Add Course Request

Submitted on: 2014-04-09 10:50:30

1. **COURSE SUBJECT**	MEM
2. **COURSE NUMBER** (OR PROPOSED NUMBER)	2212
3. **COURSE TITLE**	Introduction to Manufacturing Systems Lab
4. **INITIATING DEPARTMENT or UNIT**	MEM
5. **NAME OF SUBMITTER**	Diane J Van Scoter
6. **PHONE of SUBMITTER**	Phone: +1 860 486 0415
7. **EMAIL of SUBMITTER**	Email: diane.van_scoter@uconn.edu
8. **CONTACT PERSON**	Daniel Burkey
9.**UNIT NUMBER of CONTACT PERSON** (U-BOX)	3187
10. **PHONE of contact person**	Phone: +1 860 486 2167
11. **EMAIL of of contact person**	Email: daniel@engr.uconn.edu
12. Departmental Approval Date	08/30/2013
13. School/College Approval Date	11/07/2013
14. Names and Dates of additional Department and School/College approvals	
15. Proposed Implementation Date	Term: Fall, Year: 2014
16.Offered before next printed catalog is distributed?	Yes
17. **General Education Content Area**	
18. **General Education Skill Code (W/Q).** Any non-W section?	None
19. Terms Offered	Semester: Fall Spring Year: Every_Year
20. Sections	Sections Taught: 1
21. Student Number	Students/Sections: 25
22. Clarification:	
23. **Number of Credits**	1 if VAR Min: Max: credits each term
24. **INSTRUCTIONAL PATTERN** Laboratory	

25. Will this course be taught in a language other than English?	No If yes, then name the language:
26. Please list any prerequisites, recommended preparation or suggested preparation: MEM 2211 pre- or co-requisite	
27. Is Instructor, Dept. Head or Unit **Consent Required**?	No
28. Permissions and Exclusions: Open only to Majors	
29. Is this course **repeatable for credit**?	No If yes, total credits allowed: Allow multiple enrollments in same term?
30. **Grading Basis**	Graded
31. If satisfactory/unsatisfactory grading is proposed, please provide **rationale**:	
32. Will the course or any sections of the course be taught as Honors? No	
33. Additional Details:	
34. Special Attributes:	
35. **REGIONAL CAMPUS AVAILABILITY**: Not available at regional campuses due to it being a lab course	
36. PROVIDE THE PROPOSED TITLE AND COMPLETE CATALOG COPY: MEM 2212. Introduction to Manufacturing Systems Lab Fall & Spring. One credit. One 3-hour lab per week. Prerequisite: Management and Engineering major; Prerequisite or corequisite: MEM 2211. Introduction to the steps required for manufacturing. Students will move from a part sketch, to an engineering drawing, to a drawing using state-of-the-art CAD software. Students will build both a prototype and an improved final model of the part, which are required to be of different materials. One or more site visits are included as parts of this laboratory, for students to gain exposure to operational manufacturing facilities.	
37. **RATIONALE** FOR ACTION REQUESTED This course is an update to the current MEM 2210. The prior course did not have any hands-on work with software or fabrication, both of which are very important to engage students in learning and for them to be competitive on completion of their degree.	
38. **SYLLABUS:** Online URL: (https://web2.uconn.edu/senateform/request/course_uploads/dsv12003-1396904291-MEM 2212_Introduction to Manufacturing Systems Lab_2014_syllabus.docx)	

39. **Course Information: ALL General Education courses, including W and Q courses, MUST answer this question**
40. **Goals of General Education: All Courses Proposed for a Gen Ed Content Area MUST answer this question**
41. **Content Area and/or Competency Criteria: ALL General Education courses, including W and Q courses, MUST answer this question.:** Specific Criteria a. **Arts and Humanities:** b. **Social Sciences:** c. **Science and Technology:** i. **Laboratory:** d. **Diversity and Multiculturalism:** 43. **International:** e. **Q course:** f. **W course:**
42. **RESOURCES:** Does the department/school/program currently have resources to offer the course as proposed YES If NO, please explain why and what resources are required to offer the course.
43. **SUPPLEMENTARY INFORMATION**:
ADMIN COMMENT: 5/5/14 Senate approved new course. // New2000-level_04/14/14kcp.

Syllabus:

MEM 2212 Introduction to Manufacturing Systems Lab
Fall 2014

Credits and Prerequisites:

One credits. MEM major required and MEM 2211 concurrently or previously taken.

Course Description and Objectives:

The Manufacturing Laboratory course in Management and Engineering for Manufacturing (MEM) introduces the students to computer modeling using SolidWorks. This program is widely used in industry, government, and organizations. Students will, through increasingly difficult designs, understand the functions in SolidWorks. The designs will initially be built using a MakerBot Replicator 2X. The use of this will let students explore the quality of their design and capabilities using additive manufacturing. The designs will become more difficult and require students to solve design problems. The third design/ second build will use dissolvable plastic to produce a specified product. The last design will be one with constraints and outputs will be judged for quality, uniqueness, fit and appeal. This design will start with mechanical drawings, move to designs in

SolidWorks, and then be built using the MakerBot or similar additive manufacturing equipment. There will be facility tours focused on topics such as metrology and why is it important. There will be work done on material properties, as well as two written assignments. The first of these written assignments concerns how material structure impacts material properties. The second is a write-up of the design project that was done and evaluated. The material properties section of this course will evaluate both changes in material composition and changes in processing to evaluate the impact on samples. Mechanical and shrinkage measurements will be used to evaluate these changes.

Course-Specific Learning Outcomes

At the culmination of the Manufacturing Laboratory course the student will be able to do the following:

1. Understand why material structure impacts material properties.
2. Design simple structures using SolidWorks.
3. Use the MakerBot to produce shapes designed in SolidWorks.
4. Use the knowledge of SolidWorks and the MakerBot to design a product under constraints.
5. Understand how to make a mechanical drawing of an object.
6. Understand what metrology is and why it is important, know some types of metrology.
7. Evaluate material changes by conducting experiments and analyzing data.

ABET Outcomes

(b) An ability to design and conduct experiments, as well as to analyze and interpret data;

(c) An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, managerial, environmental, social, political, ethical, health and safety, manufacturability, and sustainability;

Textbook

There is no required textbook.

Evaluation:

Manufacturing Laboratory			
	Participation and Homework	50%	
	Paper –Material Properties	20%	
	Design Presentation		30%
Total			100%

Course Policy:

- **Student participation in class:** Attendance to each lecture is expected. Students are also expected to fully prepare in advance and participate during discussions. Participation is defined as being an active participant in class through discussions, questions, responses, etc.
- **Homework:** Homework will be given during the course. These assignments will typically require designing a product, building a product on the MakerBot, or analyzing data or test results. There will also be mechanical drawings required as well as SolidWorks drawings that will be collected.
- **Paper:** A short paper will be required that describes how a material's structure impacts its properties. This should be done in general terms for the structure type you created as well as for the specific material you were given in class.
- **Presentation:** A presentation will be given by each group regarding their design process, design evaluation, design mechanical drawing, its conversion to SolidWorks and finally its build and evaluation. Grading will be based on proper use of techniques, data collection, quality of analysis, and presentation quality (technical and presentation skills).

Academic Honor Code:

For all assignments, you must properly cite sources of information as well as the ideas and words of others. Misrepresenting someone else's work as one's own is a serious offense in any academic setting and it will not be condoned. Cheating of any sort will not be tolerated and will result in a failure of the exam or assignment, deduction in the class participation grading component, and potential failure of the course. Behavior that appears to be cheating includes copying from classmate solutions or copying from homework solutions provided in class or from past semesters and it should be prevented by students and/or reported to instructors.

A student who knowingly assists another student in committing an act of academic misconduct shall be equally accountable for the violation, and shall be subject to the sanctions and other remedies described in The Student Code. For details refer to http://www.dos.uconn.edu/student_code.html Appendix A section B.- Conduct Rules and Regulation item 1 - Violation of the Academic Integrity in Undergraduate Education and Research.

Disclaimer:

The instructor reserves the right to amend, adjust, or otherwise modify this course outline at any time during the course. The students will be notified in time of any modification.