FLORIDA ATLANTIC UNIVERSITY™

Graduate Programs—NEW COURSE PROPOSAL[1]

UGPC APPROVAL _____
UFS APPROVAL _____
SCNS SUBMITTAL _____
CONFIRMED _____
BANNER POSTED _____
CATALOG _____

DEPARTMENT: CEGE

COLLEGE: ENGINEERING AND COMPUTER SCIENCE

RECOMMENDED COURSE IDENTIFICATION:

PREFIX ENV COURSE NUMBER 6932 LAB CODE (L or C) _____

(TO OBTAIN A COURSE NUMBER, CONTACT MJENNING@FAU.EDU)

COMPLETE COURSE TITLE: Sustainability and Pollution Prevention

EFFECTIVE DATE
(first term course will be offered)

SPRING 2015

CREDITS[2]:
3

TEXTBOOK INFORMATION:
Abel, D.C. and McConnell, R.L. (2013). Environmental Issues: Looking Towards a Sustainable Future, 4/E. ISBN-10: 1256933090.

GRADING (SELECT ONLY ONE GRADING OPTION): REGULAR ___X___ SATISFACTORY/UNSATISFACTORY _____

COURSE DESCRIPTION, NO MORE THAN THREE LINES:
The course introduces students to the principles of engineering sustainability, life cycle cost analysis, pollution prevention, and environmental resource management of infrastructure planning and design.

PREREQUISITES *:	COREQUISITES*:	REGISTRATION CONTROLS (MAJOR, COLLEGE, LEVEL)*:
NONE	NONE	NONE

* PREREQUISITES, COREQUISITES AND REGISTRATION CONTROLS WILL BE ENFORCED FOR ALL COURSE SECTIONS.

MINIMUM QUALIFICATIONS NEEDED TO TEACH THIS COURSE:
PH.D. IN CIVIL ENGINEERING OR CLOSELY RELATED FIELD

Faculty contact, email and complete phone number:
Daniel Meeroff, Ph.D.
dmeeroff@fau.edu
7-3099

Please consult and list departments that might be affected by the new course and attach comments.[3]
No other departments affected.

Approved by:	*Date:*
Department Chair:	9/29/14
College Curriculum Chair:	9/29/14
College Dean:	10/1/14
UGPC Chair:	10/8/14
Graduate College Dean:	10-15-14
UFS President:	
Provost:	

1. **Syllabus** must be attached; see guidelines for requirements: *www.fau.edu/provost/files/course_syllabus.2011.pdf*
2. Review **Provost Memorandum: Definition of a Credit Hour** *www.fau.edu/provost/files/Definition_Credit_Hour_Memo_2012.pdf*
3. **Consent** from affected departments (attach if necessary)

Email this form and syllabus to UGPC@fau.edu **one week before** the University Graduate Programs Committee meeting so that materials may be viewed on the UGPC website prior to the meeting.

Department of Civil, Environmental & Geomatics Engineering
Florida Atlantic University
Course Syllabus

1. Course title/number, number of credit hours	
Sustainability and Pollution Prevention (ENV6932)	3 credit hours

2. Course prerequisites, corequisites, and where the course fits in the program of study

Prerequisites: None
This course introduces students to the principles of sustainability, life cycle cost analysis, pollution prevention, and environmental impacts of civil engineering and infrastructure planning and design.

3. Course logistics

Term: Spring 2015
This is a classroom lecture course
Class location and time: Tuesday 4:00 – 6:50 pm

4. Instructor contact information

Instructor's name	Dr. Daniel E. Meeroff, Associate Professor
Office address	Engineering West (EG-36) Bldg., Room 206
Office Hours	T/R 11:00 am – 12:20 pm
Contact telephone number	561-297-3099
Email address	dmeeroff@fau.edu

5. TA contact information

TA's name	TBA
Office address	
Office Hours	
Contact telephone number	
Email address	

6. Course description

The course introduces students to the principles of engineering sustainability, life cycle cost analysis, pollution prevention, and environmental resource management of infrastructure planning and design.

The class meets for one 170-minute lecture per week. Homework assignments are given weekly, typically. There is a major term paper with oral presentation, and a midterm exam and a final exam are given.

7. Course objectives/student learning outcomes/program educational objectives

Course objectives	I. Present the fundamental concepts of sustainability in engineering, as applied to the analysis, design, modeling and operation of engineered systems. II. Expose students to energy management and environmental resource management tools. III. Expose students to measurement tools associated with sustainable systems.

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Student learning outcomes & relationship to ABET a-k student outcomes	A. Ability to understand the fundamental sustainability concepts necessary to analyze basic civil/environmental engineering problems. (a, b, c, e, f, h, k) B. Ability to apply energy management and environmental resource management tools for basic civil/environmental engineering problems. (a, b, e, f, h, k) C. Ability to understand basic applications of sustainability measurement tools (b, e, f, h, j) D. Ability to communicate effectively about sustainability issues in environmental engineering (d, e, f, g, i) E. Ability to understand the sustainability issues involved in advanced or specialized environmental engineering coursework (e, f, h, j, k)	
Relationship to program educational objectives	**Objective 1**: Practice civil engineering within the general areas of structural engineering, transportation engineering, geotechnical engineering, and water resources/environmental engineering in the organizations that employ them.	H
	Objective 2: Advance their knowledge of civil engineering, both formally and informally, by engaging in lifelong learning experiences including attainment of professional licensure, and/or graduate studies.	H
	Objective 3: Serve as effective professionals, based on strong interpersonal and teamwork skills, an understanding of professional and ethical responsibility, and a willingness to take the initiative and seek progressive responsibilities.	M
	Objective 4: Participate as leaders in activities that support service to, and/or economic development of, the region, the state and the nation	H

8. Course evaluation method (note percentages subject to change)

Midterm(s)	27%	*Note*: The minimum grade required to pass the course is C.
Final Exam	33%	
Reports	17%	
Class Assignments	23%	

Attendance to class is required. You are expected to participate in all class sessions and keep up with the material.
You are expected to participate in all class sessions. You are not expected to be a distraction in the class.
Final grades will be reduced by one letter for class disruption of lack of participation (as determined by the instructor).
Participation in University-approved activities or religious observances, with prior notice, will not be penalized.
Keep copies of all quizzes and homework assignments for ABET purposes.
Tests are open book, but NOT open notes or homework.

9. Course grading scale

There are no fixed criteria for the grading scale.
The overall performance as related to course objectives and outcomes is evaluated and considered during grading.

10. Policy on makeup tests, late work, and incompletes

Exams will be given only at the scheduled times and places, unless previous arrangements have been made no less than one (1) full week in advance. No one is exempt from exams.
Makeups are given only if there is solid evidence of a medical or otherwise serious emergency that prevented the student of participating in the exam. Makeup exams will be administered and proctored by department personnel unless there are other pre-approved arrangements.
Late work is not acceptable. *Incomplete grades* are against the policy of the department. Unless there is solid evidence of medical or otherwise serious emergency situation, incomplete grades will not be given.
Note: Incomplete grades are only reserved for those students who were passing but could not complete the required work due to exceptional circumstances.

11. Special course requirements

The goal of integrating writing in this course is to improve students' ability to produce professional quality engineering reports. Contact the University Center for Excellence in Writing at 561-297-3498 or www.fau.edu/UCEW for assistance.
If you need help finding appropriate research or background information for reports, try the libguide:
http://libguides.fau.edu/basic_engineering-boca
Report all technical problems in Blackboard to the IRM helpdesk (http://www.fau.edu/helpdesk)

12. Classroom etiquette policy

1. Cell phones and beepers should have the ringers turned off as a courtesy to the instructor and your fellow classmates.
2. Computers must be closed and turned off in class
3. You can leave only on breaks
4. Exams will be given only at the scheduled times and places. No make-ups, except in documented emergencies. No one is exempt from the final examination.
5. Attendance to class is required. You are expected to attend and participate in all class sessions. Final grades will be reduced by one letter for every three (3) unexcused absences (as determined by the instructor). Attendance to at least one (1) professional meeting is required.
6. You are expected to complete the assigned reading prior to the date indicated on the class schedule, to do all homework assignments, and to participate fully in the group projects.
7. Assignments are due at the beginning of class on the date indicated on the assignment sheet.

University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in class sessions.
You are expected to complete the assigned reading prior to the date indicated on the class schedule, to do all homework assignments, and to participate fully in the group projects

13. Disability policy statement

In compliance with the Americans with Disabilities Act (ADA), students who require special accommodations due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) located in Boca Raton campus, SU 133 (561) 297-3880 and follow all OSD procedures.

14. Honor code policy

Consultation with your classmates on assignments is expected and encouraged; however what you turn in must be your own work. Representing the work of others as your own is unethical and may result in sanctions (see the FAU Policy on Academic Honesty). FAU is committed to a policy of honesty in academic affairs. The instructor's duty is to pursue any reasonable allegation, taking action where appropriate, as described in the appropriate section of the FAU Catalog (http://www.fau.edu/ug-cat/academic.htm#irregular) and the Florida Administrative Code. Please be advised that the copying of material from the world wide web or any other written material is considered plagiarism and is also a breach of the Honor Code.

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at www.fau.edu/regulations/chapter4/4.001_Honor_Code.pdf.

Florida Atlantic University
Regulation 4.001 Code of Academic Integrity
(1) Purpose. Students at Florida Atlantic University are expected to maintain the highest ethical standards. Dishonesty is considered a serious breach of these ethical standards, because it interferes with the University mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Dishonesty is also destructive of the University community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility.

(2) Definitions. The FAU Code of Academic Integrity prohibits dishonesty and requires a faculty member, student, or staff member to notify an instructor when there is reason to believe dishonesty has occurred in a course/program requirement. The instructor must pursue any reasonable allegation, taking action where appropriate. Examples of academic dishonesty include, but are not limited to, the following:

(A) Cheating
1. The unauthorized use of notes, books, electronic devices, or other study aids while taking an examination or working on an assignment.
2. Providing unauthorized assistance to or receiving assistance from another student during an examination or while working on an assignment.
3. Having someone take an exam or complete an assignment in one's place.
4. Securing an exam, receiving an unauthorized copy of an exam, or sharing a copy of an exam.
(B) Plagiarism
1. The presentation of words from any other source or another person as one's own without proper quotation and citation.
2. Putting someone else's ideas or facts into your own words (paraphrasing) without proper citation.
3. Turning in someone else's work as one's own, including the buying and selling of term papers or assignments.
(C) Other Forms of Dishonesty
1. Falsifying or inventing information, data, or citations.
2. Failing to comply with examination regulations or failing to obey the instructions of an examination proctor.
3. Submitting the same paper or assignment, or part thereof, in more than one class without the written consent of both instructors.
4. Any other form of academic cheating, plagiarism, or dishonesty.

(3) Procedures.
(A) If the instructor determines that there is sufficient evidence to believe that a student engaged in dishonesty, the instructor will meet with the student at the earliest possible opportunity and provide notice to the student of the instructor's perception of the

facts, the charges against the student, and the sanction. The instructor may not remove the student from the course until the appeal process has come to a conclusion.

(B) If, after this meeting, the instructor continues to believe that the student engaged in dishonesty, the instructor will provide the student written notice of the charges and the penalty. A copy of this statement shall be sent to the chair

15. Required texts/reading

1. Handouts provided by instructor
2. Blackboard registration

16. Supplementary/recommended readings

1. Abel, D.C. and McConnell, R.L. (2013). Environmental Issues: Looking Towards a Sustainable Future, 4/E. ISBN-10: 1256933090.
2. Bishop, P.L. (2004). Pollution Prevention: Fundamentals and Practice. Waveland Press, Long Grove, IL.
3. AME (2007), Green Manufacturing: Case Studies in Lean Manufacturing and Sustainability, Productivity Press, Inc.
4. Brundtland G.H. (1987). Our Common Future: The World Commission on Environment and Development. ISBN: 019282080X, 9780192820808 (http://en.wikisource.org/wiki/Brundtland_Report/From_One_Earth_to_One_World)
5. Robert, K.H. (1997). Natural Step: A Framework. ISBN-10: 1883823153
6. Elkington, J. (1998). Cannibals with forks: The triple bottom line of 21st century business. Gabriola Island, BC: New Society Publishers.
7. The Triple Top line vs Triple Bottom line
8. Dornfield, D. (2010) Green Manufacturing Fundamental and Applications, Springer, Berlin, Germany
9. Epstein, M. and Elkington, J. (2008) Making Sustainability Work: Best Practices in Managing and Measuring Corporate Social, Environmental and Economic Impacts, Berrrett Koehler Publishers, San Francisco, CA.
10. McDonough, W. and Braungart, M. (2002) From Cradle to Cradle: Remaking the way we make things, North Pont Press, NY.
11. Willard, B. (2003) The Sustainability Advantage: Seven Business Case Benefits of a triple bottom line, New Society Publishers, Gabriola Island, BC, Canada
12. Graedel and Alenby () Industrial Ecology and Sustainable Engineering.
13. ISO: 14040 "Environmental management — Life Cycle Assessment — Principles and Framework." Geneva: ISO, 1997.

17. Supplementary/recommended websites

1. http://www.footprintnetwork.org
2. http://www.cleanair-coolplanet.org
3. http://www.solsustainability.org
4. http://www.storyofstuff.com
5. http://www.globalreporting.org
6. http://sustainabilityprofessionals.org
7. http://www.aashe.org
8. http://mitsloan.mit.edu/sustainability

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17. Course topical outline, including dates for exams/quizzes, papers, completion of reading

Week	*Topics*
1	Introduction, Overview, Sustainability Measurement Systems, Indicators, Environmental, Economic, and Social Carrying Capacity, S-CORE data assessment tool
2	USGBC, LEED, ISO 14001, Sigma 6, Lean Manufacturing, Kaizen Analysis
3	Case Studies Involving Measurement Systems, Carbon Accounting
4	Life Cycle Assessment, Materials Flow Analysis, Design for Environment
5	Triple Bottom Line, Business/Engineering Protocols for Analysis
6	Developing Energy Portfolios, Energy Star Portfolio Manager
7	Energy Management Systems and Energy Modeling Project 1: Modeling Building Energy Footprint and Assessment/Recommendations
8	Midterm Exam
9	Renewable Energy Options and Energy Efficiency
10	Pollution Prevention
11	Solid Waste Minimization Strategies
12	Environmentally Preferable Purchasing
13	Product Substitution, Green Chemistry
14	Presentations of Final Case Study
15	Final Exam