Soph & Junior Advising
Civil & Environmental Engineering
Winter 2018 for 2017-2018 AY

Professor M. G. McNally
Professor Diego Rosso

SAMUELI SCHOOL OF ENGINEERING | Department of Civil and Environmental Engineering

CEE@UCI

Soph & Junior Advising Process

- **Faculty** advising ***complements*** other forms of advising:
  - HSSOE Counselors, Peer Advising, Professional mentors
- **Annual Process**: *every year*!
- **Format:** Each entering class will keep the same group of ***faculty advisors*** throughout the degree program
- ***Either* Group *or* Individual Advising is Mandatory**
  - Group Advising: sessions for Freshmen in the Fall and separate sessions for Sophomores and for Juniors in the Winter
  - Individual Advising: select a faculty member by name, teaching and research area, or session format
- **Sophs & Juniors** are ***recommended*** to see a faculty advisor often, but this is ***optional starting Winter 2018***.
- **Penalty: Registration Hold (**not a good thing!)

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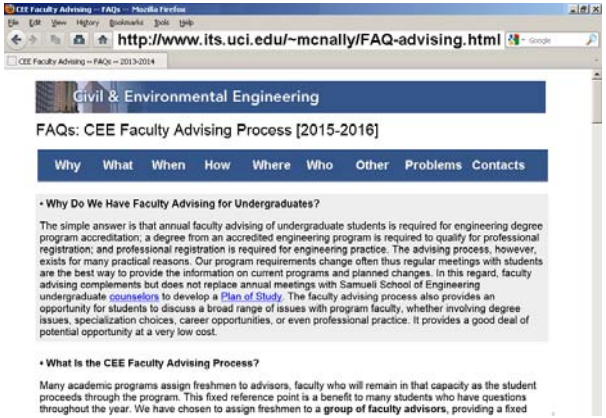
INDIVIDUAL ADVISING

- Individual faculty advising for sophomores & juniors is optional, starting Winter 2018.
- If you wish to meet with a faculty advisor, you may contact one of the faculty from your advising cohort via **email** or stop by their posted **office hours**.
- You may select a faculty member by name, teaching and research area, or availability. If you wish, you can see a different faculty advisor reach time. See FAQs:

  http://www.its.uci.edu/~mmcnally/FAQ-advising.html

Advising FAQs



CEE Chair and UG Advisers

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Dr. McNally, CE UG Advisor
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Transportation
CEE 123
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Dr. Rosso, EnE UG Advisor
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Advisers: Freshmen 2017-18 (Class of 2021)

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Structures
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Dr. Vrugt
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Systems Modeling
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Advisers: Sophomores 2017-18 (Class of 2020)

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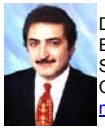

Dr. Mosallam
EG 4167
Structures
CEE 151C
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Dr. Sorooshian
EH 5308
Hydrologic Systems
CEE 176
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Dr. Grant
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Advisers: Juniors 2017-18 (Class of 2019)

Dr. Farzin Zareian
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Dr. Lanning
EG
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Advisers: Seniors 2017-18 (Class of 2018)

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Dr. Sanders
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Dr. Lizhi Sun
EG 4139
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Soph & Junior Issues

- **Academic Program:**
  - Faculty Advising Changes
  - E190W – upper division writing
  - Science Elective (any GE II from BioSci or ESS)
  - Engineering Design Elective (EDE) is eliminated Fall 2018; provides room to consider graduate courses
- Grades and pre-requisites … **letter grades!**
- Student Clubs & Professional Associations
- **E-Week:** February 2018 – Get Involved

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ABET Program Assessment

1. Stakeholders: students, faculty, alumni, and employers
2. Program Educational Objectives: accomplishments of graduates expected by a few years after graduation
3. Student Learning Outcomes: knowledge and skills to be attained by the time of graduation
4. Course Outcomes (or Performance Criteria) are restatements of Program Outcomes that define specific knowledge and skills to be attained in a specific course
5. Degree Requirements comprise core, specialization, labs, General Ed, and a capstone design experience

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Careers in Civil & Environmental Engineering

BS Degree Programs

HSSOE Advising Requirements:

1. All students are required to meet annually with their designated faculty for advising and mentoring and to have an academic plan on file with the Student Affairs Office which has been approved by their academic counselor.
2. Students who do not have a plan on file, or deviate from this plan without approval from an academic counselor will be subject to probation. Students on probation for two consecutive quarters who do not have a plan on file, or deviate from this plan without approval from an academic counselor will be subject to disqualification. Students who fail to meet with a faculty advisor each year will be subject to disqualification.

2017-2018

Careers in Civil & Environmental Engineering

BSCE Degree Program

CE Program Educational Objectives:

Describe the expected accomplishments of graduates during the first few years following graduation. Our graduates are expected to:

1. Establish a Civil Engineering career in industry, government, or academia and achieve professional licensure as appropriate.
2. Demonstrate excellence and innovation in engineering problem solving and design in a global and societal context.
3. Commit to lifelong learning and professional development to stay current in technology and contemporary issues.
4. Take on increasing levels of responsibility and leadership in technical and/or managerial roles.

Note: EnE PEOs are virtually identical

PEOs 2017-2018

Careers in Civil & Environmental Engineering

BSCE Degree Program

CE and EnE Student Learning Outcomes:

Describe what students are expected to know or be able to do by graduation (a-k)

a. An ability to apply knowledge of mathematics, science, and engineering.

b. An ability to design and conduct experiments, as well as to analyze and interpret data

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

d. An ability to function on multidisciplinary teams

e. An ability to identify, formulate, and solve engineering problems

SLOs 2017-2018

Careers in Civil & Environmental Engineering

BSCE Degree Program

CE and EnE Student Learning Outcomes (continued)

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

k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

SLOs 2017-2018

Careers in Civil & Environmental Engineering

Sample Course Syllabus & Outcomes

ENGRCEE 20 INTRODUCTION TO COMPUTATIONAL ENGINEERING PROBLEM SOLVING

(Required for CE and EnE. Selected Elective for MSE.)

Catalog Data: **ENGRCEE 20 Introduction to Computational Engineering Problem Solving (Credit Units: 4)** Introduction to computer programming within a numerical computing environment (MATLAB or similar) including types of data representation, graphical display of data, and development of modular programs with application to engineering analysis and problem solving. CEE20 and ENGR15 may not both be taken for credit. Civil Engineering and Environmental Engineering Engineering majors have first consideration for enrollment. Only one course from ENGRCEE 20, ENGR 15 may be taken for credit. (Design units: 1)

Required Textbook: Gerald W. Recktenwald, *Numerical Methods with MATLAB : Implementations and Applications*. 2nd Edition, Pearson, 2000, ISBN-13 978-0201308600.

Rec Textbook: None

References: Student Edition of Matlab, Mathworks. (recommended)

Coordinator: Jasper Alexander Vrugt

Relationship to Student Outcomes

This course relates to Student Outcomes: EAC a, EAC b, EAC c, EAC e, EAC g.

Course Learning Outcomes. Students will:

1. Use Matlab to perform a range of matrix and vector operations. (EAC a)
2. Use Matlab to write computer programs, structures and functions (subroutines). (EAC a, EAC c)
3. Use Matlab to plot data and mathematical functions. (EAC a, EAC g)
4. Use Matlab to find roots of nonlinear equations. (EAC a, EAC e)
5. Use Matlab to perform least-squares fitting of a curve to data. (EAC a, EAC b)
6. Use Matlab skills in the context of a design process which leads to a modeling tool useful for engineering analysis purposes. (EAC c)
7. Prepare a report that describes an analysis tool (computer model) for an engineering system or components, the purpose for this tool, and an application of it. (EAC g)

Student Learning Outcomes

Course Outcomes

http://plaza.eng.uci.edu/course/outline/engrcee/

2017-2018

CE Course Requirements 1

***Mathematics and Basic Science* (48 units)**

- Math2A-B-D-E, 3A-D
- Phys7C-D and 7LC-D, Chem 1A-B
- Science Elective (one BioSci or ESS course from GE2)
- **Elective** (two from Chem1LE, ENGR7A-B, LDEE)
  [LDEE is one of (EECS70A, Engr54, MAE80, MAE91)]

***General Education Requirements* (44+ units)**

- Provides flexibility, overlaps encouraged, etc.
- Engineering Professional Topics include Econ 20A-B and CEE60 (or SocEcol E8), E190W UD Writing

2017-2018

CE Course Requirements 2

Engineering Topics Courses (77 units):

- LD Core: CEE 11, 20, 21, 30, 81A-B
- UD Core: CEE 110, 111, 121, 130, 130L, 150, 150L, 151A, 151C, 160, 170, and 171
- Elective (two from Chem1LE, ENGR7A-B, LDEE)
  where LDEE is one of (EECS70A, Engr54, MAE80, MAE91)
- Engr Design Elective (one of 155, 172, 122 or 123)
  (Eliminated: now part of specializations)
- Senior Design Practicum: CEE 181A-B-C

Specialization (16 units)

- Must complete senior design project in same area

Summary: A nominal total of **184** units (**22**+ design units)

2017-2018

BSCE: Freshman

Fall		Winter		Spring	
Math 2A	4	Math 2B	4	Math 2D	4
Gen. Ed.	4	Phys 7C, L	5	Phys 7D, L	5
Chem 1A	4	Chem 1B	4	**Sci. Elect.**	4
Gen. Ed. Engr 7A *	2-4	Chem 1LE Or Engr 7B	2-3	CEE 81A	3
	14-16		15-16		16

- Science Elective: BioSci or ESS (NOT chemistry or physics)
- * Engr7A-B Option (Lower Division only)

2017-2018

BSCE: Sophomore

Fall		Winter		Spring	
Math 3A	4	Math 3D	4	Math 2E	4
CEE 30	4	CEE 11	4	LD Elect	4
CEE 20	4	CEE81B	3	CEE 21	4
Gen. Ed.	4	Gen. Ed.	4	Gen. Ed.	4
	16		15		16

- Gen Ed Recommendation: Econ 20A-B, **CEE60**
- LD Engr Elective: EECS70A, ENGR54, **MAE80**, MAE91

2017-2018

BSCE: Junior

Fall		Winter		Spring	
CEE 150, L	5	CEE 151A	4	CEE 151C	4
CEE 170	4	CEE 171	4	CEE 110	4
CEE 121	4	CEE 130, L	5	CEE 160	4
E190W	4	Gen. Ed.	4	Gen. Ed.	4
	17		17		16

- Civil Engineering "core"; ***pre-requisites are important*!**

2017-2018

BSCE: Senior

Fall		Winter		Spring	
CEE 181A	2	CEE 181B	2	CEE 181C	2
Engr Dsgn	4	CEE 111	4	Spec. Elec.	4
Spec. Elec.	4	Spec. Elec.	4	**Spec. Elec.**	4
Gen. Ed.	4	Gen. Ed.	4	Gen. Ed.	4
	14		14		14

- **Engr Design** Elective (eliminated in Fall 2018)
- Can not double count the EDE!
- **Specialization Elective:** flexibility with 4th course!

2017-2018

Specializations 1

General Civil Engineering:

Requires four (three) courses from CEE122 or CEE123;
CEE149, CEE152, CEE151B, CEE155, or CEE156;
CEE162, CEE163, CEE165, or CEE169;
CEE172, CEE173, CEE176, or CEE178;
or CEE55 or courses from an approved list.

Environmental Hydrology & Water Resources:

Requires four (three) courses from CEE163, 165, 169, CEE172, 173, 176, or 178, or courses from an approved list.

2017-2018

Specializations 2

Structural Engineering:

Requires CEE155 (as the EDE) and four (three) courses from CEE149, CEE151B, CEE152, CEE155, CEE156, MAE157, or courses from an approved list.

Transportation Systems Engineering:

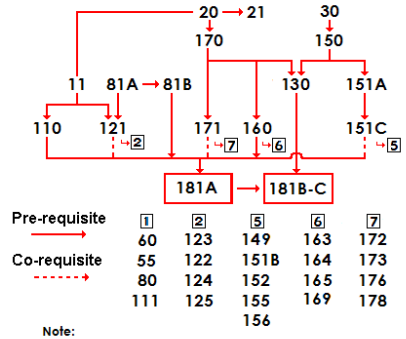
Requires CEE122 and CEE123, and two (one) courses from CEE124, CEE125, E189, EECS70A, or courses from an approved list.

Note: the 4th course is any UD HSSOE technical elective

2017-2018

Key Pre-requisites

BSCE Prerequisite Chains for CEE181ABC [2016-2017]



Note:
a. Math and science pre-reqs are not shown
b. For 2 through 7, specific pre-reqs are not shown
c. For 1, there are no CEE pre-reqs

2017-2018

Careers in Civil & Environmental Engineering
BS EnE Degree Program

Program Educational Objectives:

Describe the expected accomplishments of graduates during the first few years following graduation. Our graduates are expected to:

1. Establish an Environmental Engineering career in industry, government, or academia and achieve professional licensure as appropriate.
2. Demonstrate excellence and innovation in engineering problem solving and design in a global and societal context.
3. Commit to lifelong learning and professional development to stay current in technology and contemporary issues.
4. Take on increasing levels of responsibility and leadership in technical and/or managerial roles.

2017-2018

EnE Course Requirements 1

***Mathematics and Basic Science* (64 units)**

- Math 2A-B-D-E, 3A-D
- Phys 7C-D, 7LC-D
- Chem 1A-B-C, 1LC-D, 51A
- 4 units of Earth System Science and 4 units of Biological Sciences (*any GE 2 course in Fall 2018*)

***General Education Requirements* (44+ units)**

- Engineering Professional Topics Courses include:
- Economics 20A-B and CEE60 (or Soc Ecol E8)
- E190W for Upper Division Writing

2017-2018

EnE Course Requirements 2

Engineering Topics Courses (81+ units):

- LD Core: CEE 11, 20, 21, 30, 81A, 81B, MAE91
- UD Core: CEE 110, 130, 130L, 150, 150L, 160, 162, 170
- Engr Sci Elective (Engr7A-B, EECS70A, Engr54, MAE80)
- Senior Design Practicum: CEE 181A-B-C
- Engineering Electives (2 from 2 areas/1 from other):
  - Water Supply and Resources (CEE171, 172, 173, 176, 178, ESS132)
  - Environmental Processes (CEE163, 165, 167)
  - Atmos Systems & Air Poll Control (MAE110, 115, 164, ESS 112)
- A nominal total of 189 units
- *Must verify Program of Study and unit counts with UG Office*

2017-2018

BS EnE: Freshman

Fall		Winter		Spring	
Math 2A	4	Math 2B	4	Math 2D	4
CEE 20	4	Phys 7C, L	5	Phys 7D, L	5
Chem 1A	4	Chem 1B	4	Chem 1C, LC	6
Gen. Ed. *	4	Gen. Ed.	4	Gen. Ed.	4
	16		17		19

- Gen Ed Recommendation: WR39B-C or CEE60
- EECS10 and CEE20 replaced by CEE20 & CEE21in Fall '13
- Engr 7A-B option in F/W for lower division only

2017-2018

BS EnE: Sophomore

Fall		Winter		Spring	
Math 3A	4	Math 3D	4	Math 2E	4
CEE 81A	3	CEE 81B	3	MAE 91	4
CEE 30	4	**Engr Sci**	4	CEE 11	4
Chem 51A, Chem 1LD	4 1	Gen. Ed.	4	CEE 21	4
	16		15		16

- Gen Ed Recommendation: CEE60
- **Engr Sci**ence Elective: EECS70A, ENGR54, **MAE80**, etc.

2017-2018

BS EnE: Junior

Fall		Winter		Spring	
CEE 150, L	5	CEE 130, L	5	CEE 110	4
CEE 170	4	CEE 162	4	CEE 160	4
Sci. Elect. 1	4	Eng. Elect.	4	Sci. Elect. 2	4
E190W	4	Gen. Ed.	4	Gen. Ed.	4
	17		17		16

- Consider pre-requisites!
- Science Electives: 1 each in Bio Sci and Earth Systems Sci

2017-2018

BS EnE: Senior

Fall		Winter		Spring	
CEE 181A	2	CEE 181B	2	CEE 181C	2
Eng. Elect.	4	Eng. Elect.	4	Eng. Elect.	4
Gen. Ed.	4	Eng. Elect.	4	Gen. Ed.	4
Gen. Ed.	4	Gen. Ed.	4		
	14		14		10

- Spread Gen Ed (include Econ 20A-B, UD Writing)
- Consider pre-requisites for Science and Engineering Electives

2017-2018

General Education Requirements

1. **General Education requirements:**
   - Writing (3 courses: 2 LD and 1 UD)
   - Arts and Humanities (3 courses)
   - Social and Behavioral Sciences (**CE/EnE reqs.**)
   - Multicultural Studies / International Issues (1)
2. **BSCE and BSEnE already cover:**
   - Science and Technology
   - Quantitative, Symbolic, Computational Reasoning
3. **Need to consult with HSSoE counselors**

2017-2018

Department Scholarships

Civil and Environmental Engineering offers annual scholarship opportunities for qualified undergraduate students:

- **Emeriti Scholarships**, supported by the UCI CEE Affiliates:
  - **Jan Scherfig** Scholarship: for **freshmen** returning in the fall
  - **Gary Guymon** Scholarship: for **sophomores** returning in the fall
  - **Robin Shepherd** Scholarship: for **juniors** returning in the fall
- **Huit Zollars Civil Engineering Scholarship:**
- **Applications** for the $1,000 scholarships are submitted online in Winter Quarter (check your UCI email!)
- Other HSSOE and UCI Scholarships:

  http://www.ofas.uci.edu/content/Scholarships.aspx

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Academic Honesty

- Civil and Environmental Engineering is perhaps at the pinnacle of the practice of, and the need for, ethical behavior.
- At you progress through the program, any form of cheating has *reduced benefit* (on grades) and *increased cost* (of not finishing your degree).
- The UCI Policy on Academic Honesty is defined at:

  http://www.senate.uci.edu/senateweb/default2.asp?active_page_id=754
- Take note of the descriptions of cheating, dishonest conduct, plagiarism, and collusion.
- Ask your instructors to discuss course policies on Academic Honesty, including policies on joint work on HW, labs, or other required tasks.
- Full details are posted on-line at: http://honesty.uci.edu/

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Professional Registration

1. **Profession Registration**: licensure as a professional engineer is required to practice as a civil or environmental engineer.
2. **Steps Toward Licensure**: **First…**
   a. Complete a BS from an accredited institution (UCI!)
   b. Successfully complete the *Fundamentals of Engineering* (FE) exam (material covered includes physics, chemistry, thermo, circuits, mathematics, statics & dynamics, engineering economics, fluids, engineering ethics, strength of materials, computers, etc.)
   c. http://www.ncees.org/exams/fundamentals/
3. **Steps Toward Licensure**: **Then…**
   a. After 2 years of work under professional engineers …
   b. … soon 30 units of post-graduate continuing education
   c. Successfully pass the *Principles and Practice of Engineering* (PE)
   d. http://www.ncees.org/exams/professional/

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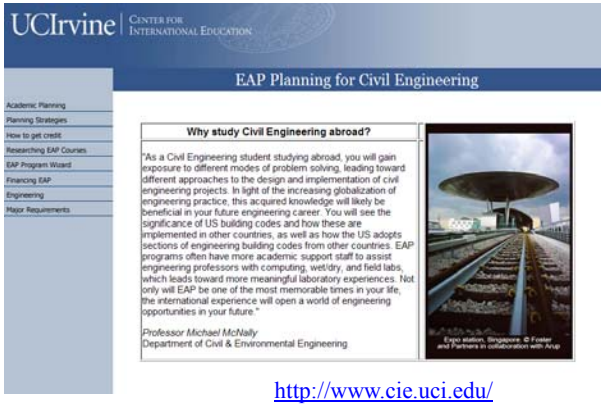
Education Abroad Program



http://www.cie.uci.edu/

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Student Clubs

http://www.its.uci.edu/its/

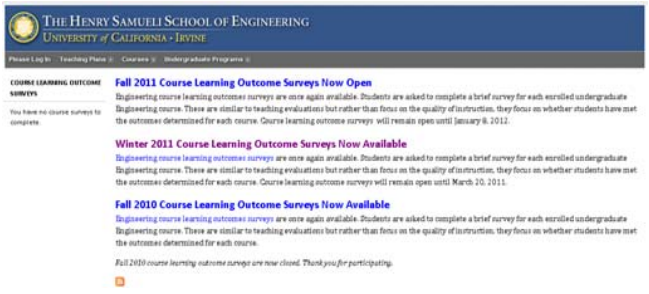
AMERICAN ACADEMY OF ENVIRONMENTAL ENGINEERS AT UC IRVINE

Professional engineering chapter at UCI for engineers interested in the environment:
- learn outside of the classroom with your peers
- discover the diversity of environmental topics
- network with industry for after graduation

Meetings: Wednesdays of Even Weeks, 5:00-7:00, ICF 103
Email: aaee.uci@gmail.com
Facebook: *American Academy of Environmental Engineers at UCI*

http://clubs.uci.edu/asce

HSSOE UG Office



http://plaza.eng.uci.edu

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CEE UG Programs

http://www.eng.uci.edu/dept/cee/

Summary

1. **Academic Honesty…**
2. Faculty Advising, HSSOE Counselors
3. ABET evaluations versus UCI course evaluations
4. Petitions: substitutions, variations, and related issues
5. Student Clubs? [G-E-T I-N-V-O-L-V-E-D]
6. Research Opportunities, Internships, Jobs
7. Careers: Graduate School? (GRE)
8. Careers: Professional Practice (FE, PE)

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Contact Information

HSSOE UG Affairs Office:

1. UG Counselors in REC 305 (824-4334)
2. Web site: http://plaza.eng.uci.edu/

Civil & Environmental Engineering:

1. Department Office in EG 4130 (824-5333)
2. CEE web site: http://www.eng.uci.edu/dept/cee/
3. CE Advisor: Professor McNally <mmcnally@uci.edu>
4. EnE Advisor: Professor Rosso <bidui@uci.edu>

UCI General Catalogue: Your *contract* with UC

http://www.editor.uci.edu/catalogue/engr/engr.6.htm

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