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

000074

X **Change a Course - Abbrev & Number: I E- 440**
Corresponding Lab Course: I E-L-440
Corresponding Honors course: --
.. **Add Honors course:** --
Corresponding Graduate course: I E- -640
.. **Add Graduate course:** --
Course Title: DECISION SUPPORT SYS

Brief Statement of Change:
In order to facilitate registration and transfer students, we are adding alternate prerequisites for this course. The IE department has historically allowed these alternate prerequisites, as documented in our Advising Guide, and prefers to document them in the catalog.

Last Term taught: 1108	.. **Change Abbrev to:**
Effective Term: 01/2014	.. **Change Number to:**
.. **Change Catalog Title:**	.. **Change Transcript Title:**
from:	from: DECISION SUPPORT SYS
to:	to:

..	From:	To:
Change of Credit	Fixed Credit: 3 (2,3)	Fixed 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**		.. **Change Course Modifier**		.. **Change General Education Designation**	
from:	to:	from:	to:	from:	to:
.. 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	..	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:

X **Change Prerequisite(s):**
from: ENGR 1410
to: ENGR 1410 OR [(ENGR 1300 or CHE 1300) AND (CPSC 1010 or CPSC 1110 or CPSC 1610)]

Learning Objectives:

Topical Outline:

Evaluation:

Form Originator: MKURZ, Mary Kurz **Date Form Created:** 8/21/2013
Form Last Updated by: MKURZ, Mary Kurz **Date Form Last Updated:** 8/21/2013
Form Number: 6341

Approval

	8/21/13	Clarice W. Nicholson	10/4/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
Scott Mason	8/21/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	9/20/13		
Chair, College Curriculum Committee	Date	Provost	Date
	9/24/13		11/27/13
College Dean	Date	President	Date
			11/27/13
Director, Calhoun Honors College	Date		

CLEMSON UNIVERSITY

0000775

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

X **Delete a Course - Abbrev & Number: I E- 418**
Corresponding Graduate Course: I E- -618
.. **Corresponding Honors course:** --

Course Title: HF ACC AN & EXP TEST

Brief Statement of Change:
This course covers a very narrow field that the department no longer has the expertise to deliver. It is not a core area, and this is an elective course.

Last Term taught: 1201
Effective Term: 01/2014

Form Originator: MKURZ, Mary Kurz **Date Form Created:** 8/19/2013
Form Last Updated by: MKURZ, Mary Kurz **Date Form Last Updated:** 8/19/2013
Form Number: 6332

Approval

	8/19/13		10/4/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
Scott Mason	8/19/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	9/20/13		
Chair, College Curriculum Committee	Date	Provost	Date
	9/24/13		11/27/13
College Dean	Date	President	Date
			11-27-13
Director, Calhoun Honors College	Date		

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

000076

Delete Minor: Environmental Engineering

Effective Term: 01/2014

Form Originator: TJVRC, Thomas Overcamp **Date Form Created:** 9/2/2013
Form Last Updated by: TJVRC, Thomas Overcamp **Date Form Last Updated:** 9/2/2013
Form Number: 6388

Approval

	6 Sept 2013		10/4/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	9/6/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	9/20/13		
Chair, College Curriculum Committee	Date	Provost	Date
	9/24/13		11/27/13
College Dean	Date	President	Date
			11/27/13

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

000079

Course Abbreviation & Number:
.. **New Undergraduate Course:** EE&S- 300
X **New Honors Course:** --
.. **New Graduate Course:** -

Effective Term: 01/2014
Catalog Title: Honors Seminar - Introduction to Research in Environmental Engineering
Transcript Title: Honors Res Env Eng

Fixed Credit Course: 1 (1,0)
Variable Credit Course: - (-), (-)

Method of Instruction	Course Modifier	General Education Designation
.. A-Lecture Only	X Pass/Fail Only	.. English Composition
.. B-Lab (w/fee)	.. Graded	.. Oral Communication
X 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: This course provides an Introduction to environmental engineering research. Students will attend seminars describing how a research program is developed, including the scientific method and hypothesis testing. Students are expected to write and revise a research proposal, that will be reviewed by the faculty advisor.

Prerequisite(s): None

Projected Enrollment:
Year 1 - 2 Year 2 - 4 Year 3 - 5 Year 4 - 5

Required course for students in:

Statement of need and justification based on assessment results of student learning outcomes: EES 3000 offers an honors program at the departmental level for undergraduate EE&S students in addition to the standard curriculum.

Textbook(s): None

Learning Objectives: Research based honors experience for BS-ENVE majors. Students will attend a minimum of three (3) seminars presented by faculty and/or senior graduate students. The students will meet with the faculty advisor to develop a research proposal. They will write the proposal, and revise the proposal with the assistance of the faculty advisor.

Topical Outline: Students will attend three seminars, and write/revise a research proposal with the assistance of the faculty advisor.

Evaluation: This is a pass/fail course. The students will be evaluated based on seminar attendance and participation, and completing the final research proposal.

Add course requirements for honors and/or 600-level courses (if applicable): Honors only course; requirements stated above

Form Originator: KTF,Kevin Finneran **Date Form Created:** 3/7/2013
Form Last Updated by: , **Date Form Last Updated:** 8/1/2013
Form Number: 5979

Approval

Thomas J. Quirmbach	6 Sept 2013	Patricia W. Anderson	10/4/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
Cafer Koral	9/6/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
[illegible]	9/20/13		
Chair, College Curriculum Committee	Date	Provost	Date
[illegible]	9/24/13	[illegible]	11/27/13
College Dean	Date	President	Date
		[illegible]	11-27-13
Director, Calhoun Honors College	Date		

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

000080

Course Abbreviation & Number:
.. **New Undergraduate Course:** EE&S- 301
X **New Honors Course:** --
.. **New Graduate Course:** -

Effective Term: 01/2014
Catalog Title: Honors Research I in Environmental Engineering
Transcript Title: Honors Res I Env Eng

Fixed Credit Course: 3 (0,9)
Variable Credit Course: - (-), (-)

Method of Instruction	Course Modifier	General Education Designation
.. 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
X 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: Undergraduate honors research program in environmental engineering. In this course, the student will begin the environmental engineering research project.

Prerequisite(s): EES 300

Projected Enrollment:
Year 1 - 2 Year 2 - 4 Year 3 - 5 Year 4 - 5

Required course for students in:

Statement of need and justification based on assessment results of student learning outcomes: EES 3010 offers an honors program at the departmental level for undergraduate BS-ENVE students in addition to the standard curriculum.

Textbook(s): None

Learning Objectives: The objectives of this course are to: a) learn and implement the scientific method, b) develop a conceptual experiment model based on peer reviewed literature sources, c) develop testable hypotheses, d) design and construct the experimental systems required to test the hypotheses outlined, and e) begin experimentation.

Topical Outline: Students will conduct up to 8 hours of independent research with the assistance of graduate personnel. They are also expected to have 1 hour of meeting time per week with the faculty advisor.

Evaluation: Evaluation is based on attendance of laboratory hours, and continued progress in the selected research topic area at the discretion of the faculty advisor. Students will be graded on effort and productivity, irrespective of the research results. Grading will be as follows: 100-90: A, 89.9-80: B, 79.9-70:C, 69.9-60: D, 59.9>: F.

Add course requirements for honors and/or 600-level courses (if applicable): Honors course; requirements stated above

Form Originator: KTF,Kevin Finneran **Date Form Created:** 3/7/2013
Form Last Updated by: , **Date Form Last Updated:** 8/1/2013
Form Number: 5980

Approval

Thomas J. Overcamp	6 Sept 2013	Patricia W. Murdock	10/4/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
Carl Koval	9/6/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	9/20/13		
Chair, College Curriculum Committee	Date	Provost	Date
	9/24/13	Nathan M. Ary	11/27/13
College Dean	Date	President	Date
		James O. Barker	11/27/13
Director, Calhoun Honors College	Date		

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

000081

Course Abbreviation & Number:
.. **New Undergraduate Course:** EE&S- 400
X **New Honors Course:** --
.. **New Graduate Course:** -

Effective Term: 01/2014
Catalog Title: Honors Research II in Environmental Engineering
Transcript Title: Honor Res II Env Eng
Fixed Credit Course: 3 (0,9)
Variable Credit Course: - (-), (-)

Method of Instruction	Course Modifier	General Education Designation
.. 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
X 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: This course is a continuation of honors research in environmental engineering.

Prerequisite(s): EES 301

Projected Enrollment:
Year 1 - 2 Year 2 - 4 Year 3 - 5 Year 4 - 5

Required course for students in:

Statement of need and justification based on assessment results of student learning outcomes: EES 3010 offers an honors program at the departmental level for undergraduate BS-ENVE in addition to the standard curriculum.

Textbook(s): None

Learning Objectives: The objectives of this course are to: a) conduct experiments with the assistance of a faculty advisor and senior graduate student personnel, b) learn and use laboratory analytical equipment with limited or no assistance, c) analyze and interpret data, and d) use computer software programs to assist with generating plots, tables, and figures for eventual presentation.

Topical Outline: Students will conduct up to 8 hours of independent research with the assistance of graduate personnel. They are also expected to have 1 hour of meeting time per week with the faculty advisor.

Evaluation: Evaluation is based on attendance of laboratory hours, and continued progress in the selected research topic area at the discretion of the faculty advisor. Students will be graded on effort and productivity, irrespective of the research results. Grading will be as follows: 100-90: A, 89.9-80: B, 79.9-70:C, 69.9-60: D, 59.9>: F.

Add course requirements for honors and/or 600-level courses (if applicable): Honors course; requirements stated above

Form Originator: KTF,Kevin Finneran **Date Form Created:** 3/7/2013
Form Last Updated by: , **Date Form Last Updated:** 8/1/2013
Form Number: 5981

Approval

	6 Sept 2013		10/4/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	9/6/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	9/20/13		
Chair, College Curriculum Committee	Date	Provost	Date
	9/24/13		11/27/13
College Dean	Date	President	Date
			11/27/13
Director, Calhoun Honors College	Date		

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

Course Abbreviation & Number:
.. **New Undergraduate Course:** EE&S- 495
X **New Honors Course:** --
.. **New Graduate Course:** -

Effective Term: 01/2014
Catalog Title: Honors Thesis in Environmental Engineering
Transcript Title: Hon Thesis Env Eng
Fixed Credit Course: 1 (1,0)
Variable Credit Course: - (-), (-)

Method of Instruction	Course Modifier	General Education Designation
.. A-Lecture Only	.. Pass/Fail Only	.. English Composition
.. B-Lab (w/fee)	X Graded	.. Oral Communication
X 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: Completion of the honors thesis in environmental engineering and oral presentation of the results.

Prerequisite(s): EEES 400

Projected Enrollment:
Year 1 - 2 Year 2 - 4 Year 3 - 5 Year 4 - 5

Required course for students in:

Statement of need and justification based on assessment results of student learning outcomes: EES 4950 offers an honors program at the departmental level for BS-ENVE students in addition to the standard curriculum.

Textbook(s): None

Learning Objectives: The objectives of this course are to: a) summarize the overall research experience in a written document, b) develop graphical and tabular data to support conclusions and interpretations, and c) use the peer reviewed literature in data analyses.

Topical Outline: Students will have a one hour per week meeting in preparation for presenting their research to the department.

Evaluation: Grading will be based on the successful completion of an Honors Thesis. Students will be given guidance on how to complete a thesis, and grading will be based on the content and effective communicating techniques. The student must adequately describe the research project theme and experiments, and provide tabular and graphical data to support their data interpretation. Grading will be as follows: 100-90: A, 89.9-80: B, 79.9-70:C, 69.9-60: D, 59.9>: F.

Add course requirements for honors and/or 600-level courses (if applicable): Honors course; requirements stated above

Form Originator: KTF,Kevin Finneran **Date Form Created:** 3/7/2013
Form Last Updated by: , **Date Form Last Updated:** 8/1/2013
Form Number: 5982

Approval

	6 Sept 2013		10/4/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	9/6/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	9/20/13		
Chair, College Curriculum Committee	Date	Provost	Date
	9/24/13		11/27/13
College Dean	Date	President	Date
			11/27/13
Director, Calhoun Honors College	Date		

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

000082

Course Abbreviation & Number:
X **New Undergraduate Course:** EE&S- 437
.. **New Honors Course:** --
X **New Graduate Course:** EE&S- 637

Effective Term: 01/2014
Catalog Title: Biodegradation and Bioremediation
Transcript Title: Bioremediation
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): 637

Catalog Description: Basic principles of biodegradation for major classes of organic and inorganic contaminants including halogenated aliphatic and aromatic compounds, fuel hydrocarbons, pesticides and nitrated energetic compounds, metals, and radionuclides. We will discuss the basic science of microbiology and chemistry, and how these are used to develop bioremediation strategies and technologies.

Prerequisite(s): For EES 4370: (EES 2020 or EES 4010), (CH 2010 or CH 2230), and (MICR 3050 or MICR 4130). For EES 6370: EES 8510. Specific prerequisites can be waived with consent of instructor.

Projected Enrollment:
Year 1 - 10 Year 2 - 12 Year 3 - 15 Year 4 - 20

Required course for students in:

Statement of need and justification based on assessment results of student learning outcomes: Offers a specific course on bioremediation and biodegradation at the undergraduate and graduate levels, which is critical for students in this field as it is one of the major environmental engineering sub-disciplines.

Textbook(s): Bioremediation and Natural Attenuation, Alvarez and Illman, Wiley Interscience, 2006, ISBN-13 978-0-471-65043-0, First Edition

Learning Objectives: Through their class work the students will be able to:
Apply oxidation/reduction chemistry to biological problems;
Use oxidation/reduction chemistry to determine the energy available to cells;
Understand cellular metabolism and pathways of central metabolism (how cells take apart carbon and generate energy via electron transport)
While this will be slanted in favor of prokaryotic cells (i.e. microorganisms) we will understand what is going on with eukaryotic cells as well;
Understand DNA and RNA (molecular biology) applications in bioremediation;
Understand microbial-influenced biogeochemistry and its effect on contaminant fate or wastewater treatment or water treatment dynamics; and
Design, cost, and operate/maintain an ex situ or in situ (or combined) bioremediation system

Topical Outline: Students will attend bi-weekly lectures. They will have open discussions in class with each other and the instructor regarding reading topics that will come from the textbook and the literature. They will work in small groups that will be assigned on occasion for in class assignments. This class will encourage interactions amongst the undergraduate and graduate students enrolled in 6370.

Topics Include:
• Applying oxidation/reduction chemistry to biological problems (8 h);
• Using oxidation/reduction chemistry to determine the energy available to cells (4 h);
• Understanding cellular metabolism and pathways of central metabolism (how cells take apart carbon and generate energy via electron transport) (5 h)
o While this will be slanted in favor of prokaryotic cells (i.e. microorganisms) we will understand what is going on with eukaryotic cells as well;
• Understanding DNA and RNA (molecular biology) applications in bioremediation (8 h);
• Understanding microbial-influenced biogeochemistry and its effect on contaminant fate or wastewater treatment or water treatment dynamics (10 h); and
• Designing, costing, and operating/maintaing an ex situ or in situ (or combined) bioremediation system (10 h)

Specific bioremediation applications will include chlorinated solvents, explosives, metals and metalloids, petroleum hydrocarbons,

and pesticides.

Evaluation: This is a graded course. It will be graded as follows.
For EES 4370:
Exams: 60% of grade
Homework: 20% of grade
Quizzes: 15% of grade
Class Participation: 5% of grade

000083

For EES 6370:
Exams: 40% of grade
Homework: 10% of grade
Quizzes: 15% of grade
Class Participation: 5% of grade
Semester Project: 30% of grade

The grading scale for EES 4370 will be:
A: >90
B: 89.9-80
C: 79.9-70
D: 69.9-60
F: <59.9

The grading scale for EES 6370 will be:
A: >90
B: 89.9-80
C: 79.9-70
D: Not applicable
F: <69.9

Add course requirements for honors and/or 600-level courses (if applicable): A semester project will be completed by graduate students.
Goal: Student groups will function as a small "consulting firm" and present the instructor (the client) with a remedial action design that must use bioremediation as the centerpiece technology. They will have a site case history with data in front of them. That is the starting point, but they must work under the assumption that whatever has been proposed thus far did not work, for any number of reasons. They will need to propose an alternative approach. It can have the same strategy as the one that has been tried (e.g. if sulfate-mediated remediation has been tried they can also propose sulfate-reduction focused strategies, but there needs to be a distinct improvement/difference relative to what has already been done.) They can search out any documents, peer reviewed or not, to develop this plan. They must cite all work that goes into this document, peer reviewed or not.

Their proposal must include the following:

- Site background (1 page)
- Contaminant background (1 page)
- Proposed remediation strategy (up to 8 pages)
- Cost analysis (1 page table) (this will be aided by the instructor)

This will be presented in:

- Up to 10 pages maximum, double spaced, 1 inch margins
- no smaller than 11-point font (your choice of font type)
- the 10 pages does not include figures or tables
- 1 cost table must also be presented with line item budget, and sum (there are no budget thresholds)
- stapled at the upper left, no additional binding

Citations must include:

Author(s), year, title of article/document/source, volume/issue (if relevant), web source (if online), editor (if relevant), document # (if government report)

They will present their proposal to the class in a 20 minute, end of semester talk.

Form Originator: KTF,Kevin Finneran **Date Form Created:** 5/9/2013
Form Last Updated by: , **Date Form Last Updated:** 9/19/2013
Form Number: 6070

Approval

Thomas J. Phillips	20 Sept 2013	Patricia W. Morrison	10/4/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
Carl Koralli	9/20/13		

Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	9/6/13		
Chair, College Curriculum Committee	Date	Provost	Date
	9/24/13		11/27/13
College Dean	Date	President	Date
			11/27/13
Director, Calhoun Honors College	Date		
Approvals related to cross-listing require the following signatures:			
[Child Course] Chair, Department Curriculum Committee	Date	[Child Course] Chair, College Curriculum Committee	Date
[Child Course] Department Chair	Date	[Child Course] College Dean	Date

000084

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

000085

X **Change a Course - Abbrev & Number: E C E- 449**
Corresponding Lab Course: E C E-L-449
Corresponding Honors course: --
.. **Add Honors course:** --
Corresponding Graduate course: E C E- -649
.. **Add Graduate course:** --
Course Title: COMP NTWRK SECURITY

Brief Statement of Change:
After consideration of the electrical engineering curriculum, the ECE department has concluded that electrical engineering majors in senior standing have the educational background necessary to succeed in ECE 4490. Change preq from ECE 449 - Preq: senior standing in Computer Engineering, ECE 649 - Graduate standing in a technical field to ECE 4490 - Senior standing in Electrical Engineering or Computer Engineering. Coreq: ECE 4491. ECE 6490 - Graduate standing in Electrical or Computer Engineering. Coreq: ECE 6491

Last Term taught: 1108	.. **Change Abbrev to:**
Effective Term: 01/2014	.. **Change Number to:**
.. **Change Catalog Title:**	.. **Change Transcript Title:**
from:	from: COMP NTWRK SECURITY
to:	to:

..	From:	To:
Change of Credit	Fixed Credit: 3 (1,4)	Fixed 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**		.. **Change Course Modifier**		.. **Change General Education Designation**	
from:	to:	from:	to:	from:	to:
.. 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	..	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:

X **Change Prerequisite(s):**
from: ECE 449 - Preq: Senior standing in Computer Engineering, ECE 649 - Preq: Graduate standing in a technical field
to: ECE 4490 - Senior standing in Electrical Engineering or Computer Engineering. Coreq: ECE 4491. ECE 6490 - Graduate standing in Electrical or Computer Engineering. Coreq: ECE 6491

Learning Objectives:
Topical Outline:
Evaluation:

Form Originator: EBRAD, Elizabeth Gibisch **Date Form Created:** 4/5/2013
Form Last Updated by: , **Date Form Last Updated:** 9/9/2013
Form Number: 6039

Approval

	9/9/13		10/4/2013
Chair, Department Curriculum Committee	Date	Chair, Undergraduate Curriculum Committee	Date
	9/9/13		
Department Chair	Date	Chair, Graduate Curriculum Committee	Date
	9/12/13		
Chair, College Curriculum Committee	Date	Provost	Date
	9/24/13		11/27/13

College Dean	Date	President	Date
			11/27/13
Director, Calhoun Honors College	Date		

124 Total Semester Hours

See advisor.

MTHS 2030 or other course approved by department.

See General Education Requirements. Three of these credit hours must also satisfy the Cross Cultural Awareness Requirement.

This course is exempt if the student achieves a B or better on TOEFS 4060.

ENGL 3040, 3080, or 4150

Notes:

1. Students must achieve C or better in all required science and nursing courses.
2. A minimum grade point average of 2.5 is required in all nursing courses for progression to the next level. Students may repeat a nursing course one time only. A student who does not maintain a 2.5 or better GPR in the curriculum will not be permitted to continue in the Nursing major.
3. Students must pass didactic and clinical components to pass all clinical courses.

PARKS, RECREATION AND TOURISM MANAGEMENT

Bachelor of Science

The Department of Parks, Recreation and Tourism Management prepares students for a variety of careers in public and private leisure services. The curriculum provides a broad exposure to the management of leisure service programs and resources, such as those for municipalities, institutions, voluntary and youth-serving agencies, management positions within the travel and tourism industry and as resource managers of local, state, and federal parks and related lands and waters.

The curriculum allows students to select from five concentrations. This latitude permits accommodation of each student's career objectives in positions in community recreation, sport management, recreation programming, cultural arts management, commercial recreation, wilderness management, nature interpretation, park management, historic site management, rehabilitation services, leisure counseling, camp administration, recreation therapy programs for people with disabilities or senior citizens, travel industry, resort management, convention and visitor bureaus, theme parks, community tourism, and special events/festival planning, to name a few.

The Parks, Recreation and Tourism Management program is accredited by the National Council on Accreditation (National Recreation and Park Association/Council on Postsecondary Accreditation). Graduates are immediately eligible to apply to become "Certified Park and Recreation Professionals," a valuable credential for professional advancement.

When space is available, a student may change majors to one of the degree concentrations in the Department of Parks, Recreation and Tourism Management with a 2.0 cumulative grade-point average and approval of the department chair or his/her designee. Students are encouraged to speak with the PRTM advisor about changing their major prior to the start of their sophomore year to avoid a delay in graduation due to course sequencing and course prerequisite requirements.

Graduate degrees offered are Master of Parks, Recreation and Tourism Management; Master of Science; and Doctor of Philosophy.

COMMUNITY RECREATION, SPORT AND CAMP MANAGEMENT CONCENTRATION

The Community Recreation, Sport and Camp Management (CRSCM) Concentration prepares students for careers in community recreation, amateur athletics, and camp management by developing theoretical, conceptual, and applied knowledge bases necessary for success in its diverse field. The focus of this program is on community, family, and individual development. Career opportunities include, but are not limited to, community recreation programming, community athletic programming, camp administration, facility operation and management, special events, campus recreation, and fitness and wellness programming.

Freshman Year

First Semester

2 - CU 1010 University Success Skills[1]
3 - Mathematics Requirement[2]
4 - Natural Science Requirement[2]
6 - Social Sciences Requirement[2]
15

Second Semester

3 - ENGL 1030 Accelerated Composition
1 - PRTM 2000 Profession and Practice in PRTM and
2 - PRTM 2200 Conceptual Foundations of PRTM or
3 - Arts and Humanities (Non-Lit.) Requirement[2]
3 - Mathematics or Natural Science Requirement[2]
3 - Oral Communication Requirement[2]
15

3 - PRTM 3010 Recreation & Society

Sophomore Year

First Semester

1 - PRTM 1980 Creative Inquiry—PRTM I
6 - PRTM 2260 Found. of Met., Administration and Programming in Leisure Services
5 - PRTM 2270 Provision of Leisure Service Exp.
3 - PRTM 2290 Distributed Competency Integration in PRTM
15

Second Semester

2 - PRTM 2980 Creative Inquiry—PRTM II
3 - Arts and Humanities (Literature) Requirement[2]
9 - Concentration Requirement
1 - Elective
15

Summer

1 - PRTM 2060 Practicum I
1 - PRTM 2070 Practicum II
2

Junior Year

First Semester

2 - PRTM 3980 Creative Inquiry—PRTM III
1 - PRTM 4040 Field Training I
12 - Concentration Requirement[3]
15

Second Semester

1 - PRTM 4980 Creative Inquiry—PRTM IV
12 - Concentration Requirement[3]
2 - Elective
15

Summer

6 - PRTM 4050 Field Training II

Senior Year

First Semester

12 - Concentration Requirement[3]
12

Second Semester

6 - Concentration Requirement[3]
6 - Elective
12

122 Total Semester Hours

[1] See advisor for new General Education Requirement to replace CU 1010.

[2] See General Education Requirements. Six of these credit hours must also satisfy the Cross Cultural Awareness and Science and Technology in Society requirements. See advisor.

[3] See advisor.

PARKS AND CONSERVATION AREA MANAGEMENT CONCENTRATION

Students in Park Conservation Area Management (PCAM) prepare for work as park rangers, planners, educators, law enforcement officers, and administrators of our nation's federal, state, and county public lands that hold unique natural, cultural, and historic resources. PCAM focuses on helping visitors enjoy and appreciate parklands while protecting those resources for future generations. Besides taking coursework in PRTM, many students choose to complete a minor field of study in forest resource management, wildlife and fisheries biology, history, or anthropology.

Freshman Year

First Semester

2 - CU 1010 University Success Skills[1]
6 - Social Science Requirement[2]
3 - Mathematics Requirement[2]
4 - Natural Science Requirement[2]
15

Second Semester

3 - ENGL 1030 Accelerated Composition
1 - PRTM 2000 Profession and Practice in PRTM and
2 - PRTM 2200 Conceptual Foundations of PRTM or
3 - Arts and Humanities (Non-Lit.) Requirement[2]
3 - Mathematics or Natural Science Requirement[2]
3 - Oral Communication Requirement[2]
15

3 - PRTM 3010 Recreation & Society

Sophomore Year

First Semester
1 - PRTM 1980 Creative Inquiry—PRTM I
6 - PRTM 2260 Foundations of Management, Admin. and Programming in Leisure Skills
5 - PRTM 2270 Provision of Leisure Service Exp.
3 - PRTM 2290 Competency Integration in PRTM
15

Second Semester
2 - PRTM 2980 Creative Inquiry—PRTM II
3 - Arts and Humanities (Literature) Requirement[1]
9 - Concentration Requirement[2]
1 - Elective
15

Summer

1 - PRTM 2060 Practicum I
1 - PRTM 2070 Practicum II
2

Junior Year

First Semester
2 - PRTM 3980 Creative Inquiry—PRTM III
1 - PRTM 4040 Field Training I
12 - Concentration Requirement[2]
15

Second Semester
1 - PRTM 4980 Creative Inquiry—PRTM IV[3]
12 - Concentration Requirement[2]
2 - Elective
15

Summer

6 - PRTM 4050 Field Training II

Senior Year

First Semester
12 - Concentration Requirement[2]
12

Second Semester
6 - Concentration Requirement[2]
6 - Elective
12

122 Total Semester Hours

[1] See advisor for new General Education Requirements requirements.
[2] See General Education Requirements. Several courses or electives are available satisfying the Cross-Cultural Awareness and Science and Technology in Society requirements. See advisor.
[3] See advisor.

PROFESSIONAL GOLF MANAGEMENT CONCENTRATION

The Professional Golf Management (PGM) Concentration provides a unique educational background for students who desire to become PGA professionals. Students obtain specialized knowledge and skills which prepare them to become leaders in the golf industry. The PGM Concentration combines academics, career training, and extensive internship experience to develop well-rounded, service-oriented professionals who can meet and respond to the personal as well as business management requirements of golf programs and facilities. **See advisor for new additional General Education Requirements.**

Freshman Year

First Semester
3 - PRTM 2810 Introduction to Golf Management
6 - Social Science Requirement[1]
3 - Mathematics Requirement[1]
4 - Natural Science Requirement[1]
16

Second Semester
3 - ENGL 1030 Accelerated Composition
1 - PRTM 1950 PGM Seminar I
1 - PRTM 2000 Profession and Practice in PRTM and
2 - PRTM 2200 Conceptual Foundations of PRTM or
3 - Arts and Humanities (Non-Lit.) Requirement[1]
3 - Mathematics or Natural Science Requirement[1]
3 - Oral Communication Requirement[1]
16 3-PRTM 3010 Recreation & Society

Summer

0 - COOP 2010 Cooperative Education
1 - PRTM 2060 Practicum I
1

Sophomore Year

First Semester
1 - PRTM 1980 Creative Inquiry—PRTM I
6 - PRTM 2260 Foundations of Management and Administration in PRTM
5 - PRTM 2270 Provision of Leisure Service Exp.
3 - PRTM 2290 Distributed Competency Integration in PRTM
1 - PRTM 2950 PGM Seminar II
16

Second Semester
3 - Arts and Humanities (Literature) Requirement[1]
9 - Concentration Requirement[2]
4 - Elective
16

Summer

0 - COOP 2020 Cooperative Education
0

Junior Year

First Semester
0 - COOP 2030 Cooperative Education
1 - PRTM 2070 Practicum II

Second Semester
12 - Concentration Requirement
3 - Elective
15

Senior Year

First Semester
1 - PRTM 3950 PGM Seminar III
1 - PRTM 4040 Field Training I
15 - Concentration Requirement[2]
17

Second Semester
0 - COOP 2040 Cooperative Education
0

Summer

0 - COOP 2050 Cooperative Education
6 - PRTM 4050 Field Training II
6

Fifth Year

First Semester
1 - PRTM 4950 PGM Seminar IV
15 - Concentration Requirement[2]
16

120 Total Semester Hours

[1] See General Education Requirements. Several these credit hours natural satisfy the Cross-Cultural Awareness and Science and Technology in Society requirements. See advisor.
[2] See advisor.

THERAPEUTIC RECREATION CONCENTRATION

The Therapeutic Recreation (TR) Concentration prepares students for exciting careers working with people with disabilities in a variety of settings, including community-based recreation agencies, camps, children's hospitals, psychiatric and physical rehabilitation hospitals, and assisted-living facilities, to name a few. Therapeutic Recreation consists of the delivery of recreation services designed to enhance participants' leisure experiences, quality of life, and functional capabilities. Students who complete these requirements will be eligible to sit for an examination to become a Certified Therapeutic Recreation Specialist (CTRS). **Students take courses and preceptorships at the University Center and agencies in Greenville, SC and the surrounding area, during their junior year.**

Freshman Year

First Semester
2 - UC 1030 University Success Skills[1]
3 - Mathematics Requirement[1]
4 - Natural Science Requirement[1]
6 - Social Science Requirement[1]
15

Second Semester
3 - ENGL 1030 Accelerated Composition
1 - PRTM 2000 Profession and Practice in PRTM and
2 - PRTM 2200 Conceptual Foundations of PRTM or
3 - Arts and Humanities (Non-Lit.) Requirement[1]
3 - Mathematics or Natural Science Requirement[1]
3 - Oral Communication Requirement[1]
15 3-PRTM 3010 Recreation & Society

Sophomore Year

First Semester
1 - PRTM 1980 Creative Inquiry—PRTM I
6 - PRTM 2260 Foundations of Management and Administration in PRTM
5 - PRTM 2270 Provision of Leisure Service Exp.
3 - PRTM 2290 Distributed Competency Integration in PRTM
15

Second Semester
2 - PRTM 2980 Creative Inquiry—PRTM II
3 - Arts and Humanities (Literature) Requirement[2]
9 - Concentration Requirement[1]
1 - Elective
15

Summer

1 - PRTM 2060 Practicum I
1 - PRTM 2070 Practicum II
2

Junior Year

First Semester
2 - PRTM 3980 Creative Inquiry—PRTM III
1 - PRTM 4040 Field Training I
12 - Concentration Requirement[1]
15

Second Semester
1 - PRTM 4980 Creative Inquiry—PRTM IV
12 - Concentration Requirement[1]
2 - Elective
15

Summer

6 - PRTM 4050 Field Training II

Senior Year

First Semester
12 - Concentration Requirement[1]
12

Second Semester
6 - Concentration Requirement[1]
6 - Elective
12

122 Total Semester Hours

[1] See advisor for new General Education Requirements to replace CLE 1030.

[2] See General Education Requirements. Six of these credit hours must also satisfy the Cross-Cultural Awareness and Science and Technology in Society requirements. See advisor.

[3] See advisor.

TRAVEL AND TOURISM CONCENTRATION

The Travel and Tourism (T&T) Concentration prepares students for interesting and challenging careers working in one of the world's most diverse and dynamic industries. Students in the concentration are introduced to issues pertaining to the management, planning, and promotion of places and events such as tourist attractions. The program is designed to provide an understanding of the linkages that exist between local communities, their populations, and various public, private, and special interest groups. Students in Travel and Tourism can pursue careers in private sector enterprises, government agencies, convention and visitor bureaus, as well as other voluntary-affiliated organizations.

Freshman Year

First Semester
2 - CLE 1010 University Success Skills[3]
3 - Mathematics Requirement[2]
4 - Natural Science Requirement[2]
6 - Social Science Requirement[2]
15

Second Semester
3 - ENGL 1030 Accelerated Composition
1 - PRTM 2000 Profession and Practice in PRTM and
2 - PRTM 2200 Conceptual Foundations of PRTM or
3 - Arts and Humanities (Non-Lit.) Requirement[2]
3 - Mathematics or Natural Science Requirement[2]
3 - Oral Communication Requirement[2]
15

3-PRTM 3010 Recreation & Society

Sophomore Year

First Semester
1 - PRTM 1980 Creative Inquiry—PRTM I
6 - PRTM 2260 Foundations of Management and Administration in PRTM
5 - PRTM 2270 Provision of Leisure Service Exp.
3 - PRTM 2290 Distributed Competency Integration in PRTM
15

Second Semester
2 - PRTM 2980 Creative Inquiry—PRTM II
3 - Arts and Humanities (Literature) Requirement[2]
9 - Concentration Requirement[1]
1 - Elective
15

Summer

1 - PRTM 2060 Practicum I
1 - PRTM 2070 Practicum II
2

Junior Year

First Semester
2 - PRTM 3980 Creative Inquiry—PRTM III
1 - PRTM 4040 Field Training I
12 - Concentration Requirement[1]
15

Second Semester
1 - PRTM 4980 Creative Inquiry—PRTM IV
12 - Concentration Requirement[1]
2 - Elective
15

Summer

6 - PRTM 4050 Field Training II

Senior Year

First Semester
12 - Concentration Requirement[1]
12

Second Semester
6 - Concentration Requirement[1]
6 - Electives
12

122 Total Semester Hours

[1] See advisor for new General Education Requirements to replace CLE 1030.

[2] See General Education Requirements. Six of these credit hours must also satisfy the Cross-Cultural Awareness and Science and Technology in Society requirements. See advisor.

[3] See advisor.