Cover Sheet: Request 10320

EML4502 Mechanical Engineering Design 3

Info

Process	Course|New|Ugrad/Pro
Status	Pending
Submitter	Carroll,Bruce F bfc@ufl.edu
Created	7/10/2015 6:37:24 PM
Updated	11/16/2015 2:24:42 PM
Description	Design and realization of a mechanical engineering system, component, or process subject to appropriate standards and constraints. Team Project. (3 credit hours)

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	ENG - Mechanical and Aerospace Engineering 011902000	Carroll, Bruce F		7/10/2015
No document changes					
College	Approved	ENG - College of Engineering	Caple, Elizabeth		10/7/2015
Replaced ucc1 EML4502.docx					7/22/2015
Replaced Syllabus - EML4502 Mechanical Engineering Design 3.docx					7/22/2015
Added ucc1 EML4502 v2.docx					7/22/2015
University Curriculum Committee	Comment	PV - University Curriculum Committee (UCC)	Baker, Brandi N	Added to November agenda.	10/26/2015
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			10/26/2015
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

Recommended SCNS Course Identification

1. Prefix: **EML**   2. Level: **4**   3. Number: **502**   4. Lab Code: **None**

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5. Course Title: **Mechanical Engineering Design 3**

6. Transcript Title (21 character max.): **Mech Engr Design 3**

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7. Effective Term: **Earliest**   8. Effective Year: **Earliest**   9. Rotating Topic: **No**

10. Amount of Credit: **3**   11. If variable, **#** min. and **#** max. credits per semester.

12. Repeatable Credit: **No**   13. If yes, **#** total repeatable credit allowed.

14. S/U Only: **No**   15. Contact Type: **Regularly Scheduled [base hr]**

16. Degree Type: **Baccalaureate**   17. If other, specify: **Click here to enter text.**

18. Weekly Contact Hours: **3**   19. Category of Instruction: **Advanced**

20. Delivery Method(s):   On-campus ☒   Off-campus ☐   Online ☐

21. Course Description (50 words maximum)

Design and realization of a mechanical engineering system, component, or process subject to appropriate standards and constraints. Team Project. (3 credit hours)

22. Prerequisites

EML4501

23. Co-requisites

EML4321

24. Rationale and Placement in Curriculum

This is a capstone design course that is required for the mechanical engineering BS degree. The course is typically taken in the final semester.

25. Course Objectives

Provide students with a firm grasp of the fundamentals of the design process including design realization. Students will gain experience over a complete design cycle, starting with general initial specifications and concluding with fabrication and testing of the product. During the process, students will develop the ability to refine design specifications, respond to customer input, address appropriate standards and constraints, and work in multidisciplinary teams.

26. Course Textbook(s) and/or Other Assigned Reading

None. Material developed by the instructor will be made available.

27. Weekly Schedule of Topics

Week 1: Design specifications and team formation
Week 2: Product development process, timing and scheduling
Week 3: Conceptual design
Week 4: Detailed design
Week 5: Design for manufacturing
Week 6: Preliminary design reviews (team report due)
Week 7: Manufacturing
Week 8: Manufacturing
Week 9: Testing protocol development

| Week 11: Assembly and testing |
| Week 12: Assembly and testing |
| Week 13: Economic analysis |
| Week 14: Final design presentations |
| Week 15: Final design presentations (team report due) |

28. Grading Scheme

Type of Assessment, Activity or Other Assignment	Percent of Grade
Attendance	20%
Preliminary Design Report	30%
Final Design Report	50%

29. Instructor(s)

Mike Griffis

Itemized Instructions
1. **Prefix**. Enter the three letter code indicating placement of course within the discipline (e.g., POS, ATR, ENC). Note that for new course proposals, in rare cases SCNS will assign a different prefix.
2. **Level**. Select the one digit code preceding the course number that indicates the course level at which the course is taught (e.g., 1=freshman, 2=sophomore, etc.).
3. **Number**. Enter the three digit code indicating the specific content of the course based on the SCNS taxonomy and course equivalency profiles. For new course requests, this may be XXX until SCNS assigns an appropriate number.
4. **Lab Code**. Enter the lab code to indicate whether the course is lecture only (blank), lab only (L), or a combined lecture and lab (C).
5. **Course Title**. Enter the title of the course as it should appear in the Academic Catalog.
6. **Transcript Title**. Enter the title that will appear in the transcript and the schedule of courses. Note that the transcript must be limited to 21 characters (including spaces and punctuation). Titles longer than 21 characters will either be abbreviated as needed or cause the approval request to be recycled.
7. **Effective Term**. Select the requested term that the course will first be offered. Selecting "Earliest" will allow the course to be active in the earliest term after SCNS approval. If a specific term and year are selected, this should reflect the department's best projection. Courses cannot be implemented retroactively, and therefore the actual effective term cannot be prior to SCNS approval, which must be obtained prior to the first day of classes for the effective term. SCNS approval typically requires 2 to 6 weeks after approval of the course at UF.
8. **Effective Year.** Select the requested year that the course will first be offered. See preceding item for further information.
9. **Rotating Topic**. Select "Yes" if the course will have rotating (varying) topics in different terms. For rotating topics courses, the course title in the Schedule of Courses and the transcript can vary with the topic.
10. **Amount of Credit**. Select the number of credits awarded to the student upon successful completion, or select "Variable" if the course will be offered with variable credit and then indicate the minimum and maximum credits per section. Note that credit hours are regulated by Rule 6A-10.033, FAC.
11. If you selected "Variable" for the amount of credit, indicate the minimum and maximum number of total credits.
12. **Repeatable Credit**. Select "Yes" if the course may be repeated for credit. Some courses, such as independent study courses, will have rotating (variable) topics. Students may be allowed to repeat these courses provided the content is different.
13. If you checked "Yes" for repeatable credit, indicate the maximum number of total repeatable credits allowed per student.
14. **S/U Only.** Check this option if students should be graded as S-U in the course. Note that each course must be entered into the UF curriculum inventory as letter-graded or S-U. A course may not have both options.
15. **Contact Type**. Select the best option to describe course contact type. This selection determines whether base hours or headcount hours will be used to determine the total contact hours per credit hour. Note that the headcount hour options are for courses that involve contact between the student and the professor on an individual basis. The following options are available:
    a. Regularly Scheduled [base hr]
    b. Thesis/Dissertation Supervision [1.0 headcount hr]
    c. Directed Individual Studies [0.5 headcount hr]
    d. Supervision of Student Interns [0.8 headcount hr]
    e. Supervision of Teaching/Research [0.5 headcount hr]
    f. Supervision of Cooperative Education [0.8 headcount hr]
    Contact the Office of Institutional Planning and Research (352-392-0456) with questions regarding contact type.
16. **Degree Type**. Select Baccalaureate, Graduate, Professional or Other.
17. If you selected "Other" for degree type, specify the type.
18. **Total Contact Hours**. Indicate the number of hours faculty will have contact with students each week on average throughout the duration of the course.

19. **Category of Instruction**. Indicate whether the course is introductory, intermediate or advanced. Introductory courses are those that require no prerequisites and are general in nature. Intermediate courses require some prior preparation in a related area. Advanced courses require specific competencies or knowledge relevant to the topic prior to enrollment.
    - 1000 and 2000 level = Introductory undergraduate
    - 3000 level = Intermediate undergraduate
    - 4000 level = Advanced undergraduate
    - 5000 level = Introductory graduate
    - 6000 level = Intermediate graduate
    - 7000 level = Advanced graduate
    - 4000/5000 and 4000/6000 levels = Joint undergraduate/graduate (these must be approved by the UCC and the Graduate Council)
20. **Delivery Method(s)**. Indicate all platforms through which the course is *currently planned* to be delivered.
21. **Course Description**. Provide a brief narrative description of the course content. This description will be published in the Academic Catalog and is limited to 50 words or less. See course description guidelines.
22. **Prerequisites**. Indicate all requirements that must be satisfied prior to enrollment in the course. Prerequisites will be automatically checked for each student attempting to register for the course. The prerequisite will be published in the Academic Catalog and must be formulated so that it can be enforced in the registration system. Please note that upper division courses (i.e., intermediate or advanced level of instruction) must have proper prerequisites to target the appropriate audience for the course.
    - Completing Prerequisites on UCC forms:
      o Use "&" and "or" to conjoin multiple requirements; do not used commas, semicolons, etc.
      o Use parentheses to specify groupings in multiple requirements.
      o Specifying a course prerequisite (without specifying a grade) assumes the required passing grade is D-. In order to specify a different grade, include the grade in parentheses immediately after the course number. For example, "MAC 2311(B)" indicates that students are required to obtain a grade of B in Calculus I. MAC2311 by itself would only require a grade of D-.
      o Specify all majors or minors included (if all majors in a college are acceptable the college code is sufficient).
      o "Permission of department" is always an option so it should not be included in any prerequisite or co-requisite.
    - Example: A grade of C in HSC 3502, passing grades in HSC 3057 or HSC 4558, and major/minor in PHHP should be written as follows:
      HSC 3502(C) & (HSC 3057 or HSC 4558) & (HP college or (HS or CMS or DSC or HP or RS minor))
23. **Co-requisites**. Indicate all requirements that must be taken concurrently with the course. Co-requisites are not checked by the registration system.
24. **Rationale and Placement in Curriculum**. Explain the reason for adding the course to the curriculum and how the course will fit into the curriculum.
25. **Course Objectives**. Describe the core knowledge and skills that student should derive from the course. The objectives should be both observable and measurable.
26. **Course Textbook(s) and/or Other Assigned Reading**. Enter the title, author(s) and publication date of textbooks and/or readings that will be assigned, or a representative list of readings.
27. **Weekly Schedule of Topics**. Provided a projected weekly schedule of topics. This should have sufficient detail to evaluate how the course would meet current curricular needs and the extent to which it overlaps with existing courses at UF.
28. **Grading Scheme**. List the types of assessments, assignments and other activities that will be used to determine the course grade, and the percentage contribution from each. This list should have sufficient detail to evaluate the course rigor and grade integrity.
29. **Instructor(s)**. Enter the name of the planned instructor or instructors, or "to be determined" if instructors are not yet identified.

Syllabus
EML4502 Mechanical Engineering Design 3

1. **Catalog Description:** Design and realization of a mechanical engineering system, component, or process subject to appropriate standards and constraints. Team Project. (3 credit hours)

2. **Pre-requisites:** EML4501

3. **Co-requisites:** EML4321

4. **Course Objectives:** Provide students with a firm grasp of the fundamentals of the design process including design realization. Students will gain experience over a complete design cycle, starting with general initial specifications and concluding with fabrication and testing of the product. During the process, students will develop the ability to refine design specifications, respond to customer input, address appropriate standards and constraints, and work in multidisciplinary teams.

5. **Instructor:** Mike Griffis
   a. Office location: 206 MAEB
   b. Telephone: 392-1029
   c. E-mail address: mwg@ufl.edu
   d. Office Hrs MW 3rd period

6. **Teaching Assistant:** To be announced

7. **Meeting Times and Location:**
   a. **Lectures**
      Monday and Wednesday 9-10 periods in 211 MAEB

8. **Material and Supply Fees:** Fees will be established

9. **Textbooks Required**: None. Course material developed by the instructor will be provided. Instructor developed material will be primarily related to project planning, project scheduling, manufacturing processes, and fundamental engineering design processes.

10. **Recommended Reading**: None

11. **Course Outline and Schedule**: See the detailed schedule available at https://lss.at.ufl.edu/ (use Canvas system)

Week 1: Design specifications and team formation
Week 2: Product development process, timing and scheduling
Week 3: Conceptual design
Week 4: Detailed design
Week 5: Design for manufacturing
Week 6: Preliminary design reviews (team report due)

Week 7: Manufacturing
Week 8: Manufacturing
Week 9: Testing protocol development
Week 11: Assembly and testing
Week 12: Assembly and testing
Week 13: Economic analysis
Week 14: Final design presentations
Week 15: Final design presentations (team report due)

12. **Assessment Methods and Grading**:
    a. Attendance   20%
    b. Preliminary Design Report   30%
    c. Final Design Report   50%

If a student thinks there is an error in the grading, it should be brought to the attention of the instructor within two weeks after the graded material is handed back. Scores will not be reconsidered beyond the two week period.

Students will work in teams on a major design project. The preliminary design report and final design report will be graded. Interim design reviews will be critiqued to provide feedback to the design teams but will not be included in the final grade.

The format for all reports will be provided in class.

13. **Grading Scale**:
    93 – 100: A   87 – 89.9: B+   77 – 79.9: C+   67 – 69.9: D+   0 – 59.9: E
    90 – 92.9: A-   83 – 86.9: B   73 – 76.9: C   63 – 66.9: D
                     80 – 82.9: B-   70 – 72.9: C-   60 – 62.9: D-

See the current undergraduate catalog for information on how grade points are assigned: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx.

14. **Class Attendance and Make-up Policy:** Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found in the online catalog at:
https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx.

Attendance is mandatory and will count 20% of the overall grade. Excused absences will be given for documented reasons listed in the university attendance policy referenced above.

Late assignments and makeup exams are not normally allowed. Arrangements for late assignments or makeup exams will be made on a case by case basis for excused absences.

15. **Class Demeanor Expectations**: During class, cell phones must be turned off or set to silent ringer mode.

16. **Accommodation for Students with Disabilities:** Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students

will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

17. **Online Course Evaluations:** Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results.

18. **Honesty Policy:** UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

19. **UF Counseling Services**: Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
    - UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
    - Career Resource Center, Reitz Union, 392-1601, career and job search services.