Memorandum For: Dr. Mark R. Archambault, Chair, University Curriculum Committee

Thru: Dr. Edward H. Kalajian, Chair, COE College Council

Subject: Request for changes to Construction Management Program and Courses

March 16, 2010

I respectfully request that these changes be added to the agenda of the March 26, 2010 meetings of your committee for consideration and hopeful approval.

Attached please find course add and change forms and syllabi for new courses which are proposed for addition to the Construction Management Program course offerings, leading to a Bachelor of Science Degree in Construction Management.

The Construction Management Program was developed to provide a curriculum that more closely met the needs of the expanding construction industry in Florida and throughout the US. In short, the construction industry requires professionals who understand the basics of civil engineering coupled with a substantial understanding of business subjects. This program has been designed to meet the Florida Tech “core” requirements and the accreditation requirements of the American Council for Construction Education, ACCE, which accredits construction education programs in the United States.

It is our intention to apply for accreditation of this Program 2012 school year. These changes are designed to facilitate program operations and to optimize chances for successful accreditation upon our first application.

Finally, the program seeks to attract a new base of students who for employment as construction management professionals. For this reason, successful and timely accreditation from the ACCE is essential to the program’s success.

Respectfully submitted,

Ralph V Locurcio, P.E.
Professor and Director, Construction Management Program
MEMORANDUM FOR: Florida Tech University Curriculum Committee

SUBJECT: Request for changes to Construction Management Program, Major Code 7045

SUBMITTED BY: Prof. Ralph V. Locurcio, PE

The Bachelor of Science in Construction Program began in Fall 2009. After several semesters of operation, the following changes are requested to ensure meeting the criteria for accreditation by ACCE and to improve operations:

Part A – Change of Program Name:

1. **Change the name of the program from “Construction” to “Construction Management”.** In consultation with industry professionals, it has been determined that a program title of Construction Management would more accurately define the curriculum. In addition, the change would be more attractive to new students and also provide graduates with increased status when seeking jobs in the construction industry. This change has been coordinated with the School of Business and the Office of the Registrar and they support this request.

Part B – Addition and Deletion of Courses:

2. **Delete CON 1001-CAD Applications & Construction Plans (3 credits).** We have learned that it is more effective to teach Construction Plan Reading separate from CAD Applications.

3. **Add new CON1004 - Construction Plan Reading (2 credits).** This course replaces the plan reading portion of CON 1001. We have learned that it is more effective to teach Construction Plan Reading separate from CAD Applications.

4. **Add CVE 1001 - CAD Applications Lab(1 credit).** This course replaces the CAD portion of CON 1001. We have learned that it is more effective to teach Construction Plan Reading separate from CAD Applications. This is an existing Civil Engineering course and this change has been coordinated with the Civil Engineering Department.

5. **Add a new course CON1002-Physical Concepts for Construction(3 credits) to replace AVS2101-Aviation Physical Science (3 credits).** AVS 2101 does not provide sufficient scientific background for students to progress to Statics & Materials and other advanced courses. The Physics department does not offer a Physics course based only on algebra and Calculus 1. As a result we are creating this course with the concurrence of the Physics Department. Prerequisites: MTH 1000-Precalculus or passing score on math placement test.
6. **Add a new course CON1003 Physical Concepts Laboratory (1 credit).** This course is required to complement CON2001 to complete the learning process for Physical Concepts and to add laboratory experience needed in more advanced courses. In addition, this laboratory will increase the student’s awareness of the practical applicability of the physical concepts covered in CON2001 to aid in daily problem solving on the job. Corequisite: CON 1002-Physical Concepts for Construction.

7. **Move CON1002 & CON1003 (Physical Concepts) from Year 1 to Year 2 in the Program Sequence.** It is necessary to move this Physical Concepts course and Lab to year 2 in the program sequence to allow students to complete Calculus 1 prior to taking CON1002 and CON1003.

8. **Add a new course CON4005-Construction Safety (3 credits), to replace CHE4284-Industrial Safety (3 credits).** CHE 4284 is designed primarily for industrial rather than construction operations and therefore it does not meet the full intent of a construction safety course based on OSHA standards for construction. This course will be replaced with a newly developed 3 credit course specifically designed for construction safety. Prerequisite: Senior Standing.

9. **Add a new course CON4091-Construction Capstone Proposal (1 credit).** In order to accomplish the “teaming” objective outlined in item 10 below, construction students must also participate in the initial proposal phase of the project development process where the project teams are formed and the scope of the project is developed. Prerequisite: Senior Standing.

10. **Add a new course, CON4092 – Construction Capstone Project (3 credits), to replace CON4004 - Construction Senior Capstone Project.** It is considered advantageous to combine this course with the Engineering capstone courses to permit Engineers and Construction students to work together in teams as they will be required to do in practice. Construction students will accomplish project management, estimating and related construction tasks while the Engineering students will accomplish the design tasks to complete a realistic project experience. Prerequisite: CON4091.

11. **Delete BUS1601-Computer Applications for Business (3 credits) and replace it with a Free Elective (1 credit).** After several semesters of operations the faculty has determined that this course is not necessary and the program now has a sufficient number of business courses to satisfy ACCE requirements for accreditation. The CORE computer literacy requirement (CL) is met by the addition of CVE 1001.

12. **Delete CON2002-Construction Materials Lab and replace it with CVE3013-Civil Engineering Materials Lab.** The faculty has determined that having a separate course for Construction Materials is not necessary. The corequisite, CVE 3012, should be maintained. This change has been coordinated with the Civil Engineering Department.

**Part C – Changes to prerequisites, corequisites and course restrictions:**

13. **Change prerequisites for CON2000-Statics & Materials from AVS2101 to CON1002 and CON 1003.** This change is consistent with item 4, above. Students should complete the Physics course before attempting a course in Statics & Materials.

14. **Change prerequisite for CON2001-Construction Methods.** After several semesters of operations the faculty has determined that CON 2000 and CVE 2080 are not necessary as prerequisites to this course. However, it is necessary to add CON 1004 as a prerequisite.
15. **Change prerequisites for CON3000-Construction Soils, Foundations & Formwork (3 credits).** The faculty has determined that the prerequisite requirements for this course are satisfied by CVE3012 and its corequisite CVE 3013. CON2001 and CON2002 are not needed as prerequisites for this course. These changes have been coordinated with the Civil Engineering Department.

16. **Change prerequisite for CON3002 from AVS2101 to CON1002 and CON1003.** This change is consistent with item 6, above. Students should complete the standard Physics course & Lab before attempting the course in Mechanical & HVAC Systems. Also, change prerequisite for CON 1001 to CON 1004 to coincide with item 7 above.

17. **Change prerequisite for CON4001 from AVS2101 to CON1002 and CON1003.** This change is consistent with item 6, above. Students should complete the standard Physics course & Lab before attempting the course in Electrical & Electronic Systems. Also, change prerequisite for CON 1001 to CON 1004 to coincide with item 7 above.

18. **Remove prerequisite restrictions from CON4003- Construction Estimating, Bidding and Value Engineering (3 credits).** The faculty has determined that BUS2703 and CVE4000 are not needed as prerequisites for this course. Retain CON 2001 as a prerequisite.

**Part D – Original and Changed Construction Program Flow Charts and Catalog Entries**

Respectfully submitted,

[Signature]

Ralph V. Locurcio, P.E.
Professor and Director, Construction Program
Part A

Adding a New Major
(changing program name)

&

Changing Graduation Requirements
ADDITION A NEW MAJOR OR MINOR TO THE CURRICULUM

Please provide the following information when requesting a new major or minor (program or option) to be added to the curriculum.

Only new majors, minors and options are assigned a new code and print on the diploma.

The code will be assigned by the Office of the Registrar and a copy of this form will be sent to the appropriate department.

COLLEGE: Engineering

DEPARTMENT: Construction Management

SITE(S): Melbourne-Main Campus

CAMPUS(ES): Melbourne-Main Campus

PROGRAM TO BE ADDED: [ ] Major or [ ] Minor or [ ] Option for: [ ] (existing degree program)

NOTE: Only Majors, Minors and Options receive new codes and print on the diploma.

[ ] Associate of Arts (A.A.)  [ ] Executive Master of Business Administration (E.M.B.A.)  [ ] Educational Specialist (Ed.S.)

[ ] Associate of Science (A.S.)  [ ] Master of Arts (M.A.)  [ ] Doctor of Education (Ed.D.)

[ ] Bachelor of Arts (B.A.)  [ ] Master of Arts in Teaching (M.A.T.)  [ ] Doctor of Philosophy (Ph.D.)

[ ] Bachelor of Science (B.S.)  [ ] Master of Business Administration (M.B.A.)  [ ] Doctor of Psychology (Psy.D.)

[ ] Master of Education (M.Ed.)

[ ] Master of Public Administration (M.P.A.)

[ ] Master of Science (M.S.)

[ ] Master of Science in Aviation (M.S.A.)

[ ] Professional Master of Business Administration (PM.B.A.)

OTHER ADDITION TO THE CURRICULUM (NOTE: Only Majors, Minors and Options receive new codes and print on the diploma.)

[ ] Concentration or [ ] Specialization for: [ ] (existing degree program)

PROGRAM TITLE Restricted to 30 characters, including spaces

Construction Management

TERM TO BE INITIATED: Fall Semester 2010

ADVISER FOR NEW PROGRAM: Professor Ralph V. Locurcio

ROUTING APPROVALS: 1) Department head/program chair and college dean approve and sign form; 2) Provost approves business plan of the program in terms of financial viability and impact on the university mission, and signs form; 3) Undergraduate Curriculum Committee or Graduate Council approves academic and signs form; 4) Provost gives final approval of program, signs form and forwards to Office of the Registrar.

1) Department Head/Program Chair  3-16-2010

2) Provost  3-19-11

3) Chair, Graduate Council  OR

4) Provost

REGISTRAR’S USE ONLY

FSA ATLAS  SOAXREF  SMAPRLE

STVMAUR  SOACURR  Major Code Assigned

SAOQXCUR  CIPC Code  Operator Initials/Date

Florida Institute of Technology • Office of the Registrar

150 West University Boulevard, Melbourne, FL 32901-6975 • (321) 674-6975 • Fax (321) 674-7827

General Information – ext. 8115, Graduation – ext. 8116, Records and Transcripts – ext. 8117, Registration – ext. 8118

RGR032309
FLORIDA INSTITUTE OF TECHNOLOGY

CHANGING GRADUATION REQUIREMENTS IN A MAJOR/MINOR

The addition or removal of any graduation requirement in a major or minor requires that this form, accompanied by supporting documentation, be completed and approved as indicated below. Incomplete or incorrect forms will not be processed.

COLLEGE: Engineering

DEGREE LEVEL: Bachelor of Science

DEPARTMENT: Construction Management

PROGRAM TITLE: Construction Management

TO BE INITIATED WITH CATALOG YEAR 2010/2011

EFFECTIVE DATE FOR CHANGE: 8/16/2010

CHANGE REQUESTED FOR: ☑ major program □ minor program 7045

NAMED TERM FOR EFFECTIVE DATE: Fall Semester-Main Campus

TERM MUST be named; i.e., UA-Fall 2, Fall Semester-Main Campus

BRIEF DESCRIPTION OF REQUESTED CHANGES: Attach a more detailed description and any supporting documentation.

1. Delete CON1001-CAD Applications and Construction Plans (3 credits)
2. Add CVE1001-Computer Applications Lab (1 credit)
3. Add new course CON1002-Physical Concepts for Construction (3 credits)
4. Add new course CON1003-Physical Concepts Laboratory (1 credit)
5. Move CON1002 & CON1003 from Year 1 to Year 2
6. Add new course CON1004-Construction Plan Reading (2 credits)
7. Delete BUS1601-Computer Applications for Business (3 credits)
8. Replace CON2002-Construction Materials Lab with CVE3013-Civil Engineering Materials Lab
9. Add new course CON4005-Construction Safety (3 credits)
10. Add new course CON4091-Construction Capstone Proposal (1 credit)
11. Add new course CON4092-Construction Capstone Project (3 credits)

Approvals: On completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee, for approval below and forward to the Office of the Registrar.

Originator: P. Michalski 3-16-2010

Chair, Graduate Council: Date

Date

Department Head / Major Program Chair: 3-16-2010 OR

Date

Department Head / Minor Program Chair: 3-17-10

Date

Dean or Associate Dean: Date

REGISTRAR'S USE ONLY

University Catalog

Academic Year: ☐ Yes ☐ No

Update completed: Date

Initials:

Extended Studies Division Catalog

Academic Year: ☐ Yes ☐ No

Update completed: Date

Initials:

University Alliance Catalog

Academic Year: ☐ Yes ☐ No

Update completed: Date

Initials:

CAPP / Degree Evaluation

Academic Year: ☐ Yes ☐ No

Update completed: Date

Initials:

Catalog / Policy Mgmt. System

Academic Year: ☐ Yes ☐ No

Update completed: Date

Initials:

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RGR-665-1109
Part B

Addition & Deletion of Courses from Construction Program
**Florida Institute of Technology**

**ADDDING A NEW COURSE TO THE CURRICULUM**

This course is available for student registration only after the approval process has been completed.

<table>
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<th>SUBJECT</th>
<th>C O N</th>
<th>COURSE NO.</th>
<th>CREDIT HOURS</th>
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<td>Civil Engineering</td>
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- College of Aeronautics – 23
- Nathan M. Bisk College of Business – 24
- College of Engineering – 1
- College of Psychology and Liberal Arts – 25
- College of Science – 26
- Extended Studies Division / Nathan M. Bisk College of Business – 20

**COMPUTER TITLE**
Restricted to 25 characters, including spaces. Physical Concepts

**CATALOG TITLE**
Physical Concepts of Construction

**CATALOG DESCRIPTION OF COURSE**
Restricted to 350 characters, including spaces

Presents the basics of physics as an essential foundation for understanding later technical courses in structures, materials, electrical and mechanical systems. Aids construction (management) graduates in making timely judgments in the field during construction operations. (Requirements: Prerequisite course or passing score on placement examination.)

In addition, please attach a course syllabus and/or more detailed description.

**G R A D E S T O B E I S S U E D**
- A, B, C, D, F
- A, B, C, D, F, CEU
- CEU
- S, U
- P, F
- Other

**ADDITIONAL RESTRICTION**
Prerequisite course or passing score on placement examination.

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

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**APPROVALS:** Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

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<td>Florida Institute of Technology, Office of the Registrar</td>
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<td>150 West University Boulevard, Melbourne, FL 32901-9075 • (321) 674-8114 • Fax (321) 674-7827</td>
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Catalog Data: Course presents the basic concepts of Physics as an essential foundation for understanding later technical courses in Construction such as Statics, Structures, Materials, Electrical and Mechanical Systems. These concepts will aid each construction graduate in making timely judgments in the field during ongoing construction operations.

Required: Yes


Course Learning Objectives: The student will be able to:
1. Understand geometric, trigonometric and vector methods used in problem solving.
2. Understand the basic concepts of Physics as the foundation of construction practices.
3. Execute calculations and solve problems to enhance understanding of the basic concepts.
4. A 1-credit hands-on laboratory will supplement the lecture material to increase the student’s awareness of the practical applicability and usefulness of the physical concepts in daily problem solving on the job.

Topics Covered:
1. Mathematical Concepts and Units of Measure
2. Kinematics
3. Forces & Newton’s Laws of Motion
4. Dynamics of Uniform Circular Motion
5. Work & Energy
6. Impulse & Momentum
7. Rotational Kinematics
8. Rotational Dynamics
9. Simple Harmonic Motion
10. Fluids
11. Temperature & Heat
12. Transfer of Heat
13. Ideal Gas Law
14. Waves & Sound
15. Electric Forces & Electric Fields
16. Electric Potential Energy
17. Electric Circuits
18. Magnetic Forces & Fields
19. Alternating Current Circuits
20. Reflection & Refraction of Light

Assignments & Grading:

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<td>4 Tests @ 150 points each</td>
<td>600 points</td>
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<tr>
<td>10 Homework Assignments 50 points each</td>
<td>500 points</td>
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<td>1 Guest Speaker Report, 50 points each</td>
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<tr>
<td>Class Participation/Instructor Evaluation</td>
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<td>Final Exam</td>
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<td>Total course points</td>
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Letter Grade: (no curve)

A 90-100%
B 80-89%
C 70-79%
D 60-69%
E 50-59%
F less than 50%

Attendance: Regular attendance at all class sessions is mandatory. Students must notify the instructor prior to any absence. Class material will not be repeated outside of class. Attendance will be recorded and will become a consideration for borderline grade cases.

Prepared By: Ralph V. Locurcio, MSE, P.E., Professor of Construction, February 22, 2010
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<thead>
<tr>
<th>DATE</th>
<th>SESSION</th>
<th>TOPIC &amp; TEXT CHAPTER</th>
<th>ASSIGNMENT</th>
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<td>Session 1:</td>
<td>INTRODUCTION AND MATHEMATICAL CONCEPTS.</td>
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<td>1.1 The Nature of Physics.</td>
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<td>1.3 The Role of Units in Problem Solving.</td>
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<td>1.4 Trigonometry.</td>
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<td>1.5 Scalars and Vectors.</td>
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<td>1.6 Vector Addition and Subtraction.</td>
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<td>1.7 The Components of a Vector.</td>
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<td>1.8 Addition of Vectors by Means of Components.</td>
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<td>1.9 Concepts &amp; Calculations.</td>
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<td>Session 2:</td>
<td>KINEMATICS</td>
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<td>2.1 Displacement.</td>
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<td>2.2 Speed and Velocity.</td>
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<td>2.3 Acceleration.</td>
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<td>2.4 Equations of Kinematics for Constant Acceleration.</td>
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<td>2.5 Applications of the Equations of Kinematics.</td>
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<td>2.6 Freely Falling Bodies.</td>
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<td>2.7 Graphical Analysis of Velocity and Acceleration.</td>
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<td>2.8 Concepts &amp; Calculations.</td>
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<td>Session 3:</td>
<td>FORCES &amp; NEWTON'S LAWS OF MOTION</td>
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<td>3.1 The Concepts of Force and Mass.</td>
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<td>3.2 Newton's First Law of Motion.</td>
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<td>3.3 Newton's Second Law of Motion.</td>
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<td>3.4 The Vector Nature of Newton's Second Law of Motion.</td>
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<td>3.5 Newton's Third Law of Motion.</td>
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<td>3.6 Types of Forces: An Overview.</td>
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<td>3.7 The Gravitational Force.</td>
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<td>3.8 The Normal Force.</td>
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<td>3.9 Static and Kinetic Frictional Forces.</td>
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<td>3.10 The Tension Force.</td>
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<td>3.11 Equilibrium Applications of Newton's Laws of Motion.</td>
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<td>3.12 Nonequilibrium Applications of Newton's Laws of Motion.</td>
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<td>Session 4:</td>
<td>CIRCULAR MOTION</td>
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<td>4.1 Uniform Circular Motion.</td>
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<td>4.2 Centripetal Acceleration.</td>
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<td>4.3 Centripetal Force.</td>
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<td>5.8 Concepts &amp; Calculations.</td>
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<td>Session 5:</td>
<td>WORK &amp; ENERGY</td>
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<td>5.1 Work Done by a Constant Force.</td>
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<td>5.2 The Work-Energy Theorem and Kinetic Energy.</td>
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<td>5.5 The Conservation of Mechanical Energy.</td>
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<td>5.6 Power.</td>
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<td>5.7 Other Forms of Energy and the Conservation of Energy.</td>
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<td>5.9 Concepts &amp; Calculations.</td>
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Session 6: Test 1

Session 7: IMPULSE & MOMENTUM
7.1 The Impulse–Momentum Theorem.
7.2 The Principle of Conservation of Linear Momentum.
7.5 Center of Mass.
7.6 Concepts & Calculations.

Session 8: ROTATIONAL KINEMATICS
8.1 Rotational Motion and Angular Displacement.
8.2 Angular Velocity and Angular Acceleration.
8.6 Rolling Motion.
8.7 Concepts & Calculations.

Session 9: ROTATIONAL DYNAMICS
9.1 The Action of Forces and Torques on Rigid Objects.
9.4 Newton's Second Law for Rotational Motion About a Fixed Axis.
9.5 Rotational Work and Energy.
9.6 Angular Momentum.
9.7 Concepts & Calculations.

Session 10: SIMPLE HARMONIC MOTION
10.1 The Ideal Spring and Simple Harmonic Motion.
10.2 Simple Harmonic Motion and the Reference Circle.
10.4 The Pendulum.
10.7 Elastic Deformation.
10.8 Stress, Strain, and Hooke's Law.
10.9 Concepts & Calculations.

Session 11: FLUIDS
11.1 Mass Density.
11.2 Pressure.
11.4 Pressure Gauges.
11.5 Pascal’s Principle.
11.6 Archimedes’ Principle.
11.9 Bernoulli’s Equation.
11.10 Applications of Bernoulli’s Equation.
11.12 Concepts & Calculations.

Session 12: Test 2

Session 13: TEMPERATURE & HEAT
13.1 Common Temperature Scales.
13.3 Thermometers.
13.4 Linear Thermal Expansion.
13.5 Volume Thermal Expansion.
13.6 Heat and Internal Energy.
13.10 Humidity.
13.11 Concepts & Calculations.

Session 14: HEAT TRANSFER
14.1 Convection.
14.2 Conduction.
14.3 Radiation.
14.5 Concepts & Calculations
Session 15: THE IDEAL GAS LAW
15.1 Molecular Mass, The Mole, and Avogadro’s Number.
15.2 The Ideal Gas Law.
15.5 Concepts & Calculations.

Session 16: THERMODYNAMICS
16.1 Thermodynamic Systems and Their Surroundings.
16.3 The First Law of Thermodynamics.
16.4 Thermal Processes.
16.7 The Second Law of Thermodynamics.
16.8 Heat Engines.
16.9 Carnot’s Principle and the Carnot Engine.
16.10 Refrigerators, Air Conditioners, and Heat Pumps.
16.12 The Third Law of Thermodynamics.

Session 17: WAVES & SOUND
17.1 The Nature of Waves.
17.2 Periodic Waves.
17.5 The Nature of Sound.
17.7 Sound Intensity.
17.8 Decibels.
17.12 Concepts & Calculations.

Session 18: Test 3

Session 19: ELECTRIC FORCES & ELECTRIC FIELDS
19.1 The Origin of Electricity.
19.2 Charged Objects and the Electric Force.
19.3 Conductors and Insulators.
19.5 Coulomb’s Law.
19.6 The Electric Field.
19.9 Gauss’ Law.
19.11 Concepts & Calculations.

Session 20: ELECTRIC POTENTIAL ENERGY
20.1 Potential Energy.
20.2 The Electric Potential Difference.
20.5 Capacitors and Dielectrics.
20.7 Concepts & Calculations.

Session 21: ELECTRIC CIRCUITS
21.1 Electromotive Force and Current.
21.2 Ohm’s Law.
21.3 Resistance and Resistivity.
21.4 Electric Power.
21.5 Alternating Current.
21.6 Series Wiring.
21.7 Parallel Wiring.
21.9 Internal Resistance.
21.10 Kirchhoff’s Rules.
21.13 RC Circuits.
Session 22: MAGNETIC FIELDS
   22.2 The Force That a Magnetic Field Exerts on a Moving Charge.
   22.5 The Force on a Current in a Magnetic Field.
   22.6 The Torque on a Current-Carrying Coil.
   22.7 Magnetic Fields Produced by Currents.
   22.8 Ampere's Law.
   22.10 Concepts & Calculations.

Session 23: ELECTROMAGNETIC INDUCTION
   24.5 Lenz's Law.
   24.6 Electromagnetic Induction & the Reproduction of Sound.
   24.7 The Electric Generator.
   24.9 Transformers.
   24.10 Concepts & Calculations.

Session 24: Test 4

Session 25: ALTERNATING CURRENT CIRCUITS
   25.1 Capacitors and Capacitive Reactance.
   25.3 Circuits Containing Resistance, Capacitance, and Inductance.
   25.5 Semiconductor Devices.
   25.6 Concepts & Calculations.

Session 26: ELECTROMAGNETIC WAVES
   26.1 The Nature of Electromagnetic Waves.
   26.2 The Electromagnetic Spectrum.
   26.3 The Speed of Light.
   26.7 Concepts & Calculations.

Session 27: REFLECTION & REFRACTION OF LIGHT
   27.1 The Index of Refraction.
   27.2 Snell's Law and the Refraction of Light.
   27.4 Polarization and the Reflection and Refraction of Light.
   27.5 The Dispersion of Light: Prisms and Rainbows.
   27.12 Interference & the Wave Nature of Light
   27.13 Diffraction.
   27.16 Concepts & Calculations.

Session 28: Guest Lecture-2: (TBD)

Session 29: Course Review

Session 30: Course evaluation

Session 31: Final Exam
This course is available for student registration only after the approval process has been completed.

SUBJECT: CON
COURSE NO.: 1003
CREDIT HOURS: 1
TERM TO BE ADDED TO THE FILE: Fall 2010

CLASS HOURS: 80 min/week
LECTURE HOURS: 
LAB HOURS: 80 min/week
CONTACT HOURS (CUE ONLY): 

DEPARTMENT: Civil Engineering
SCHEDULE TYPE: Laboratory

☐ COLLEGE OF AERONAUTICS – 23
☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS – 25
☐ NATHAN M. BISK COLLEGE OF BUSINESS – 24
☐ COLLEGE OF SCIENCE – 26
☒ COLLEGE OF ENGINEERING – 1
☐ EXTENDED STUDIES DIVISION / NATHAN M. BISK COLLEGE OF BUSINESS – 90

COMPUTER TITLE: Restricted to 25 characters, including spaces
Physical Concepts Lab

CATALOG TITLE: Physical Concepts of Construction Laboratory

CATALOG DESCRIPTION OF COURSE: Restricted to 250 characters, including spaces

Clarifies the basic physical concepts covered in CON 1002. Develops understanding of experimental methods, laboratory procedures, the significances and limitations of physical measurements, and the procedures used to document results.

In addition, please attach a course syllabus and/or more detailed description.

RESTRICTIONS
☐ Prerequisite: Course Number
☒ Corequisite: CON 1002

GRADES TO BE ISSUED
☒ A, B, C, D, F
☐ A, B, C, D, F, CEU
☐ CEU
☐ S, U
☐ P, F
☐ Other

ADDITIONAL RESTRICTION
(eg., Mapa, Class Level, Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

SUBJECT: Alpha Prefix (eg. CSE)
COURSE NO.: 1003

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

Originator: 
Date: 3-22-10

Chair, Graduate Council: 
Date:

Department Head/Program Chair: 
Date: 3-22-10

Chair, Undergraduate Curriculum Committee: 
Date:

Dean or Associate Dean: 
Date: 3-19-10

CATALOG DIRECTOR

These changes/additions have been made for the University Catalog/policy management system and entered into the BANNER term named above.

Catalog Director: 
Date:

REGISTRAR'S USE ONLY

SCACRSE: 
SCADETI: 
SCAPREQ: 
SCARRES: Operator Init: 
Date:

Florida Institute of Technology • Office of the Registrar
130 West University Boulevard, Melbourne, FL 32901-6975 • (321) 674-8114 • Fax (321) 674-7827

0096-09
Syllabus  
CON 1003 Physical Concepts Laboratory

Catalog Data: Lab consists of experiments to clarify the basic physical concepts and relationships presented in CON 1002 and to develop an understanding of experimental methods, laboratory procedures, the significance and limitations of physical measurements and the procedures for documenting laboratory results.

Textbook(T): Laboratory Manual to accompany Physics, 8th edition, by John D. Cutnell

Course Learning Objectives:
1. Conduct of physical experiments
2. Observation and documentation of physical experiments
3. Interpretation of results obtained from experiments
4. Comparison of experimental results with desired outcomes or specifications
5. Practice in writing and interpreting technical reports
6. Recitation on results of experiments to develop oral communication skills

Topics Covered:
1. Measurement, mass, and density
2. Introduction to motion
3. Force and motion
4. Force, mass, and acceleration
5. Gravitational forces
6. Work and energy
7. Conservation of energy
8. Newton's third law/Conservation of momentum
9. Fluid mechanics
10. Ideal gas laws
11. Latent Heat of Transition
12. Electricity & Electric currents
13. Magnetic forces & fields
14. Light, reflection & refraction

Assignments & Grading:
Laboratory homework or write-up 50%
Quizzes 15%
Participation 15%
Laboratory Final 20%

Class Schedule: one 80 minute laboratory class per week
Attendance: Regular attendance at all class sessions is mandatory. Students must notify the instructor prior to any absence. Class material will not be repeated outside of class. Attendance will be recorded and will become a consideration for borderline grade cases. Class participation and overall quality of work will be judged subjectively by the instructor.

Contribution of Course to Meeting the Professional Component: Pending
Relationship of Course to Program Outcomes: Pending
Prepared By: Ralph V. Locurcio, MSE, P.E., Professor of Construction, February 22, 2010
This course is available for student registration only after the approval process has been completed.

SUBJECT  CON  COURSE NO.  1 0 0 4  CREDIT HOURS  2  TERM TO BE ADDED TO THE FILE  Fall 2010

CLASS HOURS  30/semester  LECTURE HOURS  30/semester  LAB HOURS  CONTACT HOURS (CEU ONLY) 

DEPARTMENT  College of Engineering  COE

SCHEDULE TYPE  Lecture (A)

☐ COLLEGE OF AERONAUTICS – 23  ☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS – 25
☐ NATHAN M. BISK COLLEGE OF BUSINESS – 24  ☐ COLLEGE OF SCIENCE – 26
☒ COLLEGE OF ENGINEERING – 1  ☐ EXTENDED STUDIES DIVISION / NATHAN M. BISK COLLEGE OF BUSINESS – 90

COMPUTER TITLE Restricted to 25 characters, including spaces: Construction Plan Reading

CATALOG TITLE: Construction Plan Reading

CATALOG DESCRIPTION OF COURSE Restricted to 350 characters, including spaces:
Introduces construction plans necessary to organize and supervise construction work. Covers interpretation of construction plans, symbols, scales and formats. Includes field trips and instruction in architectural, structural, mechanical, electrical and general construction details.

In addition, please attach a course syllabus and/or more detailed description.

REQUIREMENTS
☐ Prerequisite  Course Number  ☑ Corequisite  Course Number

☐ Prerequisite  Course Number  ☐ Corequisite  Course Number

☐ Prerequisite  Course Number  ☐ Corequisite  Course Number

GRAD UES TO BE ISSUED
☑ A, B, C, D, F  ☑ A, B, C, D, F, CEU
☐ CEU  ☐ S, U
☐ P, F  ☐ Other

ADDITIONAL RESTRICTION

(Revised at the course level: Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

SUBJECT Alpha Prefix (e.g., CS)  COURSE NO. (e.g., 1301)

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

Originator  3/22/10  Chair, Graduate Council  Date

Department Head/Program Chair  3/22/10  Date

Dean or Associate Dean  3/19/10  Date

Chair, Undergraduate Curriculum Committee  Date

CATALOG DIRECTOR

These changes/additions have been made for the University Catalog policy management system and entered into the BANNER term named above.

Catalog Director  Date

DISTRIBUTION

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Copy - Academic Unit

150 West University Boulevard, Melbourne, FL 32901-4075 • 321-674-3111 • Fax(321) 674-7827
CON1004 Construction Plans
Syllabus & Student Assignments

Catalog Data: Course is an introduction to construction print reading. Students will learn how to read and identify pertinent information on all types of construction plans commonly in use today. Symbols, abbreviations and all materials common to all trades will be covered through the use of multiple sample architectural, electrical and mechanical drawings.

Required: Yes

Textbook (T): Construction Print Reading; Leonard Koel; Delmar Publishers; ISBN 07668-08394

Course Learning Objectives: The student will be able to:
1. Understand the basic format, symbols abbreviations and materials depicted in construction plans.
2. Learn the various methods employed by construction trades to depict construction details.
3. Execute calculations and solve problems necessary to accomplish material take-offs and layouts.
4. Understand and read both orthographic and pictoral description of construction details.

Topics Covered:
1. Basic Construction Drawing Types
2. Fundamentals of Construction Plans
3. Plan Development
4. Site & Foundation Plans
5. Elevation & Framing Plans
6. Electrical, Plumbing & HVAC Plans
7. Energy & Building Design
8. Masonry, Metals & Plastics
9. Painting & Finishing details
10. Code Regulations & Legal Documents
11. Mathematics used in construction plans; both English & Metric
12. Construction details & sections in drawings
13. Equipment & component schedules

Assignments & Grading:
11 Unit Tests @ 100 points each = 52% (1100pts)
10 Homework Assignments 25 points each = 12% (250pts)
2 Field Trip Reports, 50 points each = 5% (100pts)
Class Participation/Instructor Evaluation = 7% (150pts)
Final Exam = 24% (500pts)
Total course points = 2100 points

Letter Grade: (no curve)
A 90-100%
B 80-89%
C 70-79%
D 60-69%
E 50-59%
F less than 50%

Attendance: Regular attendance at all class sessions is mandatory. Students must notify the instructor prior to any absence. Class material will not be repeated outside of class. Attendance will be recorded and will become a consideration for borderline grade cases. Class participation and overall quality of work will be judged subjectively by the instructor.
**Florida Institute of Technology**

**ADDING A NEW COURSE TO THE CURRICULUM**

This course is available for student registration only after the approval process has been completed.

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<th>SUBJECT</th>
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<th>COMPUTER TITLE</th>
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<th>CATALOG DESCRIPTION OF COURSE</th>
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<td>Provides an understanding of construction safety as federally mandated by Occupational Safety and Health Administration (OSHA) regulations. Includes interpretation and application of regulations, and development of safety plans.</td>
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In addition, please attach a course syllabus and/or more detailed description.

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ADDITIONAL RESTRICTION | Requirement: Senior standing.
|-----------------------|------------------------------------------------|

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

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**APPROVALS:** Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval and forward to Catalog Director.

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**CATALOG DIRECTOR**

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Syllabus
CON 4005 - Construction Safety and Health

Catalog Data: This course is intended to give construction students a comprehensive knowledge of safety requirements necessary to conduct operations in accordance with OSHA guidelines and regulations. In addition, successful completion of the course will allow students to apply for OSHA construction safety certification which should be an attractive addition to their qualifications for employment upon graduation.

Required: Yes

Textbook(T): Construction Safety, Jimmie Hinze; OSHA Standards (CFR 1926)
http://www.osha.gov/readingroom.html

Course Learning Objectives: Students will be able to:
   a) Understand the basic information about safety concerns on construction sites
   b) Apply their knowledge of the OSHA regulations pertaining to construction safety and health.
   c) Assess the level of performance of a firm in the area of safety and health.
   d) Recognize effective management practices that favorably impact safety performance.
   e) Recognize unsafe conditions and unsafe behaviors on construction sites.
   f) Prepare a site specific safety program.
   g) Understand and appreciate the need to be environmentally responsible.
   h) Successful completion of stated criteria will prepare students for the 30-hour OSHA card.

Topics Covered:
1. Construction Industry injury statistics
2. Theories of accident causation; Safety culture and Ethics
3. Timing of injuries; True costs of injuries
4. OSHA basics
5. OSHA violations; Job-site safety assessments
6. Safety meetings, Clean Water Act, Clean Air Act
7. Asbestos, Hazardous Waste
8. Safety incentives, Safety in contracts
9. Record keeping, Training
10. Historic Preservation Act; Endangered Species Act
11. Worker Involvement, Foremen
12. Superintendents & safety responsibilities
13. Top managers and safety, Safety personnel
14. Subcontractor safety
15. Project coordination and safety
16. Owners and safety

Assignments & Grading:
2 Tests @ 150 points each = 20% (300pts)
10 Homework Assignments 50 points each = 33% (500pts)
1 Guest Speaker Report, 50 points each = 3% (50pts)
Class Participation/Instructor Evaluation = 10% (150pts)
Final Exam = 33% (500pts)
Total course points = 1500 points

Letter Grade (no curve)
A 90-100%
B 80-89%
C 70-79%
D 60-69%
E 50-59%
F less than 50%

Attendance: Regular attendance at all class sessions is mandatory. Students must notify the instructor prior to any absence. Students are expected to read the class materials prior to each class. Generally, students are to bring the textbook to class. Class material will not be repeated outside of class. Attendance will be recorded and will become a consideration for borderline grade cases. Class participation and overall quality of work will be judged subjectively by the instructor.
This course is available for student registration only after the approval process has been completed.

SUBJECT CON (e.g.: CSE) COURSE NO. 4091 (e.g.: 1301) CREDIT HOURS 1 TERM TO BE ADDED TO THE FILE Fall 2010 (e.g.: Fall 2010)

CLASS HOURS 30/semester LECTURE HOURS 30/semester LAB HOURS CONTACT HOURS (CEU ONLY) 

DEPARTMENT Civil Engineering SCHEDULE TYPE Laboratory (e.g., Computer Sciences) (e.g., Lecture, Lab or Special Topic/Project) 

☐ COLLEGE OF AERONAUTICS - 23 ☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS - 25
☐ NATHAN M. BISK COLLEGE OF BUSINESS - 24 ☐ COLLEGE OF SCIENCE - 26
☒ COLLEGE OF ENGINEERING - 1 ☐ EXTENDED STUDIES DIVISION / NATHAN M. BISK COLLEGE OF BUSINESS - 90

COMPUTER TITLE Restricted to 25 characters, including spaces Const Project Proposal

CATALOG TITLE Construction Project Proposal

CATALOG DESCRIPTION OF COURSE Restricted to 350 characters, including spaces

Requires a construction management project proposal in tandem with a civil engineering civil design proposal. Involves teams from both areas developing construction estimates, schedules, field layout, logistics and safety plans required to execute a construction operation. (Requirement: Senior standing.)

In addition, please attach a course syllabus and/or more detailed description.

REQUIREMENTS 

☐ Prerequisite Course Number ☐ Corequisite Course Number

☐ Prerequisite Course Number ☐ Corequisite Course Number

☐ Prerequisite Course Number ☐ Corequisite Course Number

GRADING TO BE ISSUED 

☒ A, B, C, D, F ☐ A, B, C, D, F, CEU
☐ CEU ☐ S, U ☐ P, F
☐ Other 

ADDITIONAL RESTRICTION 

Requirement: Senior standing.

(subject, Major, Class Level, Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

SUBJECT Alpha Prefix (e.g., CSE) COURSE NO. (e.g., 1301)

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

Originator 3:22:10

Chair, Graduate Council Date

Department Head/Program Chair 3:22:10

Chair, Undergraduate Curriculum Committee Date

Dean or Associate Dean 3-19-10

CATALOG DIRECTOR

These changes/additions have been made for the University Catalog/policy management system and entered into the BANNER term named above.

Catalog Director Date

REGISTRAR’S USE ONLY

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SCAFCITHOperator Initi. Date
This course is available for student registration only after the approval process has been completed.

SUBJECT: CON (e.g., CSIT)  
COURSE NO.: 4092 (e.g., 1301)  
CREDIT HOURS: 3  
TERM TO BE ADDED TO THE FILE: Fall 2010 (e.g., Fall 2010)

CLASS HOURS: 45/semester  
LECTURE HOURS: 10/semester  
LAB HOURS: 35/semester  
CONTACT HOURS (CEU ONLY): 

DEPARTMENT: Civil Engineering  
SCHEDULE TYPE: Lecture/Lab  
(e.g., Lecture; Lab or Special Topic/Project)

☐ COLLEGE OF AERONAUTICS – 23  
☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS – 25  
☐ NATHAN M. BISK COLLEGE OF BUSINESS – 24  
☐ COLLEGE OF SCIENCE – 26  
☒ COLLEGE OF ENGINEERING – 1  
☐ EXTENDED STUDIES DIVISION / NATHAN M. BISK COLLEGE OF BUSINESS – 90

COMPUTER TITLE: Restrict to 25 characters, including spaces  
Construction Project

CATALOG TITLE: Construction Project

CATALOG DESCRIPTION OF COURSE: Restrict to 350 characters, including spaces

Entails development of detailed construction management plans in tandem with civil engineering civil design projects proposed in CON 4091. Includes detailed project management plans, budgets, schedules, estimates and related documentation required to complete a full set of construction documents.

In addition, please attach a course syllabus and/or more detailed description.

RESTRICTIONS:  
☒ Prerequisite: CON 4091  
☐ Corequisite: 

Course Number:  

GRADES TO BE ISSUED:  
☐ A, B, C, D, F  
☐ A, B, C, D, F, CEU  
☐ CEU  
☐ S, U  
☐ P, F  
☐ Other

ADDITIONAL RESTRICTION: Senior standing (e.g., Major, Class Level, Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information and the date/term the course may be removed from the system.

SUBJECT: Alpha Prefix (e.g., CSIT)  
COURSE NO.: (e.g., 1301)

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

Or

APPROVED: 3.22.10

Originator: 
Date: 3.22.10

Chair, Graduate Council: 
Date: 

Department Head/Program Chair: 
Date: 3.19.2010

Chair, Undergraduate Curriculum Committee: 
Date: 

CATALOG DIRECTOR

These changes/additions have been made for the University Catalog/policy management system and entered into the BANNER term named above.

Catalog Director: 
Date: 

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SCHARES:  
Operator Init:  
Date:

Florida Institute of Technology - Office of the Registrar
150 West University Boulevard, Melbourne, FL 32901-6975 • (321) 674-8114 • Fax (321) 674-7827
General Syllabus
CON 4091 & 4092: Construction Capstone Proposal & Project
Department of Construction, Florida Tech
Instructor: Prof. Ralph V. Locurcio, PE

Credits: 1 & 3, respectively

Number of Class Sessions: 31

Instructor / Contact Information
Professor Ralph V. Locurcio, P.E.
Tel: 321-674-7149
Email: locurcio@fit.edu

Overview

This course is mandatory for all seniors in Civil Engineering and Construction. It satisfies the requirement to prepare the student for actual design and construction experiences after graduation. In Capstone Proposal students work in teams with Civil Engineers to develop a project proposal, conceptualize the design & construction approach and organize a team to accomplish these tasks and present their proposal to the faculty, who serve as the "clients". In Capstone Project the student team must execute the plan developed in the Proposal Stage, completing all aspects of the design and construction phases. Construction students fulfill Project Management and Controls functions. Groups make oral presentations to clients at the 35%, 50% and 100% stages of design. Their final design and accompanying construction plan and technical report is judged and graded by the faculty and also by practicing civil engineers and construction professionals, invited for the final oral presentations.

Conduct of the Course

1. **Attendance:** Students will meet weekly at the appointed place and time as indicated on the class schedule. Attendance on these days is mandatory by all members of the class and design groups unless otherwise directed or approved by the instructor. Roll will be taken and attendance will be a part of the overall evaluation for the course.

2. **Instruction & Homework:** The first classes of the semester will generally be devoted to instruction necessary for accomplishment of one or more of the academic objectives of the courses. See the class schedule and student assignment sheet for homework and specific topics to be covered in Design 1 and Design 2 class sessions.

3. **Work Sessions:** A number of classes, denoted "work sessions" on the class schedule, will be devoted to group work on the proposal or design project. There will be no instruction, per se, on these days. Attendance is mandatory and groups are expected to use these sessions to accomplish design objectives or to meet with faculty advisors to obtain technical guidance or to answer questions. Advisory meetings with faculty advisors will be conducted in conjunction with the work sessions, on request. Students should email Faculty Advisors to request assistance during a specific work session.

4. **Progress Reports:** Each project group will turn in a "project report" where indicated on the class schedule listing specific work items that were accomplished during the previous work sessions. These reports will be dated, signed by the appropriate team Project Manager and turned in to Prof. Locurcio not later than Friday of the week indicated on the schedule. Make up reports will not be accepted. A copy of all of these reports will be filed in a separate tab with the project technical report at each submission and will become part of
the final report and the grade for project management. A template for progress reports is provided herein for student use.

5. **Project Management Plan**: Teams will prepare a Project Management Plan which must include the following items: a Work Breakdown Schedule, the Project Schedule and the Project Budget and the Construction Budget. The WBS & Schedule must be divided to show what specific tasks will be completed for each of the project phases at 5%, 15%, 50%, 95% and 100%. Each task in the WBS must be assigned to only one team member and include the number of proposed hours scheduled to complete the task. As the work is completed the actual hours must be recorded and reported on the periodic Progress Reports and indicated on the updated WBS, Schedule and Budget. Students will complete or update their PM Plan to correspond to the status of completion of their project at the time a submission is made. These documents will become part of the periodic and final project reports and will be graded in the project management portion of the team grade. The WBS & Project Schedule will be used to measure progress following work sessions. Teams must have the Progress Report signed by their advisors when so indicated by the faculty advisor.

6. **Presentations**: The groups must make a formal presentation to the faculty advisors at the following 15%, 50% and 100% phases in their design, and at the annual Project Showcase. In addition, a written technical report will be submitted for all tasks indicated on the WBS that are to be completed for that design phase. Listed below, and on the attached documents, are a general description of each phase and the level of effort expected for that phase.

7. **Project Manager**: Each project group will choose a project manager who will represent the group to the instructor and/or the faculty advisors. The project manager must compile and submit a periodic progress report to the instructor to show progress according the WBS and the phases. These periodic progress reports will be graded as part of the overall project technical report.

8. **Grading**:

<table>
<thead>
<tr>
<th>Pts</th>
<th>4091 Course Points &amp; Grading Pts</th>
<th>Pts</th>
<th>4092 Course Points &amp; Grading</th>
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<tr>
<td>100</td>
<td>Assignment 1 skills inventory</td>
<td>100</td>
<td>5% project management plan</td>
</tr>
<tr>
<td>100</td>
<td>Assignment 2 project purpose &amp; Scope</td>
<td>300</td>
<td>15% concept design presentation</td>
</tr>
<tr>
<td>100</td>
<td>Assignment 3 OSHA &amp; safety</td>
<td>300</td>
<td>50% detailed design presentation</td>
</tr>
<tr>
<td>100</td>
<td>Assignment 4 FE ethics test</td>
<td>200</td>
<td>95% technical report (written only)</td>
</tr>
<tr>
<td>100</td>
<td>Assignment 5 FE application</td>
<td>200</td>
<td>100% final design presentation &amp; report</td>
</tr>
<tr>
<td>100</td>
<td>Assignment 6 project resume</td>
<td>200</td>
<td>Design Showcase Presentations</td>
</tr>
<tr>
<td>200</td>
<td>Assignment 7 life long learning</td>
<td>200</td>
<td>Professional Issues &amp; ethics tasks</td>
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<td>400</td>
<td>Draft Project Proposal</td>
<td>200</td>
<td>Progress Reports, Attendance &amp; Group Meetings</td>
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<td>Peer Rating</td>
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<tr>
<td>2000</td>
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<td>2000</td>
<td>Course Total</td>
</tr>
</tbody>
</table>

9. **Notes**:  
1) Oral Presentations* Graded by faculty & invited professionals  
2) Class Work** Graded by instructor, based on attendance, participation, timeliness of assignments and weekly progress reports.  
3) Written Final Report Graded by your Faculty Advisor.  
4) Design Showcase*** Graded by Prof. Locurcio and Industry Advisor
* Presentation grades will be based on the quality of the oral presentation, with emphasis on the use of A/V aids and logical explanation of the key elements relating to progress and technical approach. Client attendance is strongly encouraged.

** The grade will be based on the overall professionalism of the final written report to include the accuracy and quality of engineering calculations, recommendations and/or decisions as well as the conformance to standard engineering practice relative to submission of completed engineering work.

*** Presentation at the Annual Student Design Showcase
CON 4091 – Capstone Proposal

Course Requirements
Assignment – 1
Skills inventory: students submit a list of design courses taken and passed and indicate which skills they are prepared to accomplish during the design project.

Assignment – 2
Project Purpose & Scope: students review the list of previous projects and research one or two projects that they would like to accomplish during the design project. They select one project and write a detailed project purpose and scope of work, indicating the specific work elements that would be accomplished during the design project.

Assignment – 3
OSHS & Safety: Prepare a document on construction safety as it applies to your proposed project. It should address the significant aspects of construction safety if your project were to be built after it is designed. Review the OHSA rules at http://www.osha.gov to determine the pertinent sections that would apply to your project.

Assignment – 4
FE Ethics: Go to the board of professional engineers’ website. Download the ethics questions and the associated statutes, www.fbpe.org. The questions are the first step in the fundamentals of engineering exam application.

Assignment – 5
FE Application: All students who expect to pursue a career in civil engineering as a professional engineer must take the fundamentals of engineering examination while they are in their senior year. A complete application requires that students take a test on professional issues and ethics, complete an application form, and get a certification letter from the school registrar. Your assignment is to put this package of information together and submit it as a homework assignment. Information and forms are available at: http://www.fbpe.org/. An appropriate assignment concerning professional certification of construction professionals will be assigned for construction students.

Assignment – 6
Proposal Resume: Prepare a resume for yourself reflecting your role in the project team. This will be part of your proposal. Include all work experiences. Resume must be arranged in landscape format and follow the template included in this syllabus.

Assignment – 7
Life Long Learning: Students will prepare a 2 page report on aspects of the design process that they have learned during the Design 1 course with insights into personal research and training they must engage in to prepare themselves for a career in engineering or construction.
Project Proposal Contents

TITLE PAGE: The title page should have the name of the school and department, title of the proposed project, course number, name of the faculty member in charge, student's name and date of submission. Items should be centered.

LETTER OF TRANSMITTAL

TABLE OF CONTENTS:

INTRODUCTION: Include a statement of the problem, name of client, name of academic advisor, need and purpose of the project, a site location map, discussion of site, and a background and/or history of previous solutions or attempts. (2-3 pages)

PROCEDURE (Method): A detailed description of the problem including:
- Scope
- Problem Constraints
- Codes and Ordinances
- Alternative Solutions
- Investigation
- Alternatives
- exactly what is to be accomplished
- social, political, economic, client desires
- availability and applicability
- identify possible engineering solutions and indicate the source and methodology
- comparison of alternative solutions
- weighed against constraints

PROJECT MANAGEMENT: Work Breakdown Structure, Schedule, and Budget’s

CONCLUSIONS: State and discuss the conclusions, referring to the appropriate place in the previous body of the report.

RESUME: One page resume for each student (HW#1).

LIST OF REFERENCES: A comprehensive list of sources of information that may be relevant to the project. A library literature search is recommended as well as consultation with client and faculty.

APPENDICES: The appendices should contain copies of lengthy calculations, computer output, drawings, weekly progress reports, and other information not appropriate for the main body of the report.

TYPING FORMAT: The proposal should be 1.5 spaced and printed on regular typing paper. The proposal should be held together with a paper clip. It should not contain anything that can not be ready run through a copy machine.
Resume Format Template

Resumes should use the text boxes below should be arranged side by side in landscape format and filled in with professional information pertaining to the engineers proposed for the project team.

**Resume of key persons and specialists for this project:**

a. Name & Title:
b. Project Assignment:
c. Name of Firm:
d. Years of experience with firm___; with other firms___:
e. Education:
f. Active professional registrations:
g. Summary of experience relative to this project:

**h. Specific experience relative to this project:**

1. Experience 1
2. Experience 2
3. Experience 3
CON 4092 – Capstone Project

Course Requirements
CON 4092
List of Homework Assignments

Assignment-1: Professional Issues – team assignment

Write a 3-4 page Technical Report on “Project Issues – Societal and Global Issues”
Teams are assigned specific issues (cited below) that are external to specific design details, but which must be considered in the overall project design to satisfy societal or global objectives. The topics listed below should be covered in a 3-4 page technical report, as they apply to your project. This report must be submitted as a chapter of the written technical report for the 65% design submission. Topics should be divided among all members of the group with each team member submitting at least one written page covering one, or more, of the topics listed for your group.

- **Project A** – ecosystem planning, conservation of wetlands, environmental permits, water pollution control, stormwater control, incentives for conservation, zoning, permits, and coastal zone management.
- **Project B** – LEED certification, recycling of materials, hurricane damage mitigation, energy conservation, sea level rise, incentives for conservation.
- **Project C** – energy conservation, recycling of materials, hurricane damage mitigation, incentives for conservation, LEED certification, energy conservation, master planning, sea level rise
- **Project D** – city planning, zoning, energy conservation, recycling of materials, hurricane damage mitigation, incentives for conservation.

Assignment-2: Graduating Seniors Complete the Exit Survey in Class
Capstone Project Phases

5% Project Management Plan – prepare and submit a complete WBS, MS project schedule, professional services budget, and a construction budget. You should include a breakdown of each major task into sub-tasks, assign each task to a member (only one person) of the design team and show a start and completion date for each sub-task and major task. This plan must be shown to all advisors (for signature) to gain their approval of the tasks and schedule proposed for the design project. All figures and tables should be in landscape format. Use a standard rate ($85/hr.) for billing all tasks. This also applies to design 1 students writing their proposal.

15% Concept Design – This phase is intended to ensure that the basic assumptions contained in the project proposal are sound and therefore justify continuing with the expenditure of design funds.

1. Proof the basic design approach to ensure that the project is feasible as planned in the proposal.
2. Locate and include all required codes, permits, design criteria, and technical data to be used in the design. This is the key element of the 15% design. At this point you should know the size, shape, dimensions of all key elements of your design and you should have decided on the design approach you are going to use. You should be able to show a sketches or loading diagrams with accurate loading conditions and similar engineering data that will be used in the final design calculations.
3. Develop a basic layout of the project features showing approximate size, quantity, quality, etc.
4. Based on the basic layout and the applicable codes, permits, etc. develop a conceptual cost estimate for the constructed project to determine if it will fall within the client’s budget.
5. Re-examine the design budget based on the above to ensure that it is sufficient to complete the design.
6. At the conclusion of 15% you should be confident that you can proceed with the final engineering calculations and design without wasting design money.

50% Detailed Design – This phase is the foundation of the design. Students will have completed engineering studies and basic calculations to establish and verify the essential parameters of the project such as: physical dimensions, sub-surface examinations, external loads and related design parameters, hydrological parameters, structural loads, architectural features, etc. A “detailed” cost estimate will be prepared to accompany this submission. Basic “drawings” will have been completed to establish the geometric relationships of all components such as foundation components, column and beam locations and sizes, site utilities, transportations features, etc. All engineering calculations, line drawings and a written description of the background for engineering decisions will be submitted as a technical report to this submission. Following this phase, final drawings will begin and remaining details will be added.

95% Final Design – this is a technical report only, essentially a 100% design submission, minus final approval of the faculty advisor and client. Faculty advisors will grade this submission and provide an opportunity for students to make final corrections prior to their final submission. All drawings and the final engineering report must be completed.

100% Final Design Submission – A final technical report, including any corrections from the 95% submission is submitted. Students make a graded oral final presentation of their project details to a board of faculty advisors and industry professionals and answer any questions from the board.
Requirements for 5% Project Management Plan
and Project Proposals

(Hint: use this page as a checklist!)

1. Submissions must have a cover sheet citing the following:
   - Project name or title
   - Title of submission, 5%, 15%, etc.
   - Names of group members
   - Course designation & date of submittal
   - Cover should be portrait orientation

2. The following items must be included:
   - **Project Management Plan**
     - **Project budget** (separate sheet)
       - Proposed construction cost – show calculations and/or method
       - Upper limit acceptable to client
     - **Design schedule** (separate sheet)
       - This should be a one-page MS Project schedule – landscape orientation
       - List names of responsible team members on tasks
       - Clearly show time line for 15%, 35%, 65%, 100%
     - **Design budget** (separate sheet)
       - This should be a one page MS Excel spread sheet-landscape orientation
       - Design budget should show planned and actual design hours for each member
     - **Revised Work Breakdown Schedule** (separate sheet)
       - This should be a one page MS Excel spread sheet-landscape orientation
       - Tasks should be divided into project phases: 15%, 35%, 65%, etc.
       - Follow attached template for revised WBS
       - Include comments from 5%
Requirements for 15% Concept Design Submission

(Hint: use this page as a checklist!)

1. Submissions must have a cover sheet citing the following:
   - Project name or title
   - Title of submission, 5%, 15%, etc.
   - Names of group members
   - Course designation & date of submittal
   - Cover should be portrait orientation

2. The following chapters must be included:
   - Table of contents
   - List of Tables and Figures
   - Introduction
     - Purpose of project
     - Project sponsor or client
     - Site Map and description of location
   - Scope of project
     - Size, acreage, square footage, capacity
     - Discussion of site requirements, conditions and engineering issues
     - List of components, drawings, documents, activities, etc. to be produced
     - Items to be excluded in your project
   - Project Management Plan
     - Project budget (separate sheet)
       - Proposed construction cost – show calculations and/or method
       - Upper limit acceptable to client
     - Design schedule (separate sheet)
       - This should be a one-page MS Project schedule – landscape orientation
       - List names of responsible team members on tasks
       - Clearly show time line for 15%, 35%, 65%, 100%
     - Design budget (separate sheet)
       - This should be a one page MS Excel spread sheet-landscape orientation
       - Design budget should show planned and actual design hours for each member
     - Revised Work Breakdown Schedule (separate sheet)
       - This should be a one page MS Excel spread sheet-landscape orientation
       - Tasks should be divided into project phases: 15%, 35%, 65%, etc.
       - Follow attached template for revised WBS
       - Include comments from 5%
   - Submittal of Tasks per WBS
     - Create & submit a tabbed project workbook for each submittal
     - Each phase should be separated by a clearly marked tab
     - Work sheets should clearly identify the team member who completed the task
     - All sheets should be portrait orientation
     - Include sketches where appropriate
     - Include references to codes, standards, etc.
     - Drawings, if required, should be folded and inserted in portrait orientation
   - Appendix
     - Include any applicable codes, standards, boring data, etc.
     - Limit pages to those applicable to the design
     - Ensure all pages are clearly labeled as to code number, etc.
Requirements for 50% Detailed Design Submission

(Hint: use this page as a checklist!)

1. **Submissions must have a cover sheet citing the following:**
   - Project name or title
   - Title of submission, 5%, 15%, etc.
   - Names of group members
   - Course designation & date of submittal
   - Cover should be portrait orientation

2. **The following sections must be included:**
   - Table of contents
   - List of Tables and Figures
   - Introduction
   - Scope of project
   - Project Management Plan
     - Project budget (separate sheet)
     - Design schedule (separate sheet)
     - Up Dated Design budget (separate sheet)
     - Revised Work Breakdown Schedule (separate sheet)
   - **Technical Report**
     - Each design element will be presented as a technical report.
     - Each report should contain a prose description of the work done and by whom.
     - Clearly outline the tasks to be completed according to the WBS.
     - Describe the design approach, assumptions made.
     - Explain problems encountered and how they were resolved.
     - Describe the additional tasks to be completed for the 65% submittal.
   - **Submittal of Tasks per WBS**
     - Create & submit a tabbed project workbook for each submittal
     - Each phase & task should be separated by a clearly marked tab
     - Work sheets should clearly identify the team member who completed the task
     - All sheets should be portrait orientation
     - Include sketches where appropriate
     - Include references to codes, standards, etc.
     - Drawings, if required, should be folded and inserted in portrait orientation
   - **Appendix**
     - Include any applicable codes, standards, boring data, etc.
     - Limit pages to those applicable to the design
     - Ensure all pages are clearly labeled as to code number, etc.
Requirements for 95% thru 100% Design Submissions

(Hint: use this page as a checklist!)

1. Report should be in near final form:

2. Tab 1 – Introduction:
   Finalize Cover Letter, Introduction, Scope, Project Management Plan
   Include any corrections needed from prior submittals

3. Tab 2 - Create a new tabbed section for Project Management
   Tab must include the design budget, actual budget, WBS and design schedule
   Update WBS with current data or corrections from prior submittals.
   Construction cost estimate; a “detailed” construction cost estimate must now be included in this section including take-offs and quantities for specific materials needed to construction the project.

4. Tabs 3-X: The following chapters must be included as separate Tabs:
   A separate technical report for each design element
   The 65% submission must include a completed “technical report”.
   Create & submit a project workbook for each distinct task: e.g. foundation; structure; roadway, site plan; stormwater, utilities, etc.
   All phases and tasks called for on the 65% WBS must be included.
   The technical report is written in prose describing each specific task in detail.
   The introduction to each report should clearly outline the tasks included.
   Describe the design approach; assumptions made; problems encountered and how they were resolved.
   The reviewer should be able to read this report and get a clear picture of all the work you have done, selections or decisions you have made and the conclusions you have reached at this point.
   Calculation sheets should follow the technical report within the Tab.
   All engineering work should be completed at this point.
   Calculations, etc. should be supplied on neatly prepared and legible “calculation sheets”.
   Completely fill out the title block to identify the WBS task, the team member who completed the task, the reviewer and the date.
   All sheets should be portrait orientation.
   Include sketches where appropriate.
   Include clear references to codes, standards, etc. Referenced items that are “unique”, i.e. not generally available to all should be included as an appendix and referenced on the calc sheet.
   References such as National Building Codes should be referenced as to chapter, paragraph and section, etc., but need not be included.
   Do not include preliminary or repetitive calculations or a printout of every screen from a design computer program.
   Drawings should now be started included within the tab.
   Drawings must be properly titled, labeled and checked.
   They should be folded and inserted in portrait orientation as “pull outs” for ease of review.

Tab N+1: Include Professional Issues Assignment

Tab N+2: Appendix
   Include any applicable codes, standards, boring data, etc.
   Limit pages to those applicable to the design
   Ensure all pages are clearly labeled as to code number, etc.
CON 4092 Project Progress Report

Week: ______________________  Date: ______________________

Title of Project:

Project Manager:

Project Engineers:

Project Status: ____ % complete  Project Budget: ____% ____ hrs of ____ hrs

Project is: _____ ahead _____ on _____ behind schedule (mark with an “X”)

Project Advisor(s): ___________________________________________

Report:
- Specific tasks on WBS completed or worked on since previous report, include:
  - Work item
  - Name of student engineer
  - Hours worked
  - Specific items completed or worked on
- Other items to be included:
  - Field investigations conducted & personnel attending
  - Engineering calculations; cite task and team member accomplishing the work
  - Project decisions made, including basis for the decision
  - Meetings or telephone conversations with faculty
  - Meetings or telephone conversation with client
  - Meetings or telephone conversations with public officials
  - Meetings or telephone conversations with consultants

Example:

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<tr>
<th>WBS task</th>
<th>Team Mbr</th>
<th>Work Accomplished</th>
<th>Weekly Hrs</th>
<th>Cum. Hrs.</th>
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<tr>
<td>1.1 Manhole locations</td>
<td>Tom</td>
<td>Surveyed 5 manholes</td>
<td>1.5</td>
<td>5</td>
</tr>
<tr>
<td>1.2 Storm water inlets</td>
<td>Dick</td>
<td>Calculated flows</td>
<td>2.5</td>
<td>9</td>
</tr>
<tr>
<td>3.1 AutoCAD layout</td>
<td>Harry</td>
<td>Finished site plan</td>
<td>2</td>
<td>6</td>
</tr>
</tbody>
</table>

Notes:
- The report should include any pertinent background material and be sufficiently detailed so that it is a stand alone document.
- The report shall be signed and dated by the project manager and turned in to the instructor not later than Friday of the week indicated on the class schedule. **Late Reports will not be accepted.**
- Work items will also be signed by the appropriate faculty advisor when indicated by the advisor.
- A copy of the all reports will be retained by the PM and a cumulative set of reports will be included in all project technical reports.
Part C

Changes to Prerequisites, Corequisites or Restrictions in Construction Program
The addition or removal of any restriction or change in credit hours in a course requires that this form, accompanied by any supporting documentation, be completed and approved as indicated below.

COLLEGE: Engineering
DEPARTMENT: Construction Management

REQUEST IS FOR CHANGE IN COURSE PREFIX 2000 Statics and Materials for Construction
Number

TO BE INCLUDED IN 2011 CATALOG AND EFFECTIVE IN THE BANNER SYSTEM FOR FALL 2010 TERM

IS REQUEST FOR A CHANGE IN CREDITS FOR COURSE LISTED ABOVE? [ ] Yes [ ] No If yes, current credits _______ requested credits _______

IS REQUEST TO CHANGE RESTRICTIONS FOR COURSE LISTED ABOVE? [ ] Yes [ ] No If yes, please check all that apply:

[ ] Add [ ] Remove [ ] Prerequisite [ ] Corequisite Prefix V S 2001 and [ ] or
Number

[ ] Add [ ] Remove [ ] Prerequisite [ ] Corequisite Prefix C O N 1001 and [ ] or
Number

[ ] Add [ ] Remove [ ] Prerequisite [ ] Corequisite Prefix C O N 1002 and [ ] or
Number

[ ] Add [ ] Remove [ ] Other Restrictions [ ] Yes [ ] No If yes, please list below:

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

1) Originator

2) Department Head/Program Chair

3) Dean or Associate Dean

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RGR-051-1009
The addition or removal of any restriction or change in credit hours in a course requires that this form, accompanied by any supporting documentation, be completed and approved as indicated below.

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<th>Engineering</th>
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<td>Construction Methods and Operations</td>
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<tr>
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<td>Course Title</td>
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<tr>
<td>TO BE INCLUDED IN 20 1 0 / 2 0 1 1 CATALOG AND EFFECTIVE IN THE BANNER SYSTEM FOR Fall 2010 TERM</td>
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<tr>
<td>IS REQUEST FOR A CHANGE IN CREDITS FOR COURSE LISTED ABOVE?</td>
<td>☐ Yes</td>
<td>☒ No</td>
<td>If yes, current credits _______ requested credits _______</td>
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<td>IS REQUEST TO CHANGE RESTRICTIONS FOR COURSE LISTED ABOVE?</td>
<td>☒ Yes</td>
<td>☐ No</td>
<td>If yes, please check all that apply:</td>
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APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

1) [Signature] 3-16-2010
   Originator

2) [Signature] 3-16-2010
   Department Head/Program Chair

3) [Signature] 3-17-10
   Dean or Associate Dean

4) [Signature] Date
   Chair, Graduate Council
   Date

OR

Chair, Undergraduate Curriculum Committee
Date

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CHANGING RESTRICTIONS OR CREDITS IN A COURSE

The addition or removal of any restriction or change in credit hours in a course requires that this form, accompanied by any supporting documentation, be completed and approved as indicated below.

COLLEGE Engineering DEPARTMENT Construction Management

REQUEST IS FOR CHANGE IN COURSE  C O N  3 0 0 0 Construction Soils, Foundations and Formwork

Prefix Number Course Title

TO BE INCLUDED IN 2010-2011 CATALOG AND EFFECTIVE IN THE BANNER SYSTEM FOR Fall 2010 TERM

IS REQUEST FOR A CHANGE IN CREDITS FOR COURSE LISTED ABOVE? ☐ Yes ☒ No If yes, current credits ___________ requested credits ___________

IS REQUEST TO CHANGE RESTRICTIONS FOR COURSE LISTED ABOVE? ☐ Yes ☒ No If yes, please check all that apply:

☐ Add ☐ Remove ☒ Prerequisite ☐ Corequisite  C O N  2 0 0 1 Prefix Number and ☐ or

☐ Add ☐ Remove ☒ Prerequisite ☐ Corequisite  C O N  2 0 0 2 Prefix Number and ☐ or

☒ Add ☐ Remove ☒ Prerequisite ☐ Corequisite  C V E  3 0 1 2 Prefix Number ☐ and ☐ or

☒ Add ☐ Remove ☒ Other Restrictions ☐ Yes ☐ No If yes, please list below:

CVE 3013

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

1) Originator  3-16-2010

2) Department Head/Program Chair  3-16-2010

3) Dean or Associate Dean  3-17-10

Chair, Graduate Council Date

Chair, Undergraduate Curriculum Committee Date

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SCABASE SCARRRES Operator Initials Date

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CHANGING RESTRICTIONS OR CREDITS IN A COURSE

The addition or removal of any restriction or change in credit hours in a course requires that this form, accompanied by any supporting documentation, be completed and approved as indicated below.

COLLEGE: Engineering

DEPARTMENT: Construction Management

REQUEST IS FOR CHANGE IN COURSE: 3002 Building Mechanical & HVAC Systems

Prefix: 3002

Catalog: 2101

TO BE INCLUDED IN 2010-2011 CATALOG AND EFFECTIVE IN THE BANNER SYSTEM FOR Fall 2010 TERM

IS REQUEST FOR A CHANGE IN CREDITS FOR COURSE LISTED ABOVE? □ Yes □ No If yes, current credits requested credits

IS REQUEST TO CHANGE RESTRICTIONS FOR COURSE LISTED ABOVE? □ Yes □ No If yes, please check all that apply:

□ Add □ Remove □ Prerequisite □ Corequisite □ AVS 2101

Prefix: 001

Catalog: 1002

Prefix: 001

□ and □ or

□ Add □ Remove □ Prerequisite □ Corequisite □ AVS 2101

Prefix: 001

Catalog: 1002

Prefix: 001

□ and □ or

□ Add □ Remove □ Other Restrictions □ Yes □ No If yes, please list below:


APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

1) Originator Date 3-16-2010

2) Department Head/Program Chair Date 3-16-2010

3) Dean or Associate Dean Date 3-17-2010

4) Chair, Graduate Council Date

Chair, Undergraduate Curriculum Committee Date

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SCABASE SCAPRES Operator Initials Date

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The addition or removal of any restriction or change in credit hours in a course requires that this form, accompanied by any supporting documentation, be completed and approved as indicated below.

COLLEGE: Engineering
DEPARTMENT: Construction Management

REQUEST IS FOR CHANGE IN COURSE: C O N 4 0 0 1 Building Electrical & Electronic Systems

Prefix: 2 1 0 1
Number: A V S
Course Title: Building Electrical & Electronic Systems

TO BE INCLUDED IN 20_10/_20 1 1 CATALOG AND EFFECTIVE IN THE BANNER SYSTEM FOR FALL 2010 TERM

IS REQUEST FOR A CHANGE IN CREDITS FOR COURSE LISTED ABOVE? □ Yes ☒ No If yes, current credits ___________ requested credits ___________

IS REQUEST TO CHANGE RESTRICTIONS FOR COURSE LISTED ABOVE? ☒ Yes □ No If yes, please check all that apply:

☐ Add ☒ Remove ☒ Prerequisite ☐ Corequisite
Prefix: 2 1 0 1
Number: 1 0 0 2

☑ Add □ Remove ☒ Prerequisite ☐ Corequisite
Prefix: 2 1 0 1
Number: 1 0 0 2

☑ Add □ Remove □ Prerequisite □ Corequisite
Prefix: 2 1 0 1
Number: 1 0 0 2

☐ Add □ Remove □ Other Restrictions ☐ Yes ☒ No If yes, please list below:

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

1) Originator 3–16–2010
3–16–2010
Date
Date

2) Department Head/Program Chair

3) Dean or Associate Dean 3–17–10

Chair, Undergraduate Curriculum Committee

Date

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RSR-605-109
CHANGING RESTRICTIONS OR CREDITS IN A COURSE

The addition or removal of any restriction or change in credit hours in a course requires that this form, accompanied by any supporting documentation, be completed and approved as indicated below.

COLLEGE             ENGINEERING
DEPARTMENT         CONSTRUCTION MANAGEMENT

REQUEST IS FOR CHANGE IN COURSE  C  O  N  4  0  0  3  Construction Estimating, Bidding & Value Engineering

Prefix      Number  Course Title

TO BE INCLUDED IN 2010 Catalog AND EFFECTIVE IN THE BANNER SYSTEM FOR Fall 2010 TERM

IS REQUEST FOR A CHANGE IN CREDITS FOR COURSE LISTED ABOVE?  ☐ Yes  ☑ No  If yes, current credits __________ requested credits __________

IS REQUEST TO CHANGE RESTRICTIONS FOR COURSE LISTED ABOVE?  ☐ Yes  ☑ No  If yes, please check all that apply:

☐ Add  ☑ Remove  ☐ Prerequisite  ☐ Corequisite  BUS 2 7 0 3 ☑ and  ☐ or

 Prefix Number

☐ Add  ☐ Remove  ☐ Prerequisite  ☐ Corequisite  CVE 4 0 0 0 ☐ and  ☐ or

 Prefix Number

☐ Add  ☐ Remove  ☐ Other Restrictions  ☑ Yes  ☐ No  If yes, please list below:

________________________________________________________

________________________________________________________

________________________________________________________

APPROVALS: Upon completion of appropriate department approvals, submit form to Chair, Graduate Council, or Chair, Undergraduate Curriculum Committee for approval below and forward to Catalog Director.

1) ___________________________________________ 3-16-2010
Originator  Date  Chair, Graduate Council  Date

2) ___________________________________________ 3-16-2010
Department/Head/Program Chair  Date  OR

3) ___________________________________________ 3-17-10
Dean or Associate Dean  Date  Chair, Undergraduate Curriculum Committee  Date

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RGR-656-1009
Part D

Original and New
Construction Program Flow Charts
&
Origional Catalog Listings
### YEAR ONE - Fundamentals

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**Semester Total:** 16

### YEAR TWO - Construction & Business Basics

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**Semester Total:** 16

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**Semester Total:** 15

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**Semester Total:** 15

**Program Total:** 125
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### YEAR TWO - Construction & Business Basics

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### YEAR THREE - Construction Science & Management

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Students transferring from Florida community colleges who meet the conditions established in the articulation agreement between Independent Colleges and Universities of Florida and the Florida State Board of Community Colleges can graduate by completing from 69 to 75 credit hours, depending on the field of study.

For general admission requirements for Florida Tech, see the Academic Overview section of this catalog.

**Recommended Courses to be Transferred**

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<td>Differential Equations</td>
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<td>Applied Mechanics: Statics</td>
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<td>English Composition and Writing</td>
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<td>Technical Communication</td>
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<td>History of Civilization</td>
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<td>Economics</td>
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<td>Humanities/Social Science Electives</td>
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*including laboratories

**Selection of a Major**

A student typically selects a major at the same time the application for admission is submitted. A faculty advisor affiliated with the major program is assigned prior to the start of classes. A student who prefers to postpone the selection of a major may initially enroll in the first-year nondegree General Engineering program described in the Nondegree Programs section of this catalog. However, selection of a degree program should occur by the start of the sophomore year.

As long as the requirements for continued enrollment (see Academic Overview section) are met, students are permitted to remain in their selected major. A change of major can be initiated by the student, but is subject to the approval of the new academic department head. Students can generally change majors between any two closely related degree programs during the sophomore year or even during the early part of the junior year without greatly increasing the time needed to complete all degree requirements.

**Course Loads**

The normal course load taken by students in the College of Engineering is 17 credit hours. Students may enroll for lighter loads and are strongly encouraged to do so if difficulty is experienced in keeping up with all course work when a full load is attempted, even though the duration of the program would of necessity be extended from eight semesters to nine or more semesters.

**Fast Track Master's Program for College of Engineering Honors Students**

This program allows undergraduate students currently enrolled in the College of Engineering to complete a master’s degree program in one year by earning graduate-level credit hours during their senior year, and applying up to six credit hours to both the bachelor's and master's degrees. The program is available to undergraduates who have completed a minimum of 35 credit hours at Florida Tech with an earned GPA of at least 3.4, and who have completed at least 95 credit hours toward their undergraduate degree by the time the approved student begins taking graduate-level courses.

The credit hours are treated as transfer credit (GPA does not apply) when applied toward the master's degree. Interested students should consult their department head for more information about this program.

**Cooperative Education**

Students in the College of Engineering are encouraged to participate in a cooperative education program. The Office of Career Services helps students participate in programs that alternate periods of work experience in a chosen field with academic semesters spent on campus as full-time students.

Participants in this program are able to earn some of the funds needed to further their education while gaining valuable, practical experience and a knowledge base that is useful in better defining career goals. The length of time needed to earn a degree is extended by an amount comparable to the number of semesters spent away from the campus. Students in these programs should pay special attention to scheduling their courses well in advance to avoid conflicts between off-campus periods and the semesters when required courses are offered.

**Undergraduate Degree Program**

**Construction, B.S.**

**Program Chair**
Ralph V. Locurcio, M.S., P.E.

**Professors**
Edward H. Kalajian, Ph.D., P.E., geotechnical engineering, foundations, stabilization of waste materials.
Ralph V. Locurcio, M.S., P.E., construction management, project management, quality management, engineering leadership, disaster recovery, urban engineering, urban infrastructure, industrial relations.

**Adjunct Faculty**
D.W. Fisher, J.D., P.E.

**Mission Statement**

The construction degree program at Florida Tech is administered by the College of Engineering and has been developed to provide a curriculum that meets the specific needs of the expanding construction industry in Florida and throughout the United States. The construction industry requires professionals who understand the basics of civil engineering coupled with a substantial understanding of business subjects such as project management, contracting, budgeting and cost control. This program has been designed with input from senior construction industry professionals who are members of the Construction Industry Advisory Board at Florida Tech. The curriculum meets Florida Tech’s core requirements, functions within the institutional framework established for all Florida Tech programs and is consistent with the institutional mission and assessment procedures of the university.

The main objective of the construction program is to provide an education that will lead to a leadership role in the construction industry, while preparing students to become responsible members of society. The curriculum is responsive to current social, economic and technical developments in the field of construction, and reflects the application of evolving knowledge in construction and the behavioral and quantitative sciences. The program incorporates current and developing curricula that reflect evolving changes in construction technology and management trends, and
the goals of the program closely reflect the needs of society and the construction profession.

Curriculum
The curriculum consists of 12 courses designed specifically for the construction industry and 29 existing courses, for a total of 41 courses and 125 credit hours of instruction. The program is designed to prepare students for immediate employment as construction management professionals, rather than as civil engineering design professionals.

The construction degree program is designed to prepare students for professional careers and graduate school. During the first two years, the emphasis is on foundation courses in chemistry, mathematics, physics, engineering mechanics and business, augmented by practice-oriented civil engineering courses. The introductory construction courses include field trips and introduce the various disciplines of engineering and business management employed in the construction industry. The CAD laboratory course uses the latest CAD software, provides knowledge that is applied in the rest of the curriculum and serves as the basis for understanding, interpreting and using construction plans and specifications in construction operations.

During the second and third years, emphasis is on specific technical courses designed to provide a working knowledge of civil, electrical and mechanical engineering methods used in the design of both horizontal and vertical projects and in construction practice. In addition, business and management courses are added to develop analytical skills needed for making business and technical decisions during construction operations. The technical and business courses in the third and fourth years emphasize leadership, teamwork, oral and written communication, and ethics. The fourth year focuses on the application of these skills to real-world problems with emphasis on societal impacts and the integration of all skills into a seamless and profitable project scenario.

During the senior year, students are required to be part of a multidisciplinary design project team that identifies, formulates and designs a real-world construction project. In this capstone course, students must assemble information from previous courses to enhance the application of their technical and management skills to accomplish project and societal goals. Mandatory electives in humanities and social sciences provide a broader understanding of the professional work environment, human history and culture. The curriculum provides flexibility in the form of restricted and technical/business electives that allow further depth and breadth in a discipline of choice.

Freshman Year

<table>
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<tr>
<th>FALL</th>
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<tbody>
<tr>
<td>ASC 1000 University Experience</td>
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<tr>
<td>CHM 1101 General Chemistry 1</td>
<td>4</td>
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<tr>
<td>COM 1101 Composition and Rhetoric</td>
<td>3</td>
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<tr>
<td>CON 1001 CAD Applications and Construction Plans</td>
<td>3</td>
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<tr>
<td>CVE 1000 Introduction to Civil Engineering</td>
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<tr>
<td>MTH 1000 Precalculus</td>
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<tr>
<td>AVS 2101 Aviation Physical Science</td>
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<tr>
<td>BUS 1501 Computer Applications for Business</td>
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<tr>
<td>COM 1102 Writing About Literature</td>
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<tr>
<td>MTH 1001 Calculus 1</td>
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<td>OCN 2602 Environmental Geology</td>
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Sophomore Year

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<tr>
<td>BUS 2211 Introduction to Financial Accounting</td>
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<td>COM 2223 Scientific and Technical Communication</td>
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<tr>
<td>CON 2000 Statics and Materials for Construction</td>
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<td>CVE 2080 Construction Measurements</td>
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<td>HUM 2051 Civilization 1</td>
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<td>BUS 1301 Basic Economics</td>
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<tr>
<td>BUS 2212 Introduction to Managerial Accounting</td>
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<td>CON 2230 Construction Methods and Operations</td>
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<td>CON 2002 Construction Materials Lab</td>
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<td>CVE 3012 Engineering Materials</td>
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<td>HUM 2052 Civilization 2</td>
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Junior Year

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<tr>
<td>BUS 2601 Legal and Social Environments of Business</td>
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<td>BUS 2703 Statistics for Business</td>
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<td>CON 3000 Construction Soils</td>
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<td>Humanities Elective</td>
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<tr>
<td>Technical Elective</td>
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<td>BUS 3501 Management Principles</td>
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<td>BUS 3705 Managing Small Business</td>
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<td>CON 3001 Building Structures and Structural Systems</td>
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<td>CON 3002 Building Mechanical and HVAC Systems</td>
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<td>Technical Elective</td>
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Senior Year

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<tr>
<td>CON 4000 Construction Controls: Budget, Schedule and Quality</td>
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<tr>
<td>CON 4001 Building Electrical and Electronic Systems</td>
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<tr>
<td>CON 4002 Construction Equipment and Safety</td>
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<td>CVE 4000 Engineering Economy and Planning</td>
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<td>Technical Elective</td>
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<td>CHE 4284 Industrial Safety</td>
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<td>CON 4003 Construction Estimating, Bidding and Value Engineering</td>
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<td>CON 4004 Construction Senior Capstone Project (Q)</td>
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<td>CVE 4074 Leading Construction Operations</td>
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<td>Business Elective</td>
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<td>TOTAL CREDITS REQUIRED</td>
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Electives

Business Electives

| BUS 3401 Corporate Finance | 3 |
| BUS 3504 Management Information Systems | 3 |
| BUS 3601 Marketing Principles | 3 |
| BUS 4312 Environmental Auditing | 3 |
| BUS 4425 Environmental and Urban Planning | 3 |
| BUS 4426 Environmental and Resource Economics | 3 |
| BUS 4503 Business Ethics | 3 |

Humanities Electives

| HUM 3351 History of Science and Technology: Ancient and Medieval | 3 |
| HUM 3352 History of Science and Technology: Renaissance to Present | 3 |

Technical Electives

| AVM 3201 Aviation Planning | 3 |
| AVT 4301 Aviation Safety | 3 |
| CHE 3170 Introduction to Environmental Engineering | 3 |
| CHE 4284 Industrial Safety | 3 |
| ENS 4010 Geographic Information Systems | 3 |
| ENS 4300 Renewable Energy and the Environment | 3 |
| ENS 4700 Environmental Hydrology (Senior standing required) | 3 |
| ENS 4701 Environmental Regulations and Impact Assessment (Senior standing required) | 3 |
COM 5253 SEMINAR IN MARKETING COMMUNICATION (3 credits). Introduces students to the theory and practice of conducting effective marketing communication campaigns and the underlying processes involved in promotional messages. Focuses on current advertising and persuasive communication strategies that achieve desired communication outcomes.

COM 5253 CUSTOMER SERVICE AND COMMUNICATION (3 credits). Examines customer contact personnel-consumer interaction. Focuses on key variables that shape communication behaviors and impact customer satisfaction levels, including problems within these relationships and prescriptions of behaviors that improve the communication effectiveness and satisfaction of both participants.

COM 5345 COMMUNICATING IN THE GLOBAL ECONOMY (3 credits). Examines the elements of cross-cultural communication by analyzing the interaction between the organization and its cultural environment. Focuses on developing skills to improve communication across both language and cultural barriers in a diverse domestic workplace and an international business environment.

COM 5353 ADVANCED MANAGERIAL REPORT WRITING (3 credits). Intensive examination of the function of report writing in contemporary business, industrial and governmental organizations. Includes audience analysis, conducting secondary and primary research for managerial purposes and integrating graphic aids.

COM 5355 SEMINAR: SPECIAL TOPICS IN TECHNICAL AND PROFESSIONAL COMMUNICATION (3 credits). Investigates special topics and current issues in the discipline of technical, scientific and professional communication. Topics vary based on program needs and student/faculty interests. (Requirement: Program chair approval)

COM 5400 INDEPENDENT STUDY (1-3 credits). Offers master's-level independent research or directed study under faculty supervision.

COM 5565 TECHNICAL AND PROFESSIONAL COMMUNICATION INTERNSHIP (1-6 credits). Students work under the direct supervision of a business or industry professional and in coordination with the chair of the graduate communication program. (Requirement: Program chair approval)

COM 5777 TECHNICAL AND PROFESSIONAL COMMUNICATION DESIGN PROJECT (3-6 credits). An individual project of a practical or applied nature under the direction of a member of the graduate faculty. Satisfactory completion of either a design project or traditional research-based thesis (with committee approval) is necessary for completion of the master's program, unless the nonthesis option is chosen.

COM 5787 FINAL SEMESTER DESIGN PROJECT (0-2 credits). Variable registration for design project completion after satisfaction of minimum registration requirements. (Requirement: Approval by Office of Graduate Programs.)

COM 5899 FINAL SEMESTER THESIS (0-2 credits). Variable registration for thesis completion after satisfaction of minimum registration requirements. (Requirements: Accepted petition to graduate and approval by Office of Graduate Programs.)

COM 5999 THESIS (3-6 credits). Individual research work under the direction of a member of the graduate faculty. Satisfactory completion of either a traditional research-based thesis or design project (with committee approval) is necessary for the completion of the master's program and awarding of the degree, unless the nonthesis option is chosen.

COMPUTER ENGINEERING

See Electrical/Computer Engineering (ECE).

CONSTRUCTION

CON 1001 CAD APPLICATIONS AND CONSTRUCTION PLANS (3 credits). Introduces computer-aided design programs and techniques used in the construction process. Emphasizes developing the ability to read, prepare, interpret and apply CAD drawings to all aspects of the construction process.

CON 2000 STATICS AND MECHANICS FOR CONSTRUCTION (4 credits). Introduces the physical principles that govern classical statics and strength of materials, and the design, analysis and use of wood, steel, timber, concrete and masonry materials in structural systems. Covers resistive systems for effects of wind and earthquakes. Includes field analysis of construction systems. Prerequisites: AVS 2101.

CON 2001 CONSTRUCTION METHODS AND OPERATIONS (3 credits). Introduces the operational processes for horizontal and vertical construction. Includes reading construction plans and building codes. Requires a team project, field trips and written reports on observations of project management and the use of equipment in the construction process. Prerequisites: CON 2000, CVE 2080.

CON 2002 CONSTRUCTION MATERIALS LAB (1 credit). Focuses on testing the primary construction materials to understand their properties under various conditions and construction applications. Uses field trips to emphasize constraints realized under actual conditions. Covers English and metric units used in measuring construction materials. Prerequisites: CON 2000. Conquisites: CVE 3012.


CON 3001 BUILDING STRUCTURES AND SYSTEMS (3 credits). Covers essential formulas for the solution of structural problems, and the solutions to common structural problems encountered in construction projects. Reviews structural engineering essentials and gives simple design solutions. Includes building and material codes, problems and illustrative examples. Prerequisites: CON 2000.

CON 3002 BUILDING MECHANICAL AND HVAC SYSTEMS (3 credits). Provides basic knowledge of building mechanical systems, and methods to estimate, install and verify the systems. Covers basic engineering principles of design associated with mechanical systems. Includes understanding of codes and the principles of design and materials used in the construction of plumbing, HVAC and transportation systems. Prerequisites: AVS 2101, CON 1001.

CON 4000 CONSTRUCTION CONTROLS: BUDGET, SCHEDULE AND QUALITY (3 credits). Covers the fundamentals of construction management. Emphasizes budgeting, scheduling and quality. Focuses on the principles of construction administration. Includes contract types, control of scope, cost, scheduling, quality control and quality assurance, computerized automation and resolution of problems related to construction operations. Prerequisites: BUS 2212.

CON 4001 BUILDING ELECTRICAL AND ELECTRONIC SYSTEMS (3 credits). Applies the principles of code and the basic concepts in electrical and electronic theory, circuit design, materials, methods, safety and estimating to electrical communications and power machinery systems. Provides a basic knowledge of systems operations with installation and quality verification methods. Prerequisites: AVS 210, CON 1001.

CON 4002 CONSTRUCTION EQUIPMENT AND SAFETY (3 credits). Provides the fundamentals of heavy machine use and production estimating for construction operations. Examines major construction equipment types. Includes safety procedures. Requires site visits and a term project on estimating equipment usage and an operations analysis. Prerequisites: CON 2001.

CON 4003 CONSTRUCTION ESTIMATING, BIDDING AND VALUE ENGINEERING (3 credits). Covers the basics of construction contracts, construction business methods, bidding, construction insurance and value engineering. Includes principles of cost estimating and value analysis of construction projects, cost-benefit analysis of work, quality take-offs, construction operations cost, bidding operations and time value of money. Prerequisites: BUS 2783, CVE 2001, CVE 4000.

CON 4004 CONSTRUCTION SENIOR CAPSTONE PROJECT (3 credits). Includes development, analysis and feasibility study, and capstone project development and preparation of bidding and construction documentation for senior team project. Integrates the concepts and principles of construction management with a team exercise in construction operations. (Requirement: Senior standing.) (Q)

COMPUTER SCIENCES

CSE 1001 FUNDAMENTALS OF SOFTWARE DEVELOPMENT 1 (4 credits). Introduces software development as it applies to small programs. Students learn to program in a higher-level language and to read, understand, write and evolve typical small higher-level programs. (Requirement: Passing score on calculus placement test or prerequisite course.) (CL) Prerequisites: MTH 1000.

CSE 1002 FUNDAMENTALS OF SOFTWARE DEVELOPMENT 2 (4 credits). Introduces the basic concepts of programming and the techniques used in software design and implementation. Includes sorting and searching techniques. (CL) Prerequisites: CSE 1001.

CSE 1101 COMPUTING DISCIPLINES AND CAREERS 1 (1 credit). Overviews computing-related disciplines and professional careers. Includes an overview of software engineering and computer science. Introduces the ethical, moral and legal implications of crafting software.

CSE 1301 INTRODUCTION TO COMPUTER APPLICATIONS (3 credits). Overviews computers and terminology. Identifies appropriate problems and solution design using specific applications packages. Introduces the use of word processors, data managers, spreadsheets and the Internet (e-mail and Web browsers). Noncredit for CS majors. (CL)

CSE 1400 APPLIED DISCRETE MATHEMATICS (3 credits). Topics include propositional and classical number systems, relations and their graphs, discrete functions set theory, propositional and predicate logic, sequences, summations, mathematical induction and proofs by contradiction. (Requirement: Passing score on the Calculus Readiness Test, or prerequisite course.) Prerequisites: MTH 1000.

CSE 1502 INTRODUCTION TO SOFTWARE DEVELOPMENT WITH C++ (3 credits). For majors other than computer science. Focuses on the stages of software development and practice in using C++. Includes requirement analysis, design and implementation methods, testing procedures and an introduction to software program correctness. Noncredit for CS majors. (CL)