the latter deems the change not to be minor, it will be sent to the appropriate Council for normal processing.)
14. Within the Department, who should be consulted for further information on the proposed course change?
Name: David Veech Phone Extension: 257-6262

Signatures of Approval:

 Department Chair	<u>5-1-06</u> Date
 Dean of the College	<u>8/23/06</u> Date
	Date of Notice to the Faculty
**Undergraduate Council	Date
**Graduate Council	Date
**Academic Council for the Medical Center	Date
 **Senate Council	<u>9-1-06</u> Date of Notice to University Senate

**If applicable, as provided by the Rules of the University Senate.

ACTION OTHER THAN APPROVAL

The Minor Change route for courses is provided as a mechanism to make changes in existing courses and is limited to one or more of the following:

- change in number within the same hundred series;
- editorial change in description which does not imply change in content or emphasis;
- editorial change in title which does not imply change in content or emphasis;
- change in prerequisite which does not imply change in content or emphasis;
- cross-listing of courses under conditions set forth in item 3.0;
- correction of typographical errors. [University Senate Rules, Section III - 3.1]



UNIVERSITY OF KENTUCKY

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PROVOST BUDGET OFFICE

November 20, 2006

Kaveh Tagavi, Chair
University Senate Council
201 Main Building
CAMPUS 0032

Dear Dr. Tagavi:

I am writing, on behalf of the Provost, concerning the feasibility of the proposed Concurrent Degree for a BS in Mechanical Engineering or Electrical Engineering with a MS in Manufacturing Systems Engineering. I understand the proposal has been approved by the Graduate Council which will forward its recommendation to the Academic Programs Committee of the Faculty Senate.

I have discussed this matter with Dr. Larry Holloway, Director of the Center for Manufacturing, which is involved in the delivery of the MS in Manufacturing Systems Engineering portion of the program. He has indicated that the program is expected to add 6 to 10 new students per year in the Manufacturing Systems Engineering program. This level of students can be absorbed into the current manufacturing courses without serious additional instructional burden. Any administrative burden for the MS program due to these students will be small and will also not require additional staffing. The most significant additional burden associated with these new students will be the need for faculty advisors for their MS projects or theses. It is expected that most of these students will do MS projects. Dr. Holloway is currently in discussion with additional faculty members with manufacturing interests who are within UK but from outside the current program. These additional faculty members would represent an additional advising resource for the additional students.

Regarding the impact on the Mechanical Engineering or Electrical Engineering program where the students would receive their BS, the program is not expected to add any additional burden. This is because the program will be attracting students already enrolled in these programs.

Given the above information, the affected programs would seem to have sufficient resources to ensure faculty and student success. I am certifying this program as administratively feasible.

Sincerely,

Karen T. Combs
Vice Provost for Budget and Administrative Services

Cc: Kumble Subbaswamy
Heidi Anderson
Jeannine Blackwell
Connie Ray
Phil Kraemer

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