CLEMSON UNIVERSITY **Curriculum and Course Change System - Print Minor Form**

000029

Change Minor: Environmental Engineering
Effective Catalog Year:

..**Change Minor Name to:**
X**Change Minor Requirements:**
Current Catalog Description: A minor in Environmental Engineering requires at least 15 credits as follows: EE&S 401, at least six credits selected from Group I, and at least three credits from Group II. The remaining three credits may be selected from either group. All courses are to be chosen in consultation with the Department of Environmental Engineering and Earth Sciences. Group I EE&S 402, 410, 411, 430, (B E) 484, 485,486 Group IIB E 322, C E 342, 447, CH 223, 411, 413,CH E 401, 450, CSENV (ENTOX, GEOL) 485,EN SP 200, 400, ENTOX 400, 430, GEOL 408,MICRO 305, 410
Proposed Catalog Description: A minor in Environmental Engineering requires at least 15 credits as follows: EE&S 401, at least six credits selected from Group I, and at least three credits from Group II. The remaining three credits may be selected from either group. All courses are to be chosen in consultation with the Department of Environmental Engineering and Earth Sciences. Group I EE&S 402, 410, 411, 430, 480, (B E) 484, 485,486 Group IIB E 322, C E 342, 447, CH 223, 411, 413,CH E 401, 450, CSENV (ENTOX, GEOL) 485,EN SP 200, 400, ENTOX 400, 430, GEOL 408,MICRO 305, 410
Summary/ Explanation: Add EE&S 480 to Group I
EE&S 480 is a new course that is required for the major and is appropriate for the minor as well.
Form Originator: DEVOL, Timothy Devol **Date Form Created:** 1/19/2013
Form Last Updated by: DEVOL, Timothy Devol **Date Form Last Updated:** 1/19/2013
Form Number: 5820

Approval

Signature	Date	Signature	Date
Thomas J. Overcamp	1/28/2013	Cassie W. [signature]	3/1/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
[signature]	2/3/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
[signature]	2/15/13	Doris R. Helms	5/8/13
Chair, College Curriculum Committee	Date	Provost	Date
Douglas Shier	2/18/13	[signature]	5/8/13
College Dean	Date	President	Date

CLEMSON UNIVERSITY **Curriculum and Course Change System - Print Change/Delete Course Form**

000039

XChange a Course - Abbrev & Number: EE&S- 450
Corresponding Lab Course: --
Corresponding Honors course: --
..Add Honors course: --
Corresponding Graduate course: --
..Add Graduate course: --
Course Title: PROFESSIONAL SEMINAR

Brief Statement of Change:
The course is being changed from a pass/fail to a graded basis. This is to deal with the problem of students who do marginal work due to the present pass/fail grading method.

Last Term taught:	**..Change Abbrev to:**
Effective Term:08/2013	**..Change Number to:**
..Change Catalog Title:	**..Change Transcript Title:**
from:	from: PROFESSIONAL SEMINAR
to:	to:
..	From: Fixed Credit: 1 (1,) To: Fixed Credit: (,)
Change of Credit	Variable Credit: - (-), (-) Variable Credit: - (-),(-)

.. Add cross-listing with the following child course(s):
.. Delete cross-listing with the following child course(s):
.. Reverse Parent/Child relationship with:

..Change Method of Instruction		**XChange Course Modifier**		**..Change General Education Designation**	
from:	to:	from:	to:	from:	to:
..A-Lecture Only	..	XPass/Fail Only	..	..English Composition	..
..B-Lab (w/fee)	..	..Graded	X	..Oral Communication	..
XD-Seminar	..	..Variable Title	..	..Mathematics	..
..E-Independent Study	..	..Creative Inquiry	..	..Natural Science w/Lab	..
..F-Tutorial (w/fee)	..	..Repeatable	..	..Math or Science	..
..G-Studio	..	maximum credits		..A&H (Literature)	..
..H-Field course	..	from:		..A&H (Non-Literature)	..
..I-Study Abroad	..	to:		..Social Science	..
..L-Lab (no/fee)	..			..CCA	..
..N/B-Lecture/Lab(w/fee)	..			..STS	..
..N/L-Lecture/Lab(no fee)	..				

..Change Catalog Description:
from:
to:

..Change Prerequisite(s):
from:
to:

Learning Objectives: (d) an ability to function on multidisciplinary teams
(e) an ability to identify, formulate, and solve engineering problems
(f) an understanding of professional and ethical responsibility
(g) an ability to communicate effectively
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
(i) a recognition of the need for, and an ability to engage in life-long learning
(j) a knowledge of contemporary issues

Topical Outline: Interviewing and the job search (2 h)
ePortfolio (1)
Life-long learning (1 h)
Career options (3 h)
Career planning (2 h)
Professional ethics (4 h)
Program Educational Objectives (2 h)

Evaluation: A: 90 - 100%
B: 80-89%
C: 70-79%
D: 60-69%
F: < 60%

Form Originator:TJVRC, Thomas Overcamp **Date Form Created:** 10/29/2012
Form Last Updated by: , Date Form Last Updated: 1/22/2013
Form Number: 5578

Approval

Thomas J. Overcamp	1/28/2013	Patricia W. Morrison	3/1/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
Earl Kennedy	2/3/13		

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Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	2/15/13		5/8/13
Chair, College Curriculum Committee	Date	Provost	Date
	2/18/13		5/8/13
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		

CLEMSON UNIVERSITY

Curriculum and Course Change System - Print Change/Delete Course Form

000035

X**Change a Course - Abbrev & Number: GEOL- 415**
Corresponding Lab Course: --
Corresponding Honors course: --
..Add Honors course: --
Corresponding Graduate course: GEOL- -615
..Add Graduate course: --
Course Title: ANALYSIS GEO PROCESS

Brief Statement of Change:
A lab section is being added to do programming and work with mathematical software in the computer lab. This lab has been taught for the past several years with credit offered through a special topics course, so this change will consolidate the credit into a single course.

Last Term taught:0908	**..Change Abbrev to:**
Effective Term:05/2013	**..Change Number to:**
..Change Catalog Title:	**..Change Transcript Title:**
from:	from: ANALYSIS GEO PROCESS
to:	to:

X **Change of Credit**	From: Fixed Credit: 3 (3,) Variable Credit: - (-), (-)	To: Fixed Credit: 4 (3,3) Variable Credit: - (-),(-)

.. Add cross-listing with the following child course(s):
.. Delete cross-listing with the following child course(s):
.. Reverse Parent/Child relationship with:

X**Change Method of Instruction**		**..Change Course Modifier**		**..Change General Education Designation**	
from:	to:	from:	to:	from:	to:
XA-Lecture Only	..	..Pass/Fail Only	..	..English Composition	..
..B-Lab (w/fee)	..	XGraded	..	..Oral Communication	..
..D-Seminar	..	..Variable Title	..	..Mathematics	..
..E-Independent Study	..	..Creative Inquiry	..	..Natural Science w/Lab	..
..F-Tutorial (w/fee)	..	..Repeatable	..	..Math or Science	..
..G-Studio	..	maximum credits		..A&H (Literature)	..
..H-Field course	..	from:		..A&H (Non-Literature)	..
..I-Study Abroad	..	to:		..Social Science	..
..L-Lab (no/fee)	..			..CCA	..
..N/B-Lecture/Lab(w/fee)	X			..STS	..
..N/L-Lecture/Lab(no fee)	..				

X**Change Catalog Description:**
from: MTHSC 206 or consent of instructor
to: MTHSC 108 or consent of instructor

..Change Prerequisite(s):
from:
to:

Learning Objectives: Develop a working knowledge of how to formulate and solve quantitative problems in geology and hydrogeology. Analyze rates, gradients, applications for single and multi-dimensional integrals, vectors, time series, differential equations. Write computer programs in Visual Basic, evaluate data using parameter estimation methods, express analyses using mathematical software.

Topical Outline: Week 1 Basic functions and operations
Week 2 Stream rating curve: Calibration, parameter estimation
Week 3 Flow from a well: Temporal derivatives
Week 4 Direction of ground water flow from head maps: Spatial derivatives and vectors
Week 5 Estimating recharge from head maps: Laplacian, error Exam
Week 6 Evidence for climate change from deep sea cores; Fourier series
Week 7 Estimating mass in a core: Integration
Week 8 Estimating mass in a plume: Multidimensional integration
Week 9 Diffusion from out of a fracture. Mass balance ODE
Week 10 Infiltration, Baseflow; Mass balance ODE, Exam
Week 11 Characterizing ground water flow in 2-D and 3-D; vectors,
Week 12 Estimate rate of remediation by mixing and degradation; Mass balance ODE
Week 13 Chemical reactions that produce daughter compounds, kinetics and reactors
Week 14 Steady concentration profile in a stream, total derivative and mass balance
Week 15 Concentration profiles

Lab Topical Outline
Week Topic
1 Visual Basic Programming 1 Functions
2 Intro to Scientific Notebook
3 Solver and Parameter Estimation
4 Parameter Estimation using TableCurve
5 Visual Basic Programming II
6 Visual Basic Programming III
7 Visual Basic Programming IV
8 Surfer as a contour tool
9 Surfer for 2-D integration

10 Fall break
11 SciNotebook first order diff eq.
12 Visual Basic Programming V
13 Visual Basic Programming VI
14 Visual Basic Programming VII
15 Review

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Evaluation: Midterm 1 0.20 Midterm 2 0.20
Homework 0.35 Final Exam: 0.25

Form Originator:LMURDOC, Lawrence Murdoch**Date Form Created:** 1/13/2013
Form Last Updated by: , **Date Form Last Updated:** 1/28/2013
Form Number: 5778

Approval

	1 Feb 2013		3/1/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	2/1/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	2/15/13		5/8/13
Chair, College Curriculum Committee	Date	Provost	Date
	2/18/13		5/8/13
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		

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CLEMSON UNIVERSITY **Curriculum and Course Change System - Print Change/Delete Course Form**

XChange a Course - Abbrev & Number: GEOL-408
Corresponding Lab Course: --
Corresponding Honors course: GEOL-H-408
..Add Honors course: --
Corresponding Graduate course: GEOL- -608
..Add Graduate course: --
Course Title: GEOHYDROLOGY

Brief Statement of Change:
This course will now be cross-listed with an existing course, CE 482/682. These two courses cover the same material, and they have been offered at the same time and in the same room since 2007. This request is to formalize the cross-listing process. The 482/682 number will be used for the course because 408/608 is already a course number in CE. The course descriptions of the two courses have been combined to reflect current content and the new description is given below. The course name used for CE 482/682 is adopted for the cross-listed courses because it more accurately reflects the course content.

Last Term taught:1108		**..Change Abbrev to:**
Effective Term:05/2013		**XChange Number to:** 682
XChange Catalog Title:		**XChange Transcript Title:**
from: GEOHYDROLOGY		from: GEOHYDROLOGY
to: Groundwater and Contaminant Transport		to: GRNDWATER & CONTAM
..	From: Fixed Credit: 3 (3,)	To: Fixed Credit: (,)
Change of Credit	Variable Credit: -(-), (-)	Variable Credit: -(-),(-)

X **Add cross-listing with the following child course(s):** CE 482/682

.. **Delete cross-listing with the following child course(s):**

.. **Reverse Parent/Child relationship with:**

..Change Method of Instruction		**..Change Course Modifier**		**..Change General Education Designation**	
from:	to:	from:	to:	from:	to:
XA-Lecture Only	..	..Pass/Fail Only	..	..English Composition	..
..B-Lab (w/fee)	..	XGraded	..	..Oral Communication	..
..D-Seminar	..	..Variable Title	..	..Mathematics	..
..E-Independent Study	..	..Creative Inquiry	..	..Natural Science w/Lab	..
..F-Tutorial (w/fee)	..	..Repeatable	..	..Math or Science	..
..G-Studio	..	maximum credits		..A&H (Literature)	..
..H-Field course	..	from:		..A&H (Non-Literature)	..
..I-Study Abroad	..	to:		..Social Science	..
..L-Lab (no/fee)	..			..CCA	..
..N/B-Lecture/Lab(w/fee)	..			..STS	..
..N/L-Lecture/Lab(no fee)	..				

XChange Catalog Description:
from: Study of the hydrologic cycle, aquifer characteristics, theory ofgroundwater movement, mechanics of well flow,experimental methods and subsurface mapping.
to: Basic principles of groundwater hydrology, including porous media flow, aquifer characterization, well hydraulics, vadose zone processes and fate and transport of contaminants in groundwater systems.

XChange Prerequisite(s):
from: GEOL 101 and 102
to: GEOL 101 or consent of instructor

Learning Objectives: Obtain a working knowledge of the hydrologic system with particular emphasis on solving problems related to ground water. Evaluate flow through porous media, analyze flow through aquifers and the vadose zone, recognize basic hydrogeologic settings, characterize the performance of wells, describe the fate and transport of natural and man-made contaminants, evaluate conceptual and quantitative aspects of contaminated sites.

Topical Outline: Date Topic Homework Reading
1 Aug 22 W Hydrologic cycle
2 Aug 24 F Flux, flow rate Homework 1 assigned 1
3 Aug 27 M Application of water balances 2.1-2.3
4 Aug 29 W Hydraulic head, piezometers, Darcy's Law 4.1-4.6
5 Aug 31 F Gradient, flux, 3-pt problem, bring see-thru ruler Homework 1 due 3.12
6 Sept 3 M* Head contours, potential maps 7.1-7.2; 3.6-3.8
7 Sept 5 W Head contours, cross-sections
8 Sept 7 F Analyzing flow in aquifers, Basic properties Homework 2 due 3.1-3.2,
9 Sept 10 M Permeability and hydraulic conductivity 3.4, 3.5,3.11 H8
10 Sept 12 W Storativity, effective stress 3.10, H9
11 Sept 14 F The ground water head eqn Homework 3 due 4.7
12 Sept 17 M Analytical solutions, boundary conditions 4.8-4.13
13 Sept 19 W Unconfined aquifer 4.14; H10
14 Sept 21 F Flow nets, principles and methods Homework 4 due 4.10-4.11; H11
15 Sept 24 M Flow nets exercise, bring pencil, eraser 4.12
16 Sept 26 W Numerical solution of ground water head eqn. 13.2-13.6; H12
17 Sept 28 F* Using a gw model for flownets 5 due H13, 13.7-13.8
18 Oct 1 M Regional hydrogeology; The Coastal Plain 8.7; 8.10
19 Oct 3 W Regional hydrogeology; The Piedmont 8.4

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20 Oct 5 F EXAM I 6 due
21 Oct 8 M* Using gw model for a watershed 13.7-13.8
22 Oct 10 W* GW model exercise
23 Oct 12 F Drilling methods and applications for wells 7 due 10.4
Oct 15 M Fall break
24 Oct 17 W Horizontal wells, hydraulic fractures
25 Oct 19 F Analysis of flow to a well 8 due 5.1-5.3
26 Oct 22 M* Analysis of constant rate well tests 5.3-5.6
28 Oct 24 W Slug tests 5.6
29 Oct 26 F Analysis of slug tests 9 due 5.6 H16
30 Oct 29 M Other types of well tests, Sustainable yield,
31 Oct 31 W Flow in the vadose zone, infiltration, recharge 6.1-6.5
32 Nov 2 F Analyzing flow in the vadose zone, Chemflow 10 due 6.6-6.7
33 Nov 5 M* Chemflow exercise
34 Nov 7 W* Wells in ground water models
35 Nov 10 F Water quality overview 11 due 10.1-10.3
36 Nov 12 M EXAM II Grad project proposal
37 Nov 14 W Major ions 9.1-9.3, 9.13-9.14
38 Nov 16 F Contaminant conceptual models 12 due 10.7, 8.8, 10.9
39 Nov 19 M Partitioning
40 Nov 26 M Analyzing transport 10.6
41 Nov 28 W Transport simulations 13 due 10.6
42 Nov. 30 F Multi-phase flow
43 Dec 3 M Hydrogeologic Assessment and Remediation 10.8-10.9
44 Dec 5 W Remediation methods 14 due 10.8
45 Dec 7 F Review
Dec 11 Final Exam Tuesday at 8 am

Evaluation: Evaluation
482
Midterm I 0.20 Midterm II 0.20
Homework and Quizzes 0.35 Final 0.25

682
Midterm I 0.20 Midterm II 0.20
Homework and Quizzes 0.35 Final 0.20
Project 0.05

Form Originator:LMURDOC, Lawrence Murdoch**Date Form Created:** 1/17/2013
Form Last Updated by: , Date Form Last Updated: 1/28/2013
Form Number: 5818

Approval

Thomas J Overcamp	1 Feb 2013	Patricia W. Hudson	3/1/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
Carla Koval	2/1/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	2/18/13	Dennis R. Helms	5/8/13
Chair, College Curriculum Committee	Date	Provost	Date
Angela Shiflet	2/18/13	[illegible]	5/8/13
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		

Approvals related to cross-listing require the following signatures:

	2/14/13		
[Child Course] Chair, Department Curriculum Committee	Date	[Child Course] Chair, College Curriculum Committee	Date
	2/15/13		
[Child Course] Department Chair	Date	[Child Course] College Dean	Date

CLEMSON UNIVERSITY **Curriculum and Course Change System - Print New Course Form**

000036

Course Abbreviation & Number:
X **New Undergraduate Course:** MTHSC- 319
.. **New Honors Course:** --
.. **New Graduate Course:** -

Effective Term: ~~01~~ 08/2013

Catalog Title: Introduction to proof
Transcript Title: Intro to proof

Fixed Credit Course: 3 (3,0)
Variable Credit Course: - (-), (-)

Method of Instruction	Course Modifier	General Education Designation
X A-Lecture Only	.. Pass/Fail Only	.. English Composition
.. B-Lab (w/fee)	X Graded	.. Oral Communication
.. D-Seminar	.. Variable Title	.. Mathematics
.. E-Independent Study	.. Creative Inquiry	.. Natural Science w/Lab
.. F-Tutorial (w/fee)	.. Repeatable	.. Math or Science
.. G-Studio	maximum credits:	.. A&H (Literature)
.. H-Field course		.. A&H (Non-Literature)
.. I-Study Abroad		.. Social Science
.. L-Lab (no/fee)		.. CCA
.. N/B-Lecture/Lab(w/fee)		.. STS
.. N/L-Lecture/Lab(no fee)		

Add cross-listing with the following child course(s):

Catalog Description: A course which introduces mathematical proofs with topics including proof techniques, elementary logic, induction, sets, functions, and relations.

Prerequisite(s): MTHS 108 or 111

Projected Enrollment:
Year 1 - 30 Year 2 - 30 Year 3 - 30 Year 4 - 30

Required course for students in: This course is required for those students majoring in Mathematical Sciences.

Statement of need and justification based on assessment results of student learning outcomes: The purpose of this class is to aid students in transitioning from lower-level courses which are more computational (such as those in the calculus sequence) to upper-level courses with more mathematical rigor. This course will prepare students for courses in which the reading and writing of proofs is considered routine. The topics of the course are also intended to introduce the students to the basic objects which will be used and expanded upon in higher-level courses.

Textbook(s): Mathematical Proofs: A Transition to Advanced Mathematics, by Chartrand, Polimeni, and Zhang
or a suitable alternative

Learning Objectives: At the end of this course, the student will be able to:
1. Construct proofs of conditional and biconditional statements.
2. Demonstrate that a statement is false by supplying a counterexample.
3. Construct proofs of statements involving quantifiers and epsilon-delta based proofs.
4. Write an induction proof.
5. Apply counting techniques.
6. Determine properties of a relation and justify such properties.

Topical Outline: 1. Direct proof (4 hours)
2. Proof by the contrapositive (1 hour)
3. Proof by contradiction (1 hour)
4. Quantifiers and proofs of statements involving quantifiers (3 hours)
5. Epsilon-delta based proofs (4 hours)
6. Counterexamples (1 hour)
7. Proof by induction (5 hours)
8. Basic set theory (5 hours)
9. Functions (5 hours)
10. Relations and equivalence relations (6 hours)
11. Selected topics, such counting techniques, elementary number theory, and graph theory (7 hours)
12. Exams (3 hours)

Evaluation: Homework and quizzes 15%; 3 in-class exams 60%; and final exam 25%.

Form Originator: GMATTHE,Gretchen Matthews **Date Form Created:** 10/1/2012
Form Last Updated by: , **Date Form Last Updated:** 11/13/2012
Form Number: 5401

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Approval

	12/3/12		11/14/12
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
			3/01/13
Department Chair	Date	Chair, ~~Graduate~~ Undergraduate Curriculum Committee	Date
			5/8/13
Chair, College Curriculum Committee	Date	Provost	Date
	2/18/13		5/8/13
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		

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CLEMSON UNIVERSITY **Curriculum and Course Change System - Print Change/Delete Course Form**

X **Change a Course - Abbrev & Number: M E- 417**
Corresponding Lab Course: M E-L-417
Corresponding Honors course: --
.. **Add Honors course:** --
Corresponding Graduate course: M E- -617
.. **Add Graduate course:** --
Course Title: MECHATRONIC SYS

Brief Statement of Change:
Adding a lab fee due to Procure materials and supplies in the laboratory including electronics and electrical components for breadboard experiments, sensors and actuators for materials handling, and semester long microprocessor based design projects

Last Term taught: 1301	.. **Change Abbrev to:**
Effective Term: 05/2013	.. **Change Number to:**
.. **Change Catalog Title:**	.. **Change Transcript Title:**
from:	from: MECHATRONIC SYS
to:	to:

.. **Change of Credit**	From: Fixed Credit: 3 (2,3) Variable Credit: - (-), (-)	To: Fixed Credit: (,) Variable Credit: - (-),(-)

.. **Add cross-listing with the following child course(s):**
.. **Delete cross-listing with the following child course(s):**
.. **Reverse Parent/Child relationship with:**

X **Change Method of Instruction**		.. **Change Course Modifier**		.. **Change General Education Designation**	
from:		from:		from:	to:
to:		to:		.. English Composition	..
.. A-Lecture Only	..	.. Pass/Fail Only	..	.. Oral Communication	..
.. B-Lab (w/fee)	..	X Graded	..	.. Mathematics	..
.. D-Seminar	..	.. Variable Title	..	.. Natural Science w/Lab	..
.. E-Independent Study	..	.. Creative Inquiry	..	.. Math or Science	..
.. F-Tutorial (w/fee)	..	.. Repeatable	..	.. A&H (Literature)	..
.. G-Studio	..	maximum credits		.. A&H (Non-Literature)	..
.. H-Field course	..	from:		.. Social Science	..
.. I-Study Abroad	..	to:		.. CCA	..
.. L-Lab (no/fee)	..			.. STS	..
.. N/B-Lecture/Lab(w/fee)	X				
X N/L-Lecture/Lab(no fee)	..				

.. **Change Catalog Description:**
from:
to:

.. **Change Prerequisite(s):**
from:
to:

Learning Objectives: The student will design an integrated system which includes an actuator, sensor, and
microprocessor controller. [(a),(c),(e)]
2. Students will be able to apply modeling principles to mathematically describe dynamic systems. [(a),(c),(e)]
3. Student will demonstrate the ability to numerically simulate dynamic systems. [(a),(k)]
4. The student will be able to select an appropriate type of sensor and actuator for a

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specified application. [(b),(k)]
5. Teams of students will design an electro-mechanical

Topical Outline: Topical Outline:
1. Review of modeling and simulation methods. (6 hours)
2. Sensors and transducers for control system applications. (4 hours)
3. Actuator devices for real time control system applications. (4 hours)
4. Programmable logic controllers, programming, and signal interfacing. (8 hours)
5. Analysis of system designs for static and dynamic performance. (3 hours)
6. Control theory and application to mechatronic systems (classical, modern). (4 hours)
7. Laboratory experiments and design project. (14 hours)
8. In Class exams. (2 hours)

Evaluation: ME 417 Undergraduate Course Grading:
Tests (2 equally weighted tests) = 68 %
Final Exam = 0 %
Homework (assignments throughout the semester) = 02 %
Design Project with Laboratory Demonstration (hands on opportunity) = 25 %
Laboratory Tasks = 05 %
Total = 100%

ME 617 Graduate Course Grading:
Tests (2 equally weighted tests) = 52 %
Final Exam = 0 %
Homework (assignments throughout the semester) = 02 %
Mechatronics System Mini-Reports and IEEE Control Experiment = 16 %
Design Project with Laboratory Demonstration (leadership opportunity) = 25 %
Laboratory Tasks = 05 %
Total = 100%
Grading scale:
They will follow the traditional practice of A=90-100,B=80-89, C=70-79,
(undergraduate course only), D=60-69 F<60.
(graduate course only), F ≤69

Form Originator: JANEEN, Janeen Putman **Date Form Created:** 1/31/2013
Form Last Updated by: JANEEN, Janeen Putman **Date Form Last Updated:** 1/31/2013
Form Number: 5885

Approval

	2/4/13	3/1/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Comm
	2/1/13	
Department Chair	Date	Chair, Graduate Curriculum Committee
	2/15/13	5/8/1
Chair, College Curriculum Committee	Date	Provost
	2/18/13	5/8/1
College Dean	Date	President
Director, Calhoun Honors College	Date	

CLEMSON UNIVERSITY **Curriculum and Course Change System - Print Change/Delete Course Form**

000050

X **Change a Course - Abbrev & Number: PHYS- 475**
Corresponding Lab Course: ~~PHYS-L-475~~
Corresponding Honors course: --
.. **Add Honors course:** --
Corresponding Graduate course: ~~PHYS- -675~~
.. **Add Graduate course:** --
Course Title: SELECTED TOPICS

Brief Statement of Change:
This course should not require a corresponding lab. This was an error in the current implementation.

Last Term taught: 1301 Effective Term: 05/2013	.. **Change Abbrev to:** .. **Change Number to:**
.. **Change Catalog Title:** from: to:	.. **Change Transcript Title:** from: SELECTED TOPICS to:

.. **Change of Credit**	From: Fixed Credit: (,99) ~~Variable Credit: 1-3 (1-3), (0-0)~~	To: Fixed Credit: (,) ~~Variable Credit: - (-),(-)~~

Variable credit: 1-3 (0,3), (0,9) ~~free correction don't check~~

→ Variable credit: 1-3 (1-3), 0

.. **Add cross-listing with the following child course(s):**
.. **Delete cross-listing with the following child course(s):**
.. **Reverse Parent/Child relationship with:**

X **Change Method of Instruction**		.. **Change Course Modifier**		.. **Change General Education Designation**	
from:	to:	from:	to:	from:	to:
.. A-Lecture Only	X	.. Pass/Fail Only	..	.. English Composition	..
.. B-Lab (w/fee)	..	X Graded	..	.. Oral Communication	..
.. D-Seminar	..	X Variable Title	..	.. Mathematics	..
.. E-Independent Study	..	.. Creative Inquiry	..	.. Natural Science w/Lab	..
.. F-Tutorial (w/fee)	..	X Repeatable	..	.. Math or Science	..
.. G-Studio	..	maximum credits		.. A&H (Literature)	..
.. H-Field course	..	from:		.. A&H (Non-Literature)	..
.. I-Study Abroad	..	to:		.. Social Science	..
.. L-Lab (no/fee)	..			.. CCA	..
X N/B-Lecture/Lab(w/fee)	..			.. STS	..
.. N/L-Lecture/Lab(no fee)	..				

.. **Change Catalog Description:**
from:
to:

.. **Change Prerequisite(s):**
from:
to:

Learning Objectives: Comprehensive study of a topic of current interest in the field of physics. Students will be able to read, understand, discuss, and evaluate scientific articles and textbooks on this subject compatible with the level of the course. Students will be able to apply knowledge in related fields, advanced courses and research activities.

Topical Outline: Topical outline varies. Syllabi for current and past courses PHYS 475 are attached.

Evaluation: Typical evaluation. Midterm and Final exam (50%), Problem sets and student presentations (50%) Grading Scale: 100-90% A; 90%-80% B; 80%-70% C; 70%-60% D, <60% F

Form Originator: GLEHMAC, Gerald Lehmacher **Date Form Created:** 2/6/2013
Form Last Updated by: GLEHMAC, Gerald Lehmacher **Date Form Last Updated:** 2/6/2013
Form Number: 5892

Approval

Gerald Lehmacher	2/6/13	Patricia W. Hinchey	3/1/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
Mark D. Ediger	6 Feb 2013		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	2/15/13	Denis O. Helms	5/8/13
Chair, College Curriculum Committee	Date	Provost	Date
Douglas Shaw	2/18/13		5/8/13
College Dean	Date	President	Date
Director, Calhoun Honors College	Date		

Director, Calhoun Honors College	Date		