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OFFICE OF THE
LEARNING COUNCIL

Course Information

Date Submitted: 9/2/2015

Current Prefix and Number: MFS - Mfg Systems Engineering , MFS 507 DESIGN FOR MANUFACTURING

Other Course:

Proposed Prefix and Number: MFS 507

What type of change is being proposed?

Major – Add Distance Learning

Should this course be a UK Core Course? No

1. General Information

a. Submitted by the College of: ENGINEERING

b. Department/Division: Engineering

c. Is there a change in 'ownership' of the course? No

If YES, what college/department will offer the course instead: Select...

e. Contact Person

Name: Fazleena Badurdeen

Email: badurdeen@engr.uky.edu

Phone: 323-3252

Responsible Faculty ID (if different from Contact)

Name: I.S. Jawahir

Email: is.jawahir@uky.edu

Phone: 323-3239

f. Requested Effective Date

Semester Following Approval: No OR Effective Semester: Spring 2016

2. Designation and Description of Proposed Course

a. Current Distance Learning (DL) Status: Please Add

b. Full Title: DESIGN FOR MANUFACTURING

Proposed Title: DESIGN FOR MANUFACTURING

c. Current Transcript Title: DESIGN FOR MANUFACTURING

Proposed Transcript Title: DESIGN FOR MANUFACTURING

d. Current Cross-listing: Same as ME 507

Proposed – ADD Cross-listing :

Proposed – REMOVE Cross-listing:

e. Current Meeting Patterns

LECTURE: 3

Proposed Meeting Patterns

LECTURE: 3

f. Current Grading System: ABC Letter Grade Scale

Proposed Grading System: *Letter (A, B, C, etc.)*

g. Current number of credit hours: 3

Proposed number of credit hours: 3

h. Currently, is this course repeatable for additional credit? No

Proposed to be repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester? No

2i. Current Course Description for Bulletin: The topics will include fundamentals of concurrent engineering, product life cycle, product specification, standardization, functional requirements and datum features, selection of materials and manufacturing processes, cost analysis, case studies on designing for quality, economy, manufacturability and productivity.

Proposed Course Description for Bulletin: This course will provide a strong foundation in the concepts, theories and applications of design engineering methodologies for effective manufacture of high quality products at low costs and high productivity. In addition to the lectures, the assembly and design analysis of "product based assembly kits" will be used to apply and help learn the tools presented in class. The final project includes the application of these tools to re-design a given product from a manufacturing and assembly perspective.

2j. Current Prerequisites, if any: Prereq: ME 344 and engineering standing.

Proposed Prerequisites, if any: Prereq: ME 344 or Instructor Permission

2k. Current Supplementary Teaching Component:

Proposed Supplementary Teaching Component:

3. Currently, is this course taught off campus? No

Proposed to be taught off campus? No

If YES, enter the off campus address:

4. Are significant changes in content/student learning outcomes of the course being proposed? No

If YES, explain and offer brief rationale:

5a. Are there other depts. and/or pgms that could be affected by the proposed change? No

If YES, identify the depts. and/or pgms:

5b. Will modifying this course result in a new requirement of ANY program? No

If YES, list the program(s) here:

6. Check box if changed to 400G or 500: No

Distance Learning Form

Instructor Name: Dr. I.S. Jawahir

Instructor Email: is.jawahir@uky.edu

Internet/Web-based: Yes

Interactive Video: No

Hybrid: No

1. How does this course provide for timely and appropriate interaction between students and faculty and among students?

Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations? The course syllabus conforms to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations. The use of Blackboard, email, and web-conferencing provides for timely and appropriate interaction between students and faculty.

2. How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc. Student learning outcomes are assessed for all sections of the course, along with the usual TCE evaluations.

3. How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc. Standard university policy will be followed in all academic aspects, and all quizzes and exams will be proctored on-site.

4. Will offering this course via DL result in at least 25% or at least 50% (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above? Yes

If yes, which percentage, and which program(s)? 100%; Manufacturing Systems Engineering MS Program. The MFS degree offered has been offered in the face-to-face mode since 1994. The MFS 507 course is an elective course in that program. As the degree is being transitioned to an online mode, with courses offered starting 2015, there is a need to convert MFS 507 for online delivery. The course will be available for on-campus for those who wish to take it. The learning outcomes or course content will not change through the conversion to online delivery.

5. How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting? Access to student services will be the same as for other web-based courses in the University.

6. How do course requirements ensure that students make appropriate use of learning resources? Students will be required to access resources on-line using venues such as Blackboard

7. Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program. Activities will be designed as web-based interactive games/simulations and posted on Blackboard for student access.

8. How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Information Technology Customer Service Center (<http://www.uky.edu/UKIT/>)? Syllabus provides this access information.

9. Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? YES

If no, explain how student enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology. N/A

10. Does the syllabus contain all the required components? YES

11. I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name: Dr. I.S. Jawahir

SIGNATURE|STEPHEN|L S Stephens|MFS 507 CHANGE Cross-List Chair Review|20150311

SIGNATURE|BJSTOK0|Barbara J Brandenburg|MFS 507 CHANGE College Review|20150406

SIGNATURE|JMETT2|Joanie Ett-Mims|MFS 507 CHANGE Undergrad Council Review|20150722

SIGNATURE|BJSTOK0|Barbara J Brandenburg|MFS 507 ZCOURSE_CHANGE Approval Returned to College|20150903

SIGNATURE|JMETT2|Joanie Ett-Mims|MFS 507 CHANGE Undergrad Council Review|20151014

SIGNATURE|ZNNIKO0|Roshan Nikou|MFS 507 CHANGE Graduate Council Review|20151210

Course Change Form

https://myuk.uky.edu/sap/bc/soap/rfc?services=

Generate R

Open in full window to print or save

Attachments:

Browse...

Upload File

ID	Attachment
Delete: 5294	MFS 507 Design for Manufacturing Course Syllabus 0
Delete: 5507	DL explanation.pdf

First 1 Last

NOTE: Start form entry by choosing the Current Prefix and Number (*denotes required fields)

Current Prefix and Number: MFS - Mfg Systems Engineering MFS 507 DESIGN FOR MANUFACTURING		Proposed Prefix & Number: (example: PHY 401G) <input checked="" type="checkbox"/> Check if same as current	MFS 507
* What type of change is being proposed?		<input type="checkbox"/> Major Change <input checked="" type="checkbox"/> Major - Add Distance Learning <input type="checkbox"/> Minor - change in number within the same hundred series, exceptio the same "hundred series" <input type="checkbox"/> Minor - editorial change in course title or description which does not in content or emphasis <input type="checkbox"/> Minor - a change in prerequisite(s) which does not imply a change i content or emphasis, or which is made necessary by the elimination or alteration of the prerequisite(s) <input type="checkbox"/> Minor - a cross listing of a course as described above	
Should this course be a UK Core Course? <input type="radio"/> Yes <input checked="" type="radio"/> No If YES, check the areas that apply: <input type="checkbox"/> Inquiry - Arts & Creativity <input type="checkbox"/> Composition & Communications - II <input type="checkbox"/> Inquiry - Humanities <input type="checkbox"/> Quantitative Foundations <input type="checkbox"/> Inquiry - Nat/Math/Phys Sci <input type="checkbox"/> Statistical Inferential Reasoning <input type="checkbox"/> Inquiry - Social Sciences <input type="checkbox"/> U.S. Citizenship, Community, Diversity <input type="checkbox"/> Composition & Communications - I <input type="checkbox"/> Global Dynamics			
1. General Information			
a. Submitted by the College of: ENGINEERING		Submission Date: 9/2/2015	
b. Department/Division: Engineering			
c.* Is there a change in "ownership" of the course? <input type="radio"/> Yes <input checked="" type="radio"/> No If YES, what college/department will offer the course instead? <input type="text" value="Select..."/>			
e.* * Contact Person Name: Fazleena Badurdeen Email: badurdeen@engr.uky.edu Phone: 323-3252 * Responsible Faculty ID (if different from Contact) I.S. Jawahir Email: is.jawahir@uky.edu Phone: 323-3239			
f.* Requested Effective Date:		<input type="checkbox"/> Semester Following Approval	OR <input type="checkbox"/> Specific Term: ² Spring 2016
2. Designation and Description of Proposed Course.			
a. Current Distance Learning (DL) Status:		<input type="radio"/> N/A <input type="radio"/> Already approved for DL* <input checked="" type="radio"/> Please Add <input type="radio"/> Please Drop	
*If already approved for DL, the Distance Learning Form must also be submitted <u>unless</u> the department affirms (by checking this box) tha proposed changes do not affect DL delivery.			
b. Full Title: DESIGN FOR MANUFACTURING		Proposed Title: * DESIGN FOR MANUFACTURING	
c. Current Transcript Title (if full title is more than 40 characters):		DESIGN FOR MANUFACTURING	
c. Proposed Transcript Title (if full title is more than 40 characters):		DESIGN FOR MANUFACTURING	
d. Current Cross-listing:		<input type="checkbox"/> N/A	OR Currently ³ Cross-listed with (Prefix & Number): Same as

Proposed – ADD ² Cross-listing (Prefix & Number):					
Proposed – REMOVE ^{2,4} Cross-listing (Prefix & Number):					
e. Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours² for each meeting pattern type.					
Current:	Lecture 3	Laboratory ²	Recitation	Discussion	Indep. Stu.
	Clinical	Colloquium	Practicum	Research	Residency
	Seminar	Studio	Other	Please explain:	
Proposed: *	Lecture 3	Laboratory ²	Recitation	Discussion	Indep. Stu.
	Clinical	Colloquium	Practicum	Research	Residency
	Seminar	Studio	Other	Please explain:	
f. Current Grading System:		ABC Letter Grade Scale			
Proposed Grading System:*		<input checked="" type="radio"/> Letter (A, B, C, etc.) <input type="radio"/> Pass/Fail <input type="radio"/> Medicine Numeric Grade (Non-medical students will receive a letter grade) <input type="radio"/> Graduate School Grade Scale			
g. Current number of credit hours:	3	Proposed number of credit hours:*	3		
h.* Currently, is this course repeatable for additional credit?					<input checked="" type="radio"/> Yes <input type="radio"/>
* Proposed to be repeatable for additional credit?					<input type="radio"/> Yes <input checked="" type="radio"/>
If YES:	Maximum number of credit hours:				
If YES:	Will this course allow multiple registrations during the same semester?				<input type="radio"/> Yes <input checked="" type="radio"/>
i. Current Course Description for Bulletin:					
The topics will include fundamentals of concurrent engineering, product life cycle, product specification, standardization, functional requirements and datum features, selection of materials and manufacturing processes, cost analysis, case studies on designing for quality, economy, manufacturability and productivity.					
* Proposed Course Description for Bulletin:					
This course will provide a strong foundation in the concepts, theories and applications of design engineering methodologies for effective manufacture of high quality products at low costs and high productivity. In addition to lectures, the assembly and design analysis of "product based assembly kits" will be used to apply and help learn the tools presented in class. The final project includes the application of these tools to re-design a given product from manufacturing and assembly perspective.					
j. Current Prerequisites, if any:					
Prereq: ME 344 and engineering standing.					
* Proposed Prerequisites, if any:					
Prereq: ME 344 or Instructor Permission					
k. Current Supplementary Teaching Component, if any:					<input type="radio"/> Community-Based Experience <input type="radio"/> Service Learning <input type="radio"/> Both

	Proposed Supplementary Teaching Component:	<input type="radio"/> Community-Based Experience <input type="radio"/> Service Learning <input type="radio"/> Both <input type="radio"/> No Change
3.	Currently, is this course taught off campus?	<input type="radio"/> Yes <input checked="" type="radio"/> No
*	Proposed to be taught off campus?	<input type="radio"/> Yes <input checked="" type="radio"/> No
	If YES, enter the off campus address:	
4.*	Are significant changes in content/student learning outcomes of the course being proposed?	<input type="radio"/> Yes <input checked="" type="radio"/> No
	If YES, explain and offer brief rationale:	
5.	Course Relationship to Program(s).	
a.*	Are there other depts and/or pgms that could be affected by the proposed change?	<input type="radio"/> Yes <input checked="" type="radio"/> No
	If YES, identify the depts. and/or pgms:	
b.*	Will modifying this course result in a new requirement ² for ANY program?	<input type="radio"/> Yes <input checked="" type="radio"/> No
	If YES ² , list the program(s) here:	
6.	Information to be Placed on Syllabus.	
a.	<input type="checkbox"/> Check box if changed to 400G or 500.	If changed to 400G- or 500-level course you must send in a syllabus and <i>you must include the differentiation</i> undergraduate and graduate students by: (i) requiring additional assignments by the graduate students; and establishing different grading criteria in the course for graduate students. (See <i>SR 3.1.4.</i>)

Distance Learning Form

This form must accompany every submission of a new/change course form that requests distance learning delivery. This form may be required when changing a course already approved for distance learning delivery.
fields are required!

Introduction/Definition: For the purposes of the Commission on Colleges Southern Association of Colleges and Schools accreditation review, *distance learning* is defined as educational process in which the majority of the instruction (interaction between students and instructors and among students) in a course occurs when students and instructor are not in the same place. Instruction may be synchronous or asynchronous. A distance learning (DL) course may employ correspondence study, or audio, video, or computer technology.

A number of specific requirements are listed for DL courses. **The department proposing the change in delivery method is responsible for ensuring that the requirements are satisfied at the individual course level.** It is the responsibility of the instructor to have read and understood the university-level assurances regarding an equivalent course for students utilizing DL (available at <http://www.ukv.edu/USC/New/forms.htm>).

Course Number and Prefix: ME/MFS 507	Date: 3/10/2015
Instructor Name: Dr. I.S. Jawahir	Instructor Email: is.jawahir@uky.edu
Check the method below that best reflects how the majority of the course content will be delivered.	
Internet/Web-based <input checked="" type="checkbox"/>	Interactive Video <input type="checkbox"/>
Hybrid <input type="checkbox"/>	

Curriculum and Instruction

1. How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Syllabus Guidelines, specifically the Distance Learning Considerations?
 The course syllabus conforms to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations. The use of Blackboard, email, and web-conferencing provides for timely and appropriate interaction.
2. How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course assessment of student learning outcomes, etc.
 Student learning outcomes are assessed for all sections of the course, along with the usual TCE evaluations.

3. How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic policy; etc.
Standard university policy will be followed in all academic aspects, and all quizzes and exams will be proctored on-site.

4. Will offering this course via DL result in at least 25% or at least 50%* (based on total credit hours required for completion) of a degree program being offered via a mode as defined above?
Yes

Which percentage, and which program(s)?

100%; Manufacturing Systems Engineering MS Program. The MFS degree offered has been offered in the face-to-face mode since 1994. The MFS 507 course is an elective course in that program. As the degree is being transitioned to DL, the effective date of the course's DL delivery will be the date of approval.
*As a general rule, if approval of a course for DL delivery results in 50% or more of a program being delivered through DL, the effective date of the course's DL delivery will be the date of approval.

5. How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting?
Access to student services will be the same as for other web-based courses in the University.

Library and Learning Resources

6. How do course requirements ensure that students make appropriate use of learning resources?

Students will be required to access resources on-line using venues such as Blackboard

7. Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.

Activities will be designed as web-based interactive games/simulations and posted on Blackboard for student access

Student Services

8. How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and the course, such as the Information Technology Customer Service Center (<http://www.uky.edu/UKIT/>)?
Syllabus provides this access information.

9. Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)?

- Yes
 No

If no, explain how students enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

N/A

10. Does the syllabus contain all the required components, below? Yes

- Instructor's *virtual* office hours, if any.
- The technological requirements for the course.
- Contact information for Distance Learning programs (<http://www.uky.edu/DistanceLearning>) and Information Technology Customer Service Center (<http://www.uky.edu/UKIT/Help/>; 859-218-HELP).
- Procedure for resolving technical complaints.
- Preferred method for reaching instructor, e.g. email, phone, text message.
- Maximum timeframe for responding to student communications.
- Language pertaining academic accommodations:
 - "If you have a documented disability that requires academic accommodations in this course, please make your request to the University Disability Resource Center. The Center will require current disability documentation. When accommodations are approved, the Center will provide me with a Letter of Accommodation detailing the recommended accommodations. Contact the Disability Resource Center, Jake Karnes, Director at 859-257-2754 or jkarnes@email.uky.edu
- Specific dates of face-to-face or synchronous class meetings, if any.
- Information on Distance Learning Library Services (<http://www.uky.edu/Libraries/DLIS>)
 - Carla Cantagallo, DL Librarian
 - Local phone number: 859 257-0500, ext. 2171; long-distance phone number: (800) 828-0439 (option #6)
 - Email: dliservice@email.uky.edu
 - DL Interlibrary Loan Service: http://www.uky.edu/Libraries/libpage.php?web_id=253&lib_id=16

11. I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name:

Dr. I.S. Jawahir

Abbreviations: DLP = Distance Learning Programs ATG = Academic Technology Group Customer Service Center = 859-218-HELP (<http://www.uky.edu/UKIT/Help/>)

Revised 8/09

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- ¹¹¹See comment description regarding minor course change. *Minor changes are sent directly from dean's office to Senate Council Chair.* If Chair deems the change as "n form will be sent to appropriate academic Council for normal processing and contact person is Informed.
 - ¹¹²Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.
 - ¹¹³Signature of the chair of the cross-listing department is required on the Signature Routing Log.
 - ¹¹⁴Removing a cross-listing does not drop the other course – it merely unlinks the two courses.
 - ¹¹⁵Generally, undergrad courses are developed such that one semester hr of credit represents 1 hr of classroom meeting per wk for a semester, exclusive of any lab meeting generally represents at least two hrs per wk for a semester for 1 credit hour. (See SR 5.2.1.)
 - ¹¹⁶You must *also* submit the Distance Learning Form in order for the course to be considered for DL delivery.
 - ¹¹⁷In order to change a program, a program change form must also be submitted.

University of Kentucky
ME/MFS 507 DESIGN FOR MANUFACTURING
Spring 2016

Course Description:

This course will provide a strong foundation in the concepts, theories and applications of design engineering methodologies for effective manufacture of high quality products at low costs and high productivity. In addition to the lectures, the assembly and design analysis of “product based assembly kits” will be used to apply and help learn the tools presented in class. The final project includes the application of these tools to re-design a given product from a manufacturing and assembly perspective.

Prerequisite or Concurrent: ME 344 or Instructor permission

Instructor:

Dr. I.S. Jawahir

Room No. 414B, CRMS Building,

Phone: 323-3239, E-mail: is.jawahir@uky.edu

Virtual Office: <https://connect.uky.edu/MFS507-online/>

Office hours: Weekly, on Tuesdays from 6:00 – 7:00 PM (online through Adobe Connect)

Student Learning Outcomes:

Upon completion of this course, the students should be able to

1. Gain a better understanding of the functionality of manufactured products and process of design from the manufacturing point of view.
2. Understand the theory and practice of product design in terms of value proposition, functional design, concept selection, product specification and standardization, and dimensional and geometric dimensions, and tolerances.
3. Become familiar with product life-cycle and sustainability issues covering environmental, economic and societal issues.
4. Develop a greater understanding of the various manufacturing processes
5. Gain new knowledge on cost analysis in product design for manufacture.

Required Material:

Although not required, the recommended textbook for this course is:

Product Design for Manufacture and Assembly (Third Edition), by G. Boothroyd, P. Dewhurst and W. Knight, CRC Press, 2011

In addition, the purchase of simple model kits is required in order to complete the homework labs and assignments. All students must have a webcam and microphone to participate in the virtual meetings. Access to a scanner may be required. The minimum technical requirements to be successful in an on-line course are available at: <http://www.uky.edu/DistanceLearning/current/technology/techReqs.html> (to be changed to specific requirements link on course website later)

Reference Texts (optional):

Some additional reference texts that will help you understand the topics covered are:

- Engineering Design and Design for Manufacturing by John R. Dixon and Corrado Poli, 1995
- Design for Manufacturability, SME Handbook, TMEH Series, Vol.6, 1992.
- Design for Manufacturing (Edited by Y. Akao), SME, 1990.
- Designing for Economical Production by H.E. Trucks, 2nd Edition, SME, 1987.
- Design to Cost by J.V. Michaels and W.P. Wood, John Wiley, 1989.
- Engineering Quality by Design by T.B. Barker, Marcel Dekker Inc., 1990.
- Assembly Automation by G. Boothroyd, C. Poli and L.E. Murch, Marcel Dekker, 1982.
- Quality Engineering Using Robust Design by Madhav S. Phadke, Prentice Hall, 1989.
- Total Design by S. Pugh, Addison Wesley, 1991.
- Product Design and Development by Karl Ulrich, Steven Eppinger, 2011

Grading:

The grade for the course will be based on the following assignments.

In-Class Assignments, Quizzes and Participation	(10%)
Mid-term Exam	
(on Design for Manufacturing and Assembly Process*	(15%)
Assignment 1 (Due in Week 6)	(20%)
Assignment 2* (Due in Week 10)	(20%)
Final project	(25%)
Final project Presentation	(10%)

**Additional questions/assignments will be given for students taking this course for graduate credit.*

Grading Scale:

Grades will be assigned as follows:

Undergraduate Students: A = 90%-100%; B = 80%-89%; C=70%-79%; D= 60%-69%;E= Below 60%

Graduate Students: A = 90%-100%; B = 80%-89%; C=70%-79%; E= Below 70%

Graduate Students: For those students taking the course for graduate credit, a differential in grade assignment compared to that for undergraduates is expected. The level of difficulty in the course project is also expected to be higher for graduate students. Also, graduate students must obtain a grade of 'C' or better to pass the course.

Quizzes: A short quiz will be given at the beginning of 4 module based on the previous module's course content. The students will be notified during the previous week lecture if a quiz will be given.

Homework Assignments: Homework will be assigned with at least three weeks to complete and it will be due on the indicated date. Homework must be submitted electronically through Canvas by 11:59 PM on the date it is due. All grades for the homework assignments will be posted on Canvas. All homework submitted on Canvas must be completed on white paper (lined notebook paper or white printer paper), scanned and submitted in pdf format. You can also use MS Word, MS PowerPoint, MS Excel, etc., to provide answers to the homework. If so, all the documents must be converted into pdf format before being submitted through Canvas. See below for late homework policy.

Late homework will not be accepted but will be considered on a case by case basis under special circumstances. Such instances should be submitted to the instructor via email.

Final Project: The final project will be assigned mid way through the semester. Presentations for the final project will be scheduled in the week of XXX through Adobe Connect. The final report will be due at the time of the presentation.

Format for Submission: All assignments and reports submitted must meet the following guidelines for full credit to be given:

1. Use standard 8 ½ by 11 paper (unless otherwise stated), lined or unlined. Do not use paper from a spiral bound notebook.
2. Handwritten material must be legible when scanned. Use a suitably dark pen or pencil, and do not submit a camera photo.

Exam: The mid-term exam (after DFMA fundamentals - week 4) will test the student's understanding of the intended learning centered around the Design for Manufacturing and Assembly process. The exam is closed-book. Proctored exams will be administered at various campuses, arrangements to be made. In most instances a proctoring fee will be incurred. The use of cell phones, MP3 players, or any other electronic device (other than a calculator) during the exams will be considered cheating. Cell phone calculators may not be used during exams.

Mid-term Grade: An estimate of the midterm grade will be made available prior to the withdrawal deadline.

Attendance: Attendance in all the synchronous sessions is mandatory. See below for policy regarding Excused Absences. A grade of zero will be given for all unexcused absences from exams. Make-ups will be given only in cases of excused absences. Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class.

Student Interaction:

Communication: Communication between instructor and student will be via email or virtual office meetings (<https://connect.uky.edu/lean-online/>). The most suitable time for regular meetings via Adobe Connect will be established at the beginning of the semester.

E-mail: UK email addresses will be used. Students must activate e-mail forwarding if they prefer another primary e-mail address.

Canvas Access: Canvas will be used to communicate course content, announcements, exam grades, etc. To access UK's Canvas go to www.uky.edu and click on LINK BLUE then CANVAS.

Technical Support: Students experiencing difficulty with delivery of the course material should contact the instructor or the UK help desk. Links to UK help are available on the Canvas login page. For difficulties with Canvas or logins, contact the Teaching and Academic Support Center <http://www.uky.edu/ukit/atg/tasc>, or the Information Technology Customer Support Center at <https://www.uky.edu/ukit/help>, and inform the instructor.

Audio-conferencing:

There are several options for the audio connection – use the one indicated by the instructor

- a. Direct phone line (recommended if only person-to-person conversation)
- b. Web-audio within Adobe connect. After logging in, push “TALK” when you wish to speak.

Tentative Course Outline:

Week	Content Available on BB	Module	Assignment Due Dates
1		Introduction: Course Description, Scope, Basic DFM Concepts. First Project Preparation	
		Homework Number 1 Assigned	
2		Value Proposition and Design for Manufacturing Principles	
3		Design for Manufacturing Process and Rule Book	
		Test on Design for Manufacturing and Assembly Process	
4		Introduction to Design for Sustainable Products and Processes	
5		Injection Molding	
		Homework Number 2 Assigned	
6		Injection Molding Part II and Managing Manufacturing Variation	
7		Model Based Engineering (It's a 3D World) and Design Specifications	
8		Geometric Dimensioning and Tolerancing	
		Final Project Homework Assigned	
9		Sustainable Value Creation and the Role of Feedback in the Product Delivery Process	
10		Pugh Concept Selection in Product Design	
11		Material and Manufacturing Process Selection	
12		Machining Considerations in DFM	
13		Product Delivery Processes and the Lean Launch Pad	
14		Concurrent Engineering	
15		Robust Design and Risk Management (FMEA)	
16		Final Presentations	

Cells marked yellow to be completed based on semester dates

Changes may be made to any part of this syllabus during any time in the semester. Students will be full participants in the discussion about those changes and the final decision will be made collectively.

Excused Absences: Students need to notify the professor of absences prior to class when possible. S.R. 5.2.4.2 defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit "reasonable cause for nonattendance" by the professor.

Students anticipating an absence for a major religious holiday are responsible for *notifying the instructor in writing of anticipated absences* due to their observance of such holidays *no later than the last day in the semester to add a class*.

Information regarding dates of major religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-2754).

Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused or unexcused) per university policy.

Verification of Absences: Students may be asked to verify their absences in order for them to be considered excused. Senate Rule 5.2.4.2 states that faculty have the right to request "appropriate verification" when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

Late Submission Policy: Students who wish to submit a homework assignment/report later than the due date should obtain permission in advance from the instructor; otherwise, it will be treated as failure to submit the assignment as required. The number of additional days provided to submit the assignment/report will be decided by the instructor based on the reasoning for the delay.

Points will be deducted for every late submitted assignment/report if delayed further than the extended deadline. Five percent of the grade will be taken off for each day the submission is delayed from the newly stipulated deadline.

Make-up Policy for Missed Work with an Excused Absence: Those students who have an excused absence will have one week to contact instructor regarding missed graded work.

Academic Integrity:

Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: <http://www.uky.edu/Ombud>. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Part II of *Student Rights and Responsibilities* (available online <http://www.uky.edu/StudentAffairs/Code/part2.html>) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about the question of plagiarism involving their own work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work, which a student submits as his/her own, whoever that other person may be.

Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, the student, and the student alone must do it. When a student's assignment involves research in outside sources of information,

the student must carefully acknowledge exactly what, where and how he/she employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas, which are so general, and freely circulated as to be a part of the public domain (Section 6.3.1).

****Please note: Any assignment you turn in may be submitted to an electronic database to check for plagiarism.*

For information on Distance Learning Library Services go to <http://www.uky.edu/Libraries/DLLS>. You can also contact Carla Cantagallo, DL Librarian through phone (859-257-0500 ext. 2171 or long-distance phone number: 800-828-0439) or email (dllservice@email.uky.edu).

Accommodations due to disability:

If you have a documented disability that requires academic accommodations in this course, please make your request to the University Disability Resource Center. The Center will require current disability documentation. When accommodations are approved, the Center will provide you with a Letter of Accommodation which details the recommended accommodations. Contact the Disability Resource Center: Jake Karnes, Director by phone 859-257-2754 or email address: jkarnes@email.uky.edu.

Ett, Joanie M

From: Badurdeen, Fazleena F
Sent: Tuesday, September 29, 2015 2:02 PM
To: Roccanova, Anthony
Cc: Ett, Joanie M; Brandenburg, Barbara J
Subject: UGC Review of MFS 507 and MFS 556

Dear Prof. Roccanova,

I'm writing to follow-up regarding the questions we had in relation to the MFS 507 and MFS 556 course change forms that were submitted and are under review at the UGC.

Upon checking with Joanie Ett, we were informed that additional clarification was required regarding why the courses are being changed to DL. She also requested that I follow-up with you, as per the email below.

As was mentioned in the follow-up and clarifications provided to UGC, the reason these courses are being offered in the DL mode is that the Manufacturing Systems MS Program (course prefix – MFS) is being transitioned for online delivery. MFS 507 is a course that has been in this program for many years. MFS 556 is currently offered as ME 556 and we are interested in cross-listing it as MFS 556 and offering it in the DL mode. This course is also often taught by our faculty in the Paducah campus, and therefore, not available to ME students in the Lexington campus. Thus, offering this in the DL mode will make also more accessible to even the ME students on campus. MFS 507, too, will be available to on-campus students who can take it in the DL mode.

Can you please let me know if additional documentation is necessary and, if so, what they should be? Also, if needed, as program DGS I would be very glad to attend your next UGC meeting to answer any questions they may have.

The program enrolled students to the online program this fall semester and we are very keen on making sure courses are converted and made available to these students.

Thanks in advance for your assistance in this regard.

Fazleena

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