

UNIVERSITY CURRICULUM COMMITTEE

PROPOSAL FOR COURSE CHANGE

1. Is this a Liberal Studies or Diversity Course? Liberal Studies ☐ Diversity ☐ Both ☐
2. Course change effective beginning of what term and year?
(ex. Spring 2008, Summer 2008) See effective dates schedule. Fall 2007
3. College CENS 4. Academic Unit CENE
5. Current course subject/catalog number CENE 420
6. Current catalog title, course description, and units. (Copy and paste from current on-line academic catalog).

TRAFFIC STUDY AND SIGNAL (3)

Basic concepts including driver-roadway-vehicle system characteristics, traffic studies, capacity analysis, and traffic-control devices. Lab introduces traffic-engineering studies and signal-system operations, including computer applications. Coconvenes with CENE 541. 2 hrs. lecture, 3 hrs. lab. Prerequisite: (EGR 225 or CENE 225) and EGR 286 and one 300- or 400-level CENE-Civil and Environmental Engineering course

7. Is course currently cross-listed or co-convened? yes ☒ no ☐
If yes, list course CENE 541
Will this continue? Yes
8. Is course an elective? ☐ or required for an academic plan/subplan? ☒
If required, for what academic plan/subplan? Civil Engr.
If required, also submit *Proposal for New Plan or Plan Change*.
9. Will other courses or academic units, be affected by this change? (Consider prerequisites, degree requirements, etc.) yes ☐ No ☒
If yes, explain in the justification and provide supporting documentation from the affected departments.
10. Does this change affect community college articulation? yes ☐ No ☒
If yes, explain how in the justification and provide supporting documentation from the affected institutions.
- Is the course a Common Course as defined by your Articulation Task Force? yes ☐ no ☒
If yes, has the change been approved by the Articulation Task Force? Yes ☐ no ☐
- If this course has been listed in the Course Equivalency Guide, should that listing be left as is, ☐ or be revised? ☒
If revised, how should it be revised? Course number change will require revision in CEG.

FOR SECTION 11 ONLY COMPLETE WHAT IS CHANGING.

11. a. Proposed course subject /catalog number _____ b. Proposed units _____
- c. If subject/catalog number change, is there a course fee attached to the current subject/catalog number that needs to be moved?** Yes ☐ No ☐
- If yes, please attach a Justification Form for Instructional Fees indicating the new course subject/catalog number change.
- d. Proposed to co-convene with _____ Date approved by UGC _____
(Must be approved by UGC prior to bringing to UCC. Both course syllabi must be presented.)
- e. Proposed to cross-list with _____
(Please submit a single cross-listed syllabus that will be used for all cross-listed courses.)
- f. Proposed long course title _____
(max 100 characters including spaces)
- g. Proposed short course title _____
(max 30 characters including spaces)
- h. Proposed catalog course description (max. 30 words, excluding requisites)

Basic concepts including driver-roadway-vehicle systems, traffic studies, capacity analysis, and traffic-control devices. Lab introduces traffic-engineering studies and signal-system operations and design, including computer applications. 2 hrs. lecture, 3 hrs. lab.

- i. Proposed grading option: Letter grade ☐ Pass/Fail ☐ or Both ☐
(If both, the course may only be offered one way for each respective section.)
- j. May course be repeated for additional units? yes ☐ no ☐
- j.1. If yes, maximum units allowed? _____
- j.2. If yes, may course be repeated for additional units in the same term? (ex. BIO 300, PES 100)
yes ☐ no ☐
- k. Please check **ONE** of the following that most appropriately describes the proposed course change(s):
- Lecture w/0 unit embedded lab ☐ Lecture only ☐ Lab only ☐ Clinical ☐ Research ☐
- Seminar ☐ Field Studies ☐ Independent Study ☐ Activity ☐ Supervision ☐
- l. Proposed prerequisites (must be completed before) **(EGR 225 or CENE 225) and EGR 286 with grades greater than or equal to C**
- m. Proposed corequisites (must be completed with) _____
- n. If course has no requisites, will all sections of the course require: (If course has pre or co requisite, skip to question 12)
Instructor consent ☐ Department consent ☐ No consent ☐

12. Justification for course change. Please indicate how past assessments of student learning prompted proposed changes.

Course description revised to reflect design content to support accreditation requirements.

Prerequisite for 300- or 400-level CENE course dropped.

13. Approvals



11/15/06

Department Chair/ Unit Head (if appropriate)

Date

Chair of college curriculum committee

Date

Dean of college

Date

For Committee use only

For University Curriculum Committee

Date

Action taken: _____ approved as submitted _____ approved as modified

Note: Submit original to associate provost's office. That office will provide copies to college dean, department chair, and Academic Information Office.



CENE 541
Traffic Studies
and
Signal Systems



Fall Semester 2007
3 Credit Hours

Instructor: **Craig Roberts, Ph.D., P.E.**
Associate Professor
Department of Civil and Environmental Engineering
Room 322G, Engineering and Technology Building No. 69
Phone: (928) 523-0651
E-mail: craig.roberts@nau.edu

Course Prerequisites: EGR 225 and admission to the Masters of Engineering Program (MENG) or by permission of the instructor. Generally permission of the instructor requires having a BS in Civil Engineering or sufficient job experience in transportation engineering/planning.

Office Hours (subject to change)

Monday 3:00 - 5:00 pm Office Hours (Students Welcome)
Wed. 3:00 - 5:00 pm. Office Hours (Students Welcome)
Other hours by appointment (ask or call me at 523-0651)

Class Schedule: **Class:** 9:10 a.m. - 10:00 a.m. on Monday and Wednesday
 Lab: 8:00 a.m. - 10:00 a.m.. on Friday

Student Learning Objectives:

- Master a working knowledge of basic traffic engineering concepts, studies, and solutions: driver-roadway-vehicle system characteristics, traffic studies, capacity analysis, and traffic control devices including signal systems. Introduce signal timing/coordination and traffic simulation software.
- Additionally, graduate students will be expected to master selected aspects of the course material in greater depth than undergraduates in the co-convened course (CENE 420) by preparing a term paper on a topic to be approved by the instructor
- Graduate students will also be expected to provide mentoring and other assistance to undergraduate students in the co-convened course (CENE 420).

Required Text: Traffic Engineering (Third Edition) by Roger P. Roess, Elena S. Prassas, and William R. McShane, copyright 2004, Prentice-Hall, Inc., ISBN 0-13-42471-8. Do not get the first or second edition, as it is not useful.

Class Folder (cene420-01)

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Estimated Time Course Will Take: In the undergraduate classroom, the rule-of-thumb is 3 hours homework for every hour of lecture plus the lab time (each week = 2 hrs lecture + 6 hrs homework + 3 hrs lab time). Graduate students typically spend more time depending on their personal interests. The work flow will not be equal, i.e., some weeks will take more time and others less. In this course a great deal of time will be spent reading and understanding the text. Each chapter covers an important topic in some degree of depth. Some subtopics will be of more interest to you than others. The web site links provided will take a measured amount of time to explore in general, but some will simply “swallow you” because they are of great interest to you.

Grading Scheme: The following grading scale pertains to all work. At the discretion of the instructor, all of the student grades on any quiz, exam, homework, or other exercise may be increased (but not lowered). Extra credit questions may be given on any quiz, exam, and homework that can add points to the normal grade for that quiz, exam, or homework.

90.0 - 100.0 $\Leftarrow$ A
80.0 - 89.9 $\Leftarrow$ B
70.0 - 79.9 $\Leftarrow$ C
60.0 - 69.9 $\Leftarrow$ D
59.9 or lower $\Leftarrow$ F

Course Evaluation: These weightings will be given to each student's work to determine her or his overall grade in the course:

Average of Laboratories	20%
Average of Homeworks	10%
Average of Quizzes	10%
Average of Tests	15%
Professional Development ¹	5%
Final Exam ²	10%
Term Paper ³	25%
Undergraduate student mentoring	5%
	100%

Student Code of Conduct: Students are expected to perform class activities in keeping with standards of the NAU Code of Conduct, detailed in Appendix C of the Student Handbook (<http://www.nau.edu/~stulife/conduct.html>) and the Policy on Academic Dishonesty detailed in Appendix G of the Student Handbook (<http://www.nau.edu/~stulife/dishonst.html>).

Though students are encouraged to help each other on homework, each homework must reflect the individual student's efforts. Appropriate action will be taken towards any student suspected of violation of the Code of Conduct, the Policy on Academic Dishonesty, and/or the Professional Code of Conduct.

Professional Code of Conduct: Exceptionally high standards of honor and integrity are fundamental and essential to the study and practice of engineering. Academic preparation for the profession must be conducted in an atmosphere which fosters these values. Therefore, in addition to the student Code of Conduct, the College of Engineering and Technology has adopted this Professional Code of Conduct (CET Policy 18).

All students are expected to conduct themselves professionally. Violation of the National Society of Professional Engineers (NSPE) Code of Ethics (<http://www.nspe.org/eh1-code.asp>) or the Association for Computing Machinery (ACM) Code of Ethics and Professional Conduct (<http://www.acm.org/constitution/code.html>) may lead to dismissal from the College's academic programs. Copies of these codes are available in the

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² Students who maintain an average of 92.0 will be exempt from the Final Exam. However, this requires that the Student complete all homework assignments. In addition, the last two homework assignments must receive a grade comparable with the Student's previous homeworks

³ Graduate students taking CENE 541 will do a term paper in addition to the other work in the class.

Office of the Dean.

Selected University Policies Of Particular Concern to Course Activities: Summaries of some of policies regarding NAU students are attached. Additional information can be found in these references. These are not a complete list of such policies.

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Course Schedule (Subject to Change)

Week	Topic	Week	Topic
1	Chapters 1, 2, and 3	9	Chapter 17
2	Chapter 4	10	<i>Spring Break</i>
3	Chapter 5	11	Chapter 18
4	Chapter 7	12	Chapter 18
5	Chapter 8	13	Chapter 20
6	Chapter 9	14	Chapter 24
7	Chapter 16	15	Chapter 24
8	Chapter 17	16	<i>Finals Week</i>



CENE 420
***Traffic Studies
and
Signal Systems***



**Fall Semester 2007
3 Credit Hours**

Instructor: **Craig Roberts, Ph.D., P.E.**
Associate Professor
Department of Civil and Environmental Engineering
Room 322G, Engineering and Technology Building No. 69
Phone: (928) 523-0651
E-mail: craig.roberts@nau.edu

Course Prerequisites: (EGR 225 or CENE 225) Engineering Analysis (Statistics) and EGR 286 (Engineering Design)

Office Hours (subject to change)

Monday 3:00 - 5:00 pm Office Hours (Students Welcome)
Wed. 3:00 - 5:00 pm. Office Hours (Students Welcome)
Other hours by appointment (ask or call me at 523-0651)

Class Schedule: **Class:** 9:10 a.m. - 10:00 a.m. on Monday and Wednesday
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Student Learning Objectives: Master a working knowledge of basic traffic engineering concepts, studies, and solutions: driver-roadway-vehicle system characteristics, traffic studies, capacity analysis, and traffic control devices including signal systems. Introduce signal timing/coordination and traffic simulation software.

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Average of Quizzes	10%
Average of Tests	20%
Professional Development ¹	5%
Final Exam ²	<u>10%</u>
	100%

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² Students who maintain an average of 92.0 will be exempt from the Final Exam. However, this requires that the Student complete all homework assignments. In addition, the last two homework assignments must receive a grade comparable with the Student’s previous homeworks

Though students are encouraged to help each other on homework, each homework must reflect the individual student's efforts. Appropriate action will be taken towards any student suspected of violation of the Code of Conduct, the Policy on Academic Dishonesty, and/or the Professional Code of Conduct.

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NORTHERN ARIZONA UNIVERSITY

UNIVERSITY GRADUATE COMMITTEE

GRADUATE CURRICULUM

PROPOSAL FOR GRADUATE COURSE CHANGE

1. New course effective with what term and year? (i.e., Spring 2007): **Fall 2007**
2. College: **CENS**
3. Department: **CENE**
4. Course Subject/Catalog Number: **CENE 541**
5. Current catalog **title**, course **description**, and **units**: **TRAFFIC STUDIES AND SIGNAL SYSTEMS (3) Basic traffic engineering concepts, studies, and solutions, including driver-roadway-vehicle system characteristics, traffic studies, capacity analysis, and traffic control devices. Lab introduces traffic engineering studies and signal system operations, including computer applications. 2 hrs. lecture, 3 hrs. lab. Coconvenes with CENE 420. Prerequisite: EGR 225 and CENE 418. Prerequisite: Admission to Egr-Civil Egr (MEng) or Egr-CompSci & Egr (MEng) or Egr-ElectEgr (MEng) or Egr-EnvEgr (MEng) or Egr-IndProgStdy (MEng) or Egr-MechEgr (MEng) or Egr (MEng) or Master of Engineering TriU or Non-Degree Graduate**
6. If co-convened or cross-listed, identify course: **CENE 420**
(Must be approved by UGC prior to submission to UCC. Both course syllabi must be submitted.)
7. Is the course ☒ elective or ☐ required
If required, for which plan?
(Must be approved by UGC prior to submission to UCC. Both course syllabi must be submitted.)
8. Will this change affect other courses or other academic units?
☐ Yes ☒ No
If Yes, letters of support from each department affected must accompany this form.

9. For the following, please complete only those fields for which information is changing

9.a. **Proposed** course subject/catalog number:

9.b. **Proposed** Units:

9.c. Is there a *current fee* that must be attached to this proposed change?

☐ Yes ☐ No

If Yes, please attach a *Justification for Instructional Fees* form and indicate the new course change.

9.d. **Proposed** to co-convene with

Date Approved by UGC:

9.e. **Proposed** to cross-list with

Date Approved by UGC:

9.f. **Proposed** Long Course Title:

9.g. **Proposed** Short Course Title (30-character/space maximum):

9.h. **Proposed** Catalog Course Description (60-word maximum):

9.i. **Proposed** Grading Option: ☐ Letter Grade ☐ Pass/Fail ☐ Both
(If both, the course may be offered one way for each respective section.)

9.j. May **proposed** course change be repeated for *additional* units?
☐ Yes ☐ No

If Yes, maximum units that may be repeated:

9.k. Please check **ONE** of the following that most accurately describes the format of the course:

- | | |
|--|--|
| ☐ Lecture Only | ☐ Seminar |
| ☐ Lab Only | ☐ Field Studies |
| ☒ Lecture and Lab Combined | ☐ Independent Study |
| ☐ Clinical | ☐ Activity |
| ☐ Research | ☐ Supervision |

9.l. If the course will be delivered electronically, check **ONE** of the following:

☐ Web

☐ ITV

☐ Other (hybrid, for example). Please explain:

10. Prerequisites: (must be completed *before* taking proposed course): **EGR 225 and admission to Egr-Civil Egr (MEng) or Egr-CompSci & Egr (MEng) or Egr-ElectEgr (MEng) or Egr-EnvEgr (MEng) or Egr-IndProgStdy (MEng) or Egr-MechEgr (MEng) or Egr (MEng) or Master of Engineering TriU or Non-Degree Graduate**

11. Corequisites: (must be completed *with* proposed course):

12. If course has no requisites, what consent will be required for all sections?

(Check only one.)

☐ Instructor Consent

☐ Department Consent

☐ No Consent Required.

13. Justification for course change: **Update course description to reflect current content. Revise course prerequisites.**

14. Approvals

Department Chair (if appropriate)

Date

Chair of college curriculum committee

Date

Dean of College

Date

For University Graduate Committee use only

Approved: _____

Date



CENE 541
Traffic Studies
and
Signal Systems



Fall Semester 2007
3 Credit Hours

Instructor: **Craig Roberts, Ph.D., P.E.**
Associate Professor
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Room 322G, Engineering and Technology Building No. 69
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CENE 420
Traffic Studies
and
Signal Systems



Fall Semester 2007
3 Credit Hours

Instructor: **Craig Roberts, Ph.D., P.E.**
Associate Professor
Department of Civil and Environmental Engineering
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Phone: (928) 523-0651
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Course Prerequisites: (EGR 225 or CENE 225) Engineering Analysis (Statistics) and EGR 286 (Engineering Design)

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Required Text: Traffic Engineering (Third Edition) by Roger P. Roess, Elena S. Prassas, and William R. McShane, copyright 2004, Prentice-Hall, Inc., ISBN 0-13-42471-8. Do not get the first or second edition, as it is not useful.

Class Folder (cene420-01)

You have automatically been given access to the class folder which is contained on the CET “Shared” drive. The folder is identified by the class number (cene420-1). This has been done from the official class roster. Inform the Instructor if you cannot access the “Shared” drive. The Syllabus will be in the folder and I will keep it updated as things change. Also homework assignments will be in the folder as well as copies of any handouts I give out in class.

Estimated Time Course Will Take: In the undergraduate classroom, the rule-of-thumb is 3

hours homework for every hour of lecture plus the lab time (each week = 2 hrs lecture + 6 hrs homework + 3 hrs lab time). Graduate students typically spend more time depending on their personal interests. The work flow will not be equal, i.e., some weeks will take more time and others less. In this course a great deal of time will be spent reading and understanding the text. Each chapter covers an important topic in some degree of depth. Some subtopics will be of more interest to you than others. The web site links provided will take a measured amount of time to explore in general, but some will simply “swallow you” because they are of great interest to you.

Grading Scheme: The following grading scale pertains to all work. At the discretion of the instructor, all of the student grades on any quiz, exam, homework, or other exercise may be increased (but not lowered). Extra credit questions may be given on any quiz, exam, and homework that can add points to the normal grade for that quiz, exam, or homework.

90.0 - 100.0 $\Leftarrow$ A

80.0 - 89.9 $\Leftarrow$ B

70.0 - 79.9 $\Leftarrow$ C

60.0 - 69.9 $\Leftarrow$ D

59.9 or lower $\Leftarrow$ F

Course Evaluation: These weightings will be given to each student’s work to determine her or his overall grade in the course:

Average of Laboratories	25%
Average of Homeworks	30%
Average of Quizzes	10%
Average of Tests	20%
Professional Development ¹	5%
Final Exam ²	<u>10%</u>
	100%

Student Code of Conduct: Students are expected to perform class activities in keeping with standards of the NAU Code of Conduct, detailed in Appendix C of the Student Handbook (<http://www.nau.edu/~stulife/conduct.html>) and the Policy on Academic Dishonesty detailed in Appendix G of the Student Handbook (<http://www.nau.edu/~stulife/dishonst.html>).

¹ Participation in a professional society is a critical part of the life-long learning required to maintain technical competence in an engineering discipline. Undergraduates taking CENE 420 will be expected to participate in the Student Chapter of ASCE or ITE or a pre-approved alternate professional society. Attending meetings and/or project work sessions and serving as officers and/or committee chairpersons are typical activities that indicate participation. Undergraduates will also be expected to join ITE (Institute of Transportation Engineers) as student members (free). Graduate students will participate in professional societies that are available to them in their physical locations. If you do not belong to a professional society, then you must attend at least three meetings as a "guest." Ideally you will attend at least one ITE meeting as a "guest" as this society focuses on transportation and traffic.

² Students who maintain an average of 92.0 will be exempt from the Final Exam. However, this requires that the Student complete all homework assignments. In addition, the last two homework assignments must receive a grade comparable with the Student’s previous homeworks

Though students are encouraged to help each other on homework, each homework must reflect the individual student's efforts. Appropriate action will be taken towards any student suspected of violation of the Code of Conduct, the Policy on Academic Dishonesty, and/or the Professional Code of Conduct.

Professional Code of Conduct: Exceptionally high standards of honor and integrity are fundamental and essential to the study and practice of engineering. Academic preparation for the profession must be conducted in an atmosphere which fosters these values. Therefore, in addition to the student Code of Conduct, the College of Engineering and Technology has adopted this Professional Code of Conduct (CET Policy 18).

All students are expected to conduct themselves professionally. Violation of the National Society of Professional Engineers (NSPE) Code of Ethics (<http://www.nspe.org/eh1-code.asp>) or the Association for Computing Machinery (ACM) Code of Ethics and Professional Conduct (<http://www.acm.org/constitution/code.html>) may lead to dismissal from the College's academic programs. Copies of these codes are available in the Office of the Dean.

Selected University Policies Of Particular Concern to Course Activities: Summaries of some of policies regarding NAU students are attached. Additional information can be found in these references. These are not a complete list of such policies.

- Safe Working and Learning Environment (1998-2000 Student Handbook, Appendix M or <http://www.nau.edu/stulife/handbook.html>)
- Institutional Review Board on the Protection of Human Subjects (<http://www.nau.edu/grants/irb.htm>)

Course Schedule (Subject to Change)

Week	Topic	Week	Topic
9	Chapters 1, 2, and 3	9	Chapter 17
10	Chapter 4	10	<i>Spring Break</i>
11	Chapter 5	11	Chapter 18
12	Chapter 7	12	Chapter 18
13	Chapter 8	13	Chapter 20
14	Chapter 9	14	Chapter 24
15	Chapter 16	15	Chapter 24
16	Chapter 17	16	<i>Finals Week</i>