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OFFICE OF THE SENATE COUNCIL

Course Information

Date Submitted: 5/12/2015

Current Prefix and Number: ME - Mechanical Engineering , ME 151 MANUFACTURING ENGR

Other Course:

Proposed Prefix and Number: ME 251

What type of change is being proposed?

Major Change

Should this course be a UK Core Course? No

1. General Information

a. Submitted by the College of: ENGINEERING

b. Department/Division: Mechanical 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: Christine Trinkle

Email: c.trinkle@uky.edu

Phone: 218-0640

Responsible Faculty ID (if different from Contact)

Name:

Email:

Phone:

f. Requested Effective Date

Semester Following Approval: No OR Effective Semester: Fall 2016

2. Designation and Description of Proposed Course

a. Current Distance Learning (DL) Status: Already approved for DL*

b. Full Title: MANUFACTURING ENGINEERING

Proposed Title: Introduction to Materials and Manufacturing Processes

c. Current Transcript Title: MANUFACTURING ENGR

Proposed Transcript Title: MATERIALS AND MANUFACTURING

d. Current Cross-listing: none

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: A background course in the area of manufacturing processes and systems. Includes a study of machining operations, foundry mechanization, forging, sheet metal work, powder metal products, production molding and production machines and processes.

Proposed Course Description for Bulletin: A background course in the areas of materials and manufacturing processes for mechanical engineers. Includes basic microstructure of materials, material properties and processing. Also includes an overview of casting, metal forming, machining, additive processing, non-traditional manufacturing processes, and manufacturing of non-metallic components.

2j. Current Prerequisites, if any:

Proposed Prerequisites, if any: MA 113, CHE 105

2k. Current Supplementary Teaching Component:

Proposed Supplementary Teaching Component:

3. Currently, is this course taught off campus? Yes

Proposed to be taught off campus? Yes

If YES, enter the off campus address: Paducah, KY

4. Are significant changes in content/student learning outcomes of the course being proposed? Yes

If YES, explain and offer brief rational: The title, course description and outcomes are being changed to reflect a stronger emphasis on materials science and engineering in the course. Two learning outcomes have been added to the course ("Be able to analyze the microstructure of materials and explain how it relates to material properties" and "Demonstrate the ability to select the appropriate material and material processing for a particular design") because understanding of these topics is necessary for successful completion of later courses in the Mechanical Engineering curriculum. Because of the difficulty of the topics to be covered, the course is being moved in the Mechanical Engineering curriculum from the first year to the second year; this change is reflected in the course number change from ME 151 to ME 251.

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:

Instructor Email:

Internet/Web-based: No

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?

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.

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.

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?

If yes, which percentage, and which program(s)?

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?

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

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

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/)?

9.Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? NO

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.

10.Does the syllabus contain all the required components? NO

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

Instructor Name:

SIGNATURE|STEPHEN|L S Stephens|ME 151 CHANGE Dept Review|20150513

SIGNATURE|BJSTOK0|Barbara J Brandenburg|ME 151 CHANGE College Review|20151009

SIGNATURE|JMETT2|Joanie Ett-Mims|ME 151 CHANGE Undergrad Council Review|20151216

Course Change Form

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

Open in full window to print or save

Generate R

Attachments:

Browse... Upload File

	ID	Attachment
Delete	6002	ME 251 Sample Syllabus v3.pdf

First 1 Last

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

	Current Prefix and Number:	ME - Mechanical Engineering ME 151 MANUFACTURING ENGR	*Proposed Prefix & Number:* (example: PHY 401G) ☐ Check if same as current	ME 251

*	What type of change is being proposed?	☑ Major Change ☐ Major – Add Distance Learning ☐ Minor - change in number within the same hundred series, exc 799 is the same "hundred series" ☐ Minor - editorial change in course title or description which doe change in content or emphasis ☐ Minor - a change in prerequisite(s) which does not imply a char course content or emphasis, or which is made necessary by the e or significant alteration of the prerequisite(s) ☐ Minor - a cross listing of a course as described above

Should this course be a UK Core Course? ○ Yes ◉ No

If YES, check the areas that apply:

☐ Inquiry - Arts & Creativity	☐ Composition & Communications - II
☐ Inquiry - Humanities	☐ Quantitative Foundations
☐ Inquiry - Nat/Math/Phys Sci	☐ Statistical Inferential Reasoning
☐ Inquiry - Social Sciences	☐ U.S. Citizenship, Community, Diversity
☐ Composition & Communications - I	☐ Global Dynamics

1. General Information

a. Submitted by the College of: ENGINEERING — Submission Date: 5/12/2015

b. Department/Division: Mechanical Engineering

c.* Is there a change in "ownership" of the course?

○ Yes ◉ No If YES, what college/department will offer the course instead? Select...

e.* * Contact Person Name: Christine Trinkle — Email: c.trinkle@uky.edu — Phone: 218-0640

* Responsible Faculty ID (if different from Contact) — Email: — Phone:

f.* Requested Effective Date: ☐ Semester Following Approval — OR — Specific Term: [2] Fall 2016

2. Designation and Description of Proposed Course.

a. Current Distance Learning(DL) Status:

○ N/A
◉ Already approved for DL*
○ Please Add
○ Please Drop

*If already approved for DL, the Distance Learning Form must also be submitted unless the department affirms (by checking this box) that the proposed chan affect DL delivery.

b.	**Full Title:**	MANUFACTURING ENGINEERING	*Proposed Title:* *	Introduction to Materials Manufacturing Processes
c.	**Current Transcript Title** (if full title is more than 40 characters):	MANUFACTURING ENGR		
c.	*Proposed Transcript Title (if full title is more than 40 characters):*	MATERIALS AND MANUFACTURING		

d.	**Current Cross-listing:**	☑ N/A	OR	Currently[3] Cross-listed with (Prefix & Number):	none

	Proposed – ADD[3] Cross-listing (Prefix & Number):				
	Proposed – REMOVE [3,4] Cross-listing (Prefix & Number):				
e.	**Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours [5] for each meeting patterr**				
Current:	Lecture 3	Laboratory[5]	Recitation	Discussion	Indep. Study
	Clinical	Colloquium	Practicum	Research	Residency
	Seminar	Studio	Other	Please explain:	
*Proposed: **	Lecture 3	Laboratory[5]	Recitation	Discussion	Indep. Study
	Clinical	Colloquium	Practicum	Research	Residency
	Seminar	Studio	Other	Please explain:	

f.	**Current Grading System:**	ABC Letter Grade Scale		
	*Proposed Grading System:**	◉ *Letter (A, B, C, etc.)* ○ *Pass/Fail* ○ *Medicine Numeric Grade (Non-medical students will receive a letter grade)* ○ *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?**			○ Yes ◉ N
*	*Proposed to be repeatable for additional credit?*			○ Yes ◉ N
	If YES:	*Maximum number of credit hours:*		
	If YES:	*Will this course allow multiple registrations during the same semester?*		○ Yes ○ N

i. **Current Course Description for Bulletin:**

A background course in the area of manufacturing processes and systems. Includes a study of machining operations, foundry mechanization, forging, sheet metal work, powder metal products, production molding and production machines and processes.

* *Proposed Course Description for Bulletin:*

A background course in the areas of materials and manufacturing processes for mechanical engineers. Includes basic microstructure of materials, material properties and processing. Also includes an overview of casting, metal forming, machining, additive processing, non-traditional manufacturing processes, and manufacturing of non-metallic components.

j. **Current Prerequisites, if any:**

* *Proposed Prerequisites, if any:*

MA 113, CHE 105

k.	**Current Supplementary Teaching Component, if any:**	○ Community-Based Experience ○ Service Learning ○ Both

	Proposed Supplementary Teaching Component:	○ Community-Based Experience ○ Service Learning ○ Both ○ No Change
3.	**Currently, is this course taught off campus?**	◉ Yes ○ N
*	*Proposed to be taught off campus?*	◉ Yes ○ N
	If YES, enter the off campus address: Paducah, KY	
4.*	**Are significant changes in content/student learning outcomes of the course being proposed?**	◉ Yes ○ N
	If YES, explain and offer brief rationale:	
	The title, course description and outcomes are being changed to reflect a stronger emphasis on materials science and engineering in the course. Two learning outcomes have been added to the course ("Be able to analyze the microstructure of materials and explain how it relates to material properties" and "Demonstrate the ability to select the appropriate material and material processing for a particular design") because understanding of these topics is necessary for successful completion of later courses in the Mechanical Engineering curriculum. Because of the difficulty of the topics to be covered, the course is being moved in the Mechanical Engineering curriculum from the first year to the second year; this change is reflected in the course number change from ME 151 to ME 251.	
5.	**Course Relationship to Program(s).**	
a.*	**Are there other depts and/or pgms that could be affected by the proposed change?**	○ Yes ◉ N
	If YES, identify the depts. and/or pgms:	
b.*	**Will modifying this course result in a new requirement[Z] for ANY program?**	○ Yes ◉ N
	If YES[Z], list the program(s) here:	
6.	**Information to be Placed on Syllabus.**	
a.	☐ Check box if changed to 400G or 500.	If changed to 400G- or 500-level course you must send in a syllabus and *you must include the differentiation* between under graduate students by: (i) requiring additional assignments by the graduate students; and/or (ii) establishing different grading course for graduate students. (See *SR 3.1.4.*)

[III]See 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 "not minor," the form will b appropriate academic Council for normal processing and contact person is informed.
[IV]Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.
[V] Signature of the chair of the cross-listing department is required on the Signature Routing Log.
[VI] Removing a cross-listing does not drop the other course – it merely unlinks the two courses.
[VII] Generally, 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. Lab meeting gene least two hrs per wk for a semester for 1 credit hour. (See *SR 5.2.1.*)
[VIII] You must *also* submit the Distance Learning Form in order for the course to be considered for DL delivery.
[IX]In order to change a program, a program change form must also be submitted.

ME 251 Introduction to Materials and Manufacturing Processes (proposed)
Fall 2016 Class Procedures & Syllabus

TR 9:30 – 10:45 AM CB 122

Professor: Christine Trinkle, Ph.D.
Email: c.trinkle@uky.edu
Office: RGAN 277
Phone: (859) 218-0640

Office Hours: TR 11am-12pm, 3:30-4:30pm*

1. **Course Description**
   A background course in the areas of materials and manufacturing processes for mechanical engineers. Includes basic microstructure of materials, material properties and processing. Also includes an overview of casting, metal forming, machining, additive processing, non-traditional manufacturing processes, and manufacturing of non-metallic components.

2. **Prerequisites:** MA113* and CHE105*
   *can be taken concurrently

3. **Required Materials**
   Textbook: J.T. Black and Ronald A. Kohser, "DeGarmo's Materials and Processes in Manufacturing", **11th Edition**, John Wiley & Sons, 2011. ISBN: 978-0-470-92467-9

4. **Student Learning Outcomes / Course Goals and Objectives**
   - Analyze the microstructure of materials and explain how it relates to material properties.
   - Select appropriate materials and material processing for a particular design.
   - Discuss various machines and processes used in a manufacturing plant.
   - Select appropriate manufacturing processes to produce a particular product.
   - Demonstrate ability to discuss manufacturing methods with practicing mechanical engineers.
   - Examine the relationship between manufacturing and design.

5. **Grading**
   Grades will be assigned based on a standard 100 point scale (A: 90-100%, B: 80-89%, C: 70-79%, D: 60-69%, E: below 60%). The instructor reserves the right to curve the grades at the end of the semester if necessary.

   80% of the grade will be based on four (4) exams. (20% for each exam)
   20% of the grade will be based on homework assignments

6. **Homework Assignments**
   Lecture notes and homework assignments are available on Blackboard at: elearning.uky.edu or through your myUK.uky.edu account. Additional resource materials are available at: www.wiley.com/college/degarmo

   The homework consists of reading assignments and completing online quizzes. You should read the chapters assigned before attending class and be prepared to discuss on the dates shown below. Late homework assignments will not be accepted except in cases of documented excused absences (see the Excused Absences and Verification of Absences section in the syllabus). If you are aware of an upcoming absence, make every effort to notify the instructor prior to the absence.

   Discussion between students on homework assignments is acceptable and encouraged. However, *each student*

is expected to perform his/her own work when attempting the assigned problems. (See the Academic Integrity section in the syllabus.)

7. **Examinations**
   Four examinations will be given during the semester. Consult the expected course schedule for the tentative date of the exams. **Exams 1, 2, and 3** will be given during class time (9:30-10:45am) in the normal classroom (CB 122). **The final exam (i.e., Exam 4)** will be given in the regular classroom (CB 122) on May 7th, 8:00-10:00am.

   Individual students are entitled to request a change in their final examination time if they have more than two finals scheduled for the same date. Should an examination date need to be changed, the course with the highest course number is the one to be rescheduled. The student needing to change exam times must request this in writing at least **two weeks before the final exam (i.e., by Thursday, April 23rd).**

8. **Mid-term Grade**
   Mid-term grades will be posted in myUK by the deadline established in the Academic Calendar (http://www.uky.edu/Registrar/AcademicCalendar.htm)

9. **Excused Absences**
   Students need to notify the professor of absences prior to class when possible. Senate Rules 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. Two weeks prior to the absence is reasonable, but should not be given any later. Information regarding major religious holidays may be obtained through the Ombud (859-257-3737, http://www.uky.edu/Ombud/ForStudents_ExcusedAbsences.php.

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

   Per Senate Rule 5.2.4.2, students missing any graded work due to an excused absence are responsible: for informing the Instructor of Record about their excused absence within one week following the period of the excused absence (except where prior notification is required); and for making up the missed work. The professor must give the student an opportunity to make up the work and/or the exams missed due to an excused absence, and shall do so, if feasible, during the semester in which the absence occurred.

10. **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 when feasible and in no case more than one week after the absence.

11. ***Office Hours and Email Policy**
    No appointment is required to attend the listed office hours. If you have a question and cannot attend the scheduled office hours, set up an alternative time to meet by emailing Dr. Trinkle a list of times that you are available to meet that day and the following day. You may also email your questions directly to Dr. Trinkle (c.trinkle@uky.edu); every attempt is made to respond to email questions within 24 hours.

12. **Blackboard**
    The course website on blackboard (https://elearning.uky.edu) will be used for posting of grades, handouts, homework, announcements and other information. Students are expected to be current with information posted on blackboard; it is highly recommended that students check the course website on a daily basis.

13. **Special Accommodations**
If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (DRC). The DRC coordinates campus disability services available to students with disabilities. It is located on the corner of Rose Street and Huguelet Drive in the Multidisciplinary Science Building, Suite 407. You can reach them via phone at (859) 257-2754 and via email at drc@uky.edu. Their web address is http://www.uky.edu/StudentAffairs/DisabilityResourceCenter/.

14. **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.

Senate Rules 6.3.1 (see http://www.uky.edu/Faculty/Senate/ for the current set of Senate Rules) 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 a question of plagiarism involving their 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 content from another source without appropriate acknowledgment of the fact, the students are guilty of plagiarism.

Plagiarism includes reproducing someone else's work (including, but not limited to a published article, a book, a website, computer code, or a paper from a friend) without clear attribution. 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, it must be done by the student, and the student alone.

When a student's assignment involves research in outside sources or information, the student must carefully acknowledge exactly what, where and how he/she has 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 generally and freely circulated as to be a part of the public domain.

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

15. **Technical Support**
If you have any difficulty related to the class website, contact the TA or instructor immediately.

TENTATIVE COURSE SCHEDULE

Note: THIS SCHEDULE IS TENTATIVE AND IS SUBJECT TO CHANGE AT THE SOLE DISCRETION OF THE INSTRUCTOR DEPENDING UPON THE PROGRESS OF THE CLASS.

Week #	Class #	Date	Topic	Reading Assignment
1	1	Jan 15	Introduction & Overview of Course	-
2	2	Jan 20	Properties of Materials – part 1	Chapter 3
	3	Jan 22	Properties of Materials – part 2	"
3	4	Jan 27	Heat Treatment – part 1	Chapter 6
	5	Jan 29	Heat Treatment – part 2	"
4	6	Feb 3	Ferrous Metals & Alloys – part 1	Chapter 7
	7	Feb 5	Ferrous Metals & Alloys – part 2, ***EXAM INSTRUCTIONS***	"
5	8	Feb 10	**Exam #1 - Chapters 3, 6, 7**	--
	9	Feb 12	Nonferrous Metals & Alloys – part 1	Chapter 8
6	10	Feb 17	Nonferrous Metals & Alloys – part 2	"
	11	Feb 19	Nonmetallic Materials: Plastics, Elastomers, Ceramics, & Composites – part 1	Chapter 9
7	12	Feb 24	Nonmetallic Materials: Plastics, Elastomers, Ceramics, & Composites – part 2	"
	13	Feb 26	Fabrication of Plastics, Ceramics, & Composites – part 1	Chapter 14
8	14	Mar 3	Fabrication of Plastics, Ceramics, & Composites – part 2	"
	15	Mar 5	Measurement and Inspection	Chapter 35
9	16	Mar 10	Testing and Statistical Quality Control in Manufacturing	Chapters 43 & 36
	17	Mar 12	**Exam #2 - Chapters 8, 9, 14, 35**	--
10		Mar 17	**SPRING BREAK – NO CLASS**	
		Mar 19	**SPRING BREAK – NO CLASS**	
11	18	Mar 24	Fundamentals of Casting – part 1	Chapter 11
	19	Mar 26	Fundamentals of Casting – part 2	"
12	20	Mar 31	Fundamentals of Metal Forming – part 1	Chapter 15
	21	Apr 2	Fundamentals of Metal Forming – part 2	"
13	22	Apr 7	**Exam #3 - Chapters 43, 36, 11, 15**	--
	23	Apr 9	Fundamentals of Machining/Orthogonal Machining – part 1	Chapter 20
14	24	Apr 14	Fundamentals of Machining/Orthogonal Machining – part 2	"
	25	Apr 16	Powder Metallurgy	Chapter 18
15	26	Apr 21	Nontraditional Manufacturing Processes – part 1	Chapter 28
	27	Apr 23	Nontraditional Manufacturing Processes – part 2	"
16	28	Apr 28	Additive Processes, Rapid Prototyping – part 1	Chapter 19
	29	Apr 30	Additive Processes, Rapid Prototyping – part 2	"
Final Exam: May 7, 8:00am-10:00am			**Exam #4 - Chapters 20, 18, 28, 19**	