March 16, 2007

MEMORANDUM FOR: Dr. Barbara G. Pierce, Chair, University Curriculum Committee

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

SUBJECT: Request for approval of 12 new construction courses

I respectfully request that these new courses be added to the agendas of the March 13, 2007 and March 23, 2007 meetings of your respective committees for consideration and hopeful approval.

Attached please find add course forms and syllabi for the 12 new courses which are proposed for addition to the College of Engineering course offerings. These courses constitute the "technical" portion of a new COE program leading to a Bachelor of Science Degree in Construction. This new program consists of 29 existing University courses and these 12 new courses, for a total of 40 courses and 123 credit hours of instruction.

This new program has been developed to provide a curriculum that more closely meets 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 following analysis of construction programs at major universities and via input from senior construction industry professionals who are members of the Department of Engineering’s Construction Industry Advisory Board. In addition, all courses included in this curriculum were 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.

When launched, the program will seek to attract a new base of students who seek employment as construction management professionals, rather than as civil engineering design professionals. As such, the program will seek accreditation from the ACCE, the rather than from ABET, the Accreditation Board for Engineering and Technology. Upon approval of the courses, the College of Engineering proposes to begin accepting students in the Fall 2008 semester.

Respectfully submitted,

Ralph V Locurcio, P.E.
Professor
Department of Civil Engineering
Florida Institute of Technology

Please provide the following information when requesting a new major or minor (programs and options) to be added to the curriculum. A code will be assigned by the Office of the Registrar and a copy of this form will be mailed to the appropriate department.

COLLEGE: Engineering

DEPARTMENT: College of Engineering

SITE(S): Melbourne, FL

CAMPUS(ES): Melbourne, FL

PROGRAM TO BE ADDED: ☑ Major ☐ Minor

LEVEL: ☐ Bachelor of Arts (B.A.) ☐ Bachelor of Science (B.S.)

☐ Executive Master of Business Administration (E.M.B.A.)
☐ Master of Arts (M.A.)
☐ Master of Arts in Teaching (M.A.T.)
☐ Master of Business Administration (M.B.A.)
☐ 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 (P.M.B.A.)

PROGRAM TITLE: Restricted to 30 characters, including spaces

Construction

TERM TO BE INITIATED: Fall 2007

ADVISER FOR NEW PROGRAM: Professor Ralph V. Locurcio, P.E.

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

Department Head/Program Chair

[Signature]

Date: 3-16-07

Dean or Associate Dean

Date

Chair, Graduate Council

Date

OR

Chair, Undergraduate Curriculum Committee

Date

Provost

Date

REGISTRAR’S USE ONLY:

FSA ATLAS

SOAXREF

SMAPRILE

STVMAJR

SOACURR

Major Code Assigned

SOAXCUR

CIPC Code

Operator Initials/Date

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# FIT 4-yr CONSTRUCTION PROGRAM

## YEAR ONE

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## YEAR FOUR

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## Eighth Semester - Advanced Construction

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The total number of courses is 123. New courses are shown in yellow. Electives are shown in green.
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YEAR ONE-FIRST SEMESTER
MTH 1000 - PRECALCULUS. Algebra and trigonometry that are used to develop the skills needed in calculus. Required for students who have minimal algebra and/or trigonometry preparation, or whose placement test indicated such a need.
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College of Science College
Mathematical Sciences Department

CHM 1101 - GENERAL CHEMISTRY 1. Covers fundamental principles of modern chemistry, including stoichiometry, properties of gases, liquids and solids, thermochemistry, atomic structure, properties of solutions and equilibrium. Includes lab component.
4.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture/Lab
College of Science College
Chemistry Department

COM 1101 - COMPOSITION AND RHETORIC. The first of two courses in college-level writing skills. Focuses on writing essays using various rhetorical modes: persuasion, description, comparison and analysis. Presents basic methods of library research, as well as the MLA documentation system. Students write one research paper and several essays. (Requirement: Passing grade on the placement test or prerequisite course.)
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College Psych & Liberal Arts College
Humanities Department

CVE 1000 - INTRODUCTION TO CIVIL ENGINEERING. Introduces the civil engineering sub-disciplines, including professional aspects and ethics. Uses hands-on group projects, group presentations, field trips and lectures. Includes exposure to structures, soils, hydrology, construction and the environment. Emphasizes technical communication and computer skills through all course work.
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College of Engineering College
Civil Engineering Department

CON 1001 – CAD Applications & Construction Plans – see new course list
3.000 Credit Hours
YEAR ONE-SECOND SEMESTER

BUS 1601 – COMPUTER APPLICATIONS FOR BUSINESS. Introduces the use of PC applications across the major functional areas of business. Includes word processing, spreadsheets, database management, presentation software, and uses of the Internet and World Wide Web. (CL)
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College of Business College
Business Department

MTH 1001 - CALCULUS 1. Functions and graphs, limits and continuity, derivatives of algebraic and trigonometric functions, chain rule; applications to maxima and minima, and to related rates. Exponential logarithmic, circular and hyperbolic functions: their inverses, derivatives and integrals. (Requirement: High school algebra and trigonometry, and a passing score on the placement test, or prerequisite course.)
4.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture/Lab
College of Science College
Mathematical Sciences Department

AVS 2101 - AVIATION PHYSICAL SCIENCE. Introduces the basic principles of physics directly applicable to aviation including properties of matter, mechanics, vibration, wave motion, heat, sound, electricity, magnetism and optics.
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College of Aeronautics College
Aeronautics, Academic Department

COM 1102 - WRITING ABOUT LITERATURE. The second of two courses in college-level writing skills. Focuses on reading and analyzing poems, plays and short works of fiction. Students write several essays and one research paper on literary topics.
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College Psych & Liberal Arts College
Humanities Department

OCN 2602 - ENVIRONMENTAL GEOLOGY. Reviews the internal and external processes that have shaped Earth's surface and how an understanding of these processes can be used to successfully manage modern problems of organization and mineral exploration. Successful management of environmental and geological hazards relies on an understanding of the basic principles of physical geology.
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College of Engineering College
Oceanography Department
YEAR TWO-FIRST SEMESTER

BUS 2211 - INTRODUCTION TO FINANCIAL ACCOUNTING. Introduces the financial accounting environment, financial statements, the accounting cycle, and the theoretical framework of accounting measurement, emphasizing mechanics, measurement theory and the economic environment.
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College of Business College
Business Department

COM 2223 - SCIENTIFIC AND TECHNICAL COMMUNICATION. Practice in the technical and scientific writing style and format, including gathering and using data to prepare reports. Includes abstracts, reports, letters, technical descriptions, proposals and at least two oral presentations. (COM)
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College Psych & Liberal Arts College
Humanities Department

CON 2000 – Statics & Materials for Construction – see new course list
4.000 Credit Hours

CVE 2080 - CONSTRUCTION MEASUREMENTS. Covers measurement of distances, elevations and angles; statistical errors and data adjustment; working with coordinates; topographic mapping and photogrammetry; global positioning systems (GPS); geographic information systems (GIS); and computer applications.
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College of Engineering College
Civil Engineering Department

HUM 2051 - CIVILIZATION 1: ANCIENT THROUGH MEDIEVAL. Introduces civilization from its early development to the European Renaissance. Emphasizes the interpretation of primary texts that reflect the intellectual and historical changes in society. The first of two interdisciplinary courses.
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College Psych & Liberal Arts College
Humanities Department

YEAR TWO-SECOND SEMESTER

CON 2001 – Construction Methods & Operations – see new course list
3.000 Credit Hours
CVE 3012 - ENGINEERING MATERIALS. Addresses stress-strain concepts and the relationship between internal structure and engineering properties as the basis for selection of materials. Materials studied include metals, concretes, timber, plastics and fiber composites. Also includes lab testing.
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College of Engineering College
Civil Engineering Department

CON 2002 – Construction Materials Lab – see new course list
1.000 Credit Hours

HUM 2052 - CIVILIZATION 2: RENAISSANCE THROUGH MODERN. Similar in purpose and method to HUM 2051, continues the interpretation of primary texts, emphasizing the Renaissance period, the Enlightenment, Romanticism and the Modern Age.
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College Psych & Liberal Arts College
Humanities Department

BUS 1301 - BASIC ECONOMICS. Introduces basic macro- and microeconomic concepts. Includes the economic role of government, business and individuals. Seeks to acquaint the student with sufficient material to understand major concepts and terminology used in our economy and the global community. Noncredit for College of Business majors. (SS)
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College of Business College
Business Department

BUS 2212 - INTRODUCTION TO MANAGERIAL ACCOUNTING. Continues BUS 2211, emphasizing concepts and issues associated with the accounting and management of businesses, with particular emphasis on understanding the role of accounting in product costing, costing for quality, cost-justifying investment decisions, and performance evaluation and control of human behavior.
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College of Business College
Business Department
YEAR THREE-FIRST SEMESTER

BUS 2601 - LEGAL AND SOCIAL ENVIRONMENTS OF BUSINESS. Investigates the operational responsibilities of business in light of political, moral, social, ethical and jurisprudential considerations. 3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College of Business College
Business Department

CON 3000 – Soils, Foundations, & Formwork – see new course list 3.000 Credit Hours

BUS 2703 - STATISTICS FOR BUSINESS. Introduces methods of collection, analysis, and interpretation of data. Includes data presentation; measures of central tendency and dispersion; probability distributions; hypothesis testing; confidence interval estimation; analysis of variance; regression and correlation. 3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture/Lab
College of Business College
Business Department

YEAR THREE-SECOND SEMESTER

BUS 3501 - MANAGEMENT PRINCIPLES. Helps students acquire management knowledge and develop management skills. Enables the student to understand management as it relates to both the employer and employee, and acquaints the student with the various schools of management and the philosophy of management. (Requirement: Sophomore standing.) 3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College of Business College
Business Department

BUS 3705 - MANAGING SMALL BUSINESS. Focuses on the practical aspects of successfully launching and managing a small-business enterprise. Presents relevant topics that enable the student to better evaluate entrepreneurial opportunities, choose small business ownership, and to foresee potential pitfalls in operating a small business entity. (Requirement: Junior standing.) 3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College of Business College
Business Department

Construction Science Elective-3 – see elective list 3.000 Credit Hours

Humanities Elective - 1 – see elective list 3.000 Credit Hours

5
YEAR FOUR-FIRST SEMESTER

CON 4000 – Construction Controls: Budget, Schedule & Quality – see new course list
3.000 Credit Hours

CVE 4000 - ENGINEERING ECONOMY AND PLANNING. Presents economic evaluation of engineering alternatives. Includes time value of money, replacement alternatives, benefit/cost analysis, minimum cost analysis, depreciation, taxes and inflation. (Requirement: Junior standing.)
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College of Engineering College
Civil Engineering Department

CON 4001 – Electrical & Electronic Systems for Construction – see new course list
3.000 Credit Hours

CON 4002 – Construction Equipment & Safety – see new course list
3.000 Credit Hours

Construction Science Elective-3 – see elective list
3.000 Credit Hours

YEAR FOUR-SECOND SEMESTER

CHE 4284 - INDUSTRIAL SAFETY. Safety considerations in design and operation of industrial and manufacturing facilities; toxicology, fire and explosion hazards; and OSHA standards. (Requirement: Senior standing in science or engineering.)
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College of Engineering College
Chemical Engineering Department

CVE 4074 - LEADING CONSTRUCTION OPERATIONS. Covers specialized application of leadership fundamentals and team building to construction operations. Focuses on the basic principles of leadership including motivation, organizational dynamics, team formation and conflict resolution. Examines construction operations, work practices and ethics in the business environment.
3.000 Credit Hours
Levels: Undergraduate
Schedule Types: Lecture
College of Engineering College
Civil Engineering Department

CON 4003 – Bidding, Estimating & Value Engineering for Construction – see new course list
3.000 Credit Hours

CON 4004 – Construction Capstone – see new course list
3.000 Credit Hours

Business Elective-1 – see elective list
3.000 Credit Hours
This course is available for student registration only after the approval process has been completed.

SUBJECT  CON  COURSE NO.  1001  CREDIT HOURS  3  TERM TO BE ADDED TO THE FILE  Fall 2008
Alpha Prefix (e.g., CSE)  Number Choice (e.g., 1301)  

CLASS HOURS  30  LECTURE HOURS  30  LAB HOURS  45  CONTACT HOURS (CEU ONLY)  

DEPARTMENT  College of Engineering  SCHEDULE TYPE  Lecture/Lab  
(e.g., Computer Sciences)  (e.g., Lecture, Lab or Special Project)  

☐ COLLEGE OF AERONAUTICS-23  ☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS-25  
☐ COLLEGE OF BUSINESS-24  ☐ COLLEGE OF SCIENCE-26  
☒ COLLEGE OF ENGINEERING-01  ☐ UNIVERSITY COLLEGE EXTENDED STUDIES-27  

COMPUTER TITLE  Restricted to 25 characters, including spaces  CAD Applications & Plans  

CATALOG TITLE  CAD Applications & Construction Plans  

CATALOG DESCRIPTION OF COURSE  Limited to 350 characters, including spaces  
Course will introduce the student to computer aided design programs and techniques used in the construction process with emphasis on developing the ability to read, prepare, interpret and apply these CAD drawings to all aspects of the construction process.  

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

RESTRICTIONS  ☐ Prerequisite  ☐ Corequisite  
Course Number  Course Number  
☐ Prerequisite  ☐ Corequisite  
Course Number  Course Number  
☐ Prerequisite  ☐ Corequisite  
Course Number  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  
(e.g., Major, Class Level, Department Head Approval)  

If this course replaces a course currently offered in BANNER, please indicate old course information.

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  Date  Chair, Graduate Council  Date  
Department Head or Dean Chair  Date  Chair, Undergraduate Curriculum Committee  Date  

Dean or Associate Dean  Date  OR  

CATALOG DIRECTOR  
These changes/additions have been made for the University/Extended Studies Catalog and entered into the BANNER term named above.  

Catalog Director  Date  

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150 West University Boulevard, Melbourne, FL 32901-6975  •  (321) 674-8114  •  Fax (321) 674-7827  

RG-271-5086
CON 1001
CAD Applications & Construction Plans
Syllabus & Student Assignments

INSTRUCTOR:
Office:
Phone:
E-mail:

• COURSE OVERVIEW & OBJECTIVES:
This course will provide an introduction to analyze the purposes and functions of drawings and how they
relate to all the various stages of construction. Course is an analysis of blue print reading for all types of
building, electrical and mechanical trades. Students will learn how to read, identify all aspects of
construction plans for civil, architectural and structural projects. Students will also use CAD programs in a
laboratory environment to develop plans and pertinent information for all types of construction plans in
common use today. Symbols, abbreviations and all materials common to all trades will be covered through
the use of multiple sample architectural, electrical and mechanical blue prints. This course is mandatory for
all students in the construction program.

• PREREQUISITE: none

• TEXTBOOK:
Construction Print Reading, Leonard Koel, Delmar Publishers, 2000
Architectural & Mechanical Drafting Scales

• TOPICS COVERED:
  Introduction to CAD drawing program
  Overview of the Construction Process
  Contract Documents & specifications
  Legal role of drawings in construction
  Quality processes in construction
  Field Trip to construction site
  Introduction to construction drawings
  Lines & dimensions
  Tolerances & Views
  Mechanical drawings
  Construction drawings
  Building elevations & sections
  Mechanical & plumbing plans
  Electrical details & specifications

• ASSIGNMENTS & GRADING:
  15 Laboratory assignments 50 points each   = 40% (750)
  1 Construction Tour Report, 50 points each   = 02% (50)
  4 Plan Reading Exercises, 100 points each   = 22% (400)
  Class Participation/Instructor Evaluation   = 11% (200)
  Final Exam and Term Project   = 22% (400)
  Total course points   = 1800 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

1
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</table>
|      | Session 1: | Course Introduction  
Overview of the Construction Process  
Contract Documents & specifications  
Legal role of drawings in construction |            |
|      | Session 2: | Quality processes in construction  
Inspection of construction work  
Role of drawings in quality |            |
|      | Session 3: | Field Trip to construction site  
Observe use of construction documents on site  
Meet project manager & superintendent  
Discuss role of drawings  
Problems related to construction drawings |            |
|      | Session 4: | Unit A - Introduction  
1. Introduction to drawings & prints |            |
|      | Session 5: | 2. Orthographic Projection |            |
|      | Session 6: | 3. Arrangement of Views |            |
|      | Session 7: | Unit B – Lines & dimensions  
1. The Glossary and use of lines  
2. Title Block Information |            |
|      | Session 8: | 3. Dimensioning |            |
|      | Session 9: | Unit C – Tolerances & Views  
1. Tolerances & Surface Finishes |            |
|      | Session 10: | 2. Sectional Views |            |
|      | Session 11: | Unit D – Mechanical drawings  
1. Threads & Fastening Devices |            |
|      | Session 12: | 2. Gears & Splines |            |
|      | Session 13: | 3. Types of Drawings |            |
|      | Session 14: | Unit E – Construction drawings  
1. Construction Drawings  
2. Linear measurement |            |
|      | Session 15: | 3. Lines  
4. Scale  
5. Types of Drawings |            |
|      | Session 16: | Unit F – Building plans  
1. Survey & Site Plans |            |
|      | Session 17: | 2. Foundation Plans |            |
|      | Session 18: | 3. Floor Framing Plans  
4. Floor Plans |            |
Session 19: Unit G – Building elevations & sections
1. Ceiling & Roof Framing Plans

Session 20: 2. Section & Detail Drawings

Session 21: 3. Elevation Plans

Session 22: Unit H – Mechanical & plumbing plans
1. Combined Plumbing-Heating Plans
2. Specifications
3. Plumbing Plans


Session 24: 5. Electrical components of HVAC plans

Session 25: Unit I – Electrical details
1. Electrical Symbols
2. Sectional Views & Electrical Details

Session 26: 3. Electrical Wiring Diagrams
4. Electrical Schedules

Session 27: Unit J – Electrical specifications
1. Electrical Specifications

Session 28: 2. Electrical Site Plans
3. Equipment & Appliance Wiring

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.: 2000
CREDIT HOURS: 45
TERM TO BE ADDED TO THE FILE: Fall 2008

CLASS HOURS: __________ LECTURE HOURS: 00 LAB HOURS: __________ CONTACT HOURS (CEU ONLY): __________

DEPARTMENT: College of Engineering
SCHEDULE TYPE: Lecture

☐ COLLEGE OF AERONAUTICS—23
☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS—25
☐ COLLEGE OF BUSINESS—24
☐ COLLEGE OF SCIENCE—26
☒ COLLEGE OF ENGINEERING—01
☐ UNIVERSITY COLLEGE EXTENDED STUDIES—27

COMPUTER TITLE: Restricted to 25 characters, including spaces: Statics & Materials

CATALOG TITLE: Statics & Materials for Construction

CATALOG DESCRIPTION OF COURSE: Limited to 150 characters, including spaces

Introduction to the physical principles that govern classical statics and strength of materials and the design, analysis, and employment of wood, steel, masonry, timber, concrete, and masonry materials in structural systems. Covers resistive systems for effects of wind & earthquakes. Class work amplified by field analysis of construction systems.

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

RESTRICTIONS
☒ Prerequisite: AVS 2101
☐ Corequisite: __________

Course Number

☐ Prerequisite: __________
☐ Corequisite: __________

Course Number

☐ Prerequisite: __________
☐ Corequisite: __________

Course Number

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

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

If this course replaces a course currently offered in BANNER, please indicate old course information.

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.

Signature: J. Thompson Date: Mar 15, 2007

Chair, Graduate Council

Signature: A. Kehrig Date: 3-16-07

Chair, Undergraduate Curriculum Committee

Catalog Director

These changes/additions have been made for the University/Extended Studies Catalog and entered into the BANNER term named above.

Catalog Director

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150 West University Boulevard, Melbourne, FL 32901-6975 • (321) 674-8114 • Fax (321) 674-7827
INSTRUCTOR:
Office:
Phone:
E-mail:

• COURSE OVERVIEW & OBJECTIVES:
Factors that influence the development of structural design; application of basic principles and statics to these systems. Introduction to the physical principles that govern classical statics and strength of materials through the design, analysis, and research of wood, steel, masonry, timber and concrete, and masonry structures.

• PREREQUISITE: AVS 2101
• TEXTBOOK: Building Structures, 2nd Edition, James Ambrose
• TOPICS COVERED:
  1. Basic Concerns & Architectural Considerations.
  2. Structural Functions.
  5. Introduction to Structural Investigation.
  6. Static Forces.
  7. Stresses and Strains.
  8. Beams.
 10. Compression Elements.
 11. Trusses
 13. General Concerns for Wood.
 14. General Concerns for Steel.
 15. General Concerns for Concrete.
 16. General Concerns for Masonry.
 17. Soil Properties and Foundation Behavior.
 18. General Considerations for Lateral Effects.
 22. General Concerns for Structural Design.
 24. Scheme 2: Steel Structure
 26. Scheme 4: Concrete and Steel Structure.

• ASSIGNMENTS & GRADING:
  6 Field Trip Reports, 150 points each = 45% (900pts)
  2 Chapter presentations, 150 points each = 15% (300pts)
  2 Guest Speaker Reports, 50 points each = 5% (100pts)
Class Participation/Instructor Evaluation = 10% (200pts)
Final = Final Exam & Term Project = 25% (500pts)
Total course points = 2000 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.
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<td>3. Structural Functions.</td>
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<td>10. Tension Elements.</td>
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<td>12. Special Topics.</td>
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<td>17. Wood Beams, Joists, and Decks.</td>
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<td>19. Fasteners and Connections.</td>
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<td>21. General Concerns for Steel.</td>
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<td>22. Steel Beams, Joists, and Decks.</td>
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<td>23. Steel Columns.</td>
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<td>24. Steel Connections.</td>
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<td>25. Special Steel Structures.</td>
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<td>30. Concrete Framing Systems.</td>
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<td>31. Concrete Columns.</td>
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<td>34. Special Structures.</td>
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Session 10: Field Trip & Analysis of Concrete Construction

Session 11: PART SIX: MASONRY
35. General Concerns for Masonry
36. Masonry with Concrete Units.

Session 12: PART SIX: MASONRY (cont)

Session 13: Field Trip & Analysis of Masonry Construction

Session 14: PART SEVEN: BUILDING FOUNDATIONS.
39. General Considerations.
40. Soil Properties and Foundation Behavior.
41. Shallow Bearing Foundations.
42. Deep Foundations.
43. Special Foundation Problems.

Session 15: Field Trip & Analysis of Foundation Construction

Session 16: PART EIGHT: LATERAL FORCE EFFECTS.
44. General Considerations for Lateral Effects.
45. Wind Effects on Buildings.
46. Earthquake Effects on Buildings.
47. Elements of Lateral Resistive Systems.
48. Design for Wind and Earthquake Effects.
49. Special Lateral Effect Problems.

Session 17: Field Trip & Analysis of Lateral Force Effects

Session 18: PART NINE: DESIGN EXAMPLES-1
50. General Concerns for Structural Design.

Session 19: EXAMPLES-1 (cont)
51. Building One: Wood Structure

Session 20: EXAMPLES-1 (cont)
52. Building One, Scheme 3: Masonry and Timber Structure

Session 21: EXAMPLES-1 (cont)
53. Building One, Scheme 4: Concrete and Steel Structure

Session 22: EXAMPLES-1 (cont)
54. Building Two: General Considerations
55. Building Two: Scheme 1: Wood Structure

Session 23: Guest Lecture: Interface between Designer & Constructor (TBD)

Session 24: EXAMPLES-2 (cont)
56. Building Two: Scheme 2: Steel Structure.
57. Building Two: Scheme 3: Alternative Steel Structure.

Session 25: EXAMPLES-2 (cont)
58. Building Two: Scheme 4: Concrete Structure.
59. Building Two: Scheme 5: Alternative Concrete Structure.

Session 26: EXAMPLES-2 (cont)
60. Building Two: Scheme 6: Masonry Wall Structure.
61. Building Two: Scheme 7: Alternative Masonry Structure Number One.
Session 27: Guest Lecture: Productivity – coordinating the workforce for optimum output
Session 28: Guest Lecture: Organizing for Quality – selecting the construction team
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.  2001  
CREDIT HOURS  3  
TERM TO BE ADDED TO THE FILE  Fall 2008  
CLASS HOURS  45  
LECTURE HOURS  45  
LAB HOURS  
CONTACT HOURS (CEU ONLY)  40 = ceus  

DEPARTMENT  College of Engineering  
SCHEDULE TYPE  Lecture  

☐ COLLEGE OF AERONAUTICS–23  ☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS–25  
☐ COLLEGE OF BUSINESS–24  ☐ COLLEGE OF SCIENCE–26  
☒ COLLEGE OF ENGINEERING–01  ☐ UNIVERSITY COLLEGE EXTENDED STUDIES–27  

COMPUTER TITLE Restricted to 25 characters, including spaces  Construction Methods  
CATALOG TITLE  Construction Methods and Operations  

CATALOG DESCRIPTION OF COURSE  Limited to 350 characters, including spaces  
This course will provide an introduction to the operational processes for both horizontal and vertical construction, to include a primer in reading construction plans and building codes. A team project, field trips, and written reports are required regarding observations of project management and the use of equipment in the construction process.  

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

REQUIREMENTS  
☒ Prerequisite  CON 2000  
☐ Corequisite  
☐ Prerequisite  CVE 2080  
☐ Corequisite  
☐ Prerequisite   
course number  
☐ Corequisite  

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

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

if this course replaces a course currently offered in BANNER, please indicate old course information  

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.

Original  Date  
Chair, Graduate Council  Date  

OR  
Dean or Associate Dean  Date  
Chair, Undergraduate Curriculum Committee  Date  

CATALOG DIRECTOR  
These changes/additions have been made for the University/Extended Studies Catalog and entered into the BANNER term named above.  
Catalog Director  Date  

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SCARRES  Operator Init  Date  

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150 West University Boulevard, Melbourne, FL 32901-6975  
(321) 674-8114  Fax (321) 674-7827  
RG 271-006
INSTRUCTOR:
Office: 
Phone: 
E-mail: 

• COURSE OVERVIEW & OBJECTIVES:
This course will provide an introduction to the planning and development processes for both horizontal and vertical construction operations, to include a primer in reading construction plans. Emphasis will be on site layout, the types, uses, and placement methods of building materials and components, and the components and installation of mechanical, electrical, and plumbing systems. Drawings, models, field trips, and written reports will be required. Written reports will be required regarding the use of equipment in the building production process and site analysis and materials testing procedures. Field trips to selected on-going construction projects will be continuous, and written descriptive reports including field reports, on-site sketches and formal presentations will be required to communicate the means, methods, and materials observed.

• PREREQUISITES: CON 2000; CVE 2080

• TEXTBOOK:
  Construction Methods & Management, Stephens W. Nunnally
  Construction Print Reading, Leonard Koel, Delmar Publishers, 2000

• TOPICS COVERED:
  Construction documents and plan reading
  Site investigation, analysis & soil investigation tests
  Building site, zoning, and building codes
  Earthmoving materials & operations
  Excavating & hauling
  Aggregate, Concrete, Asphalt Mixes & Paving Operations
  Formwork, concrete work & materials testing
  Structural steel/floor systems
  Structural timber & structural framing
  Curtain wall/insulation/finishing
  Masonry construction, chimneys, and fireplaces
  Planning & scheduling construction operations
  Construction contracts & economics
  Safety & Health
  Productivity & management

• ASSIGNMENTS & GRADING:
  3 Take-home assignments, 200 points each = 30% (600)
  3 Construction Tour Reports, 100 points each = 10% (300)
  3 Guest Lecture Reports, 100 points each = 10% (300)
  4 Plan Reading Exercises, 50 points each = 10% (200)
  Class Participation/Instructor Evaluation = 10% (200)
  Final Exam and Term Project = 25% (400)
  Total course points = 2000 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.
<table>
<thead>
<tr>
<th>DATE</th>
<th>SESSION</th>
<th>TOPIC &amp; TEXT CHAPTER</th>
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<td>Course Introduction</td>
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<td>PART ONE: EARTHMOVING AND HEAVY CONSTRUCTION</td>
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<td>Earthmoving Materials and Operations</td>
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<td>Loading and Hauling</td>
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<td>Session 5:</td>
<td>Compacting and Finishing</td>
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<td>Rock Excavation</td>
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<td>Session 7:</td>
<td>Aggregate, Concrete, and Asphalt Mixes</td>
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<td>Paving and Surface Treatments</td>
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<td>Foundations</td>
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<td>Session 13:</td>
<td>Wood Construction</td>
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<td>Session 14:</td>
<td>Concrete Construction</td>
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<td>PART THREE: CONSTRUCTION MANAGEMENT</td>
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<td>Construction Economics</td>
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<td>Session 22:</td>
<td>Contract Construction</td>
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<td>Session 23:</td>
<td>Safety, Health and Equipment Maintenance</td>
<td>Nunnally Ch-19</td>
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<td>Session 24:</td>
<td>Improving Productivity and Performance</td>
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<td>Session 25:</td>
<td>Field Trip 3: Construction Management in Practice</td>
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</table>
Session 24: Guest Lecture: Construction Management

Session 25: **PART FOUR: CONSTRUCTION PRINT READING**
Section 1 – Building Plans
Section 2 – Basics of Plan Reading
Exercise in Plan Reading – 1

Session 26:
Section 4 – Plan Development & Topography
Section 5 – Codes, Regulations & Legal Docs
Exercise in Plan Reading - 2

Session 27:
Section 3 – Electrical & Mechanical Plans
Exercise in Plan Reading - 3

Session 28:
Section 6 – Mathematics for Plan Reading
Exercise in Plan Reading - 4

Session 29: Team Term Project Presentations

Session 30: Course evaluation

Session 31: Final Exam
ADD 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>CON</th>
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| CLASS HOURS | 0 | LECTURE HOURS | 0 | LAB HOURS | 45 | CONTACT HOURS (CEU ONLY) | |

| DEPARTMENT | College of Engineering | SCHEDULE TYPE | Lab | (e.g., Computer Sciences) | (e.g., Lecture, Lab or Special Project) |

- COLLEGE OF AERONAUTICS-23
- COLLEGE OF BUSINESS-24
- COLLEGE OF ENGINEERING-01
- COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS-25
- COLLEGE OF SCIENCE-26
- UNIVERSITY COLLEGE EXTENDED STUDIES-27

| COMPUTER TITLE | Restricted to 25 characters, including spaces | Materials Lab |

| CATALOG TITLE | Construction Materials Lab |

| CATALOG DESCRIPTION OF COURSE | Limited to 350 characters, including spaces |

The laboratory will focus on testing the primary construction materials, to understand their properties under various conditions, and construction applications. Field trips will emphasize constraints realized under actual conditions. Lab will cover both English and metric units used in measuring construction materials.

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

<table>
<thead>
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<th>RESTRICTIONS</th>
<th>Prerequisite</th>
<th>CON 2000</th>
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| ADDITIONAL RESTRICTION | (e.g., Major, Class Level, Department Head Approval) |

If this course replaces a course currently offered in BANNER, please indicate old course information.

| 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.

<table>
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<th>Originator</th>
<th>Mar 15 2007</th>
<th>Chair, Graduate Council</th>
<th>Date</th>
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<tr>
<td>Department/Program Chair</td>
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<td>Dean or Associate Dean</td>
<td>3-16-07</td>
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CATALOG DIRECTOR

These changes/ additions have been made for the University/Extended Studies Catalog and entered into the BANNER term named above.

| Catalog Director | Date |

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RG-271-506
CON 2002
Construction Materials Lab
Syllabus & Student Assignments

INSTRUCTOR:
Office:
Phone:
E-mail:

• COURSE OVERVIEW & OBJECTIVES:
This course will provide an introduction to the very wide variety of construction materials utilized in the
construction industry. The laboratory will focus on the primary construction materials, their properties, and
construction applications. Exercises will test the material properties under various conditions to give the
student an understanding of how they will perform or how they may be applied in the building process.
Experiments will also cover the conversion of units from English to Metric units. Field trips and reports will
give the student an understanding of actual application techniques and problems encountered under varying
conditions during the construction process.

• PREREQUISITE:  CON 2000

• TEXTBOOK:

• TOPICS COVERED:
  Introduction to the metric system
  Wood & Related Materials
  Cement, Aggregates, Concrete & Concrete Admixtures
  Concrete Masonry Units and Precast Concrete
  Brick and Tile
  Stone
  Ferrous & Non-Ferrous Materials
  Gypsum & Lime
  Glass
  Bituminous Materials
  Plastics
  Insulating Materials
  Acoustical Materials
  Adhesives, Sealers & Sealants
  Protective & Decorative Coatings

• ASSIGNMENTS & GRADING:
  20 Laboratory assignments 50 points each  = 50% (1000)
  7 Construction Tour Reports, 50 points each  = 18% (350)
  1 Term Report – innovative materials  = 5% (100)
  Class Participation/Instructor Evaluation  = 10% (200)
  Final Exam  = 18% (350)
  Total course points  = 2000 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
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<td>Introduction to the Metric System</td>
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<td>Session 2:</td>
<td>Wood &amp; Related Materials</td>
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<td>Session 3:</td>
<td>Field Trip-1 construction materials in use</td>
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<td>Concrete Masonry Building Units</td>
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This course is available for student registration only after the approval process has been completed.

SUBJECT CON COURSE NO. 3000 CREDIT HOURS 3 TERM TO BE ADDED TO THE FILE Fall 2008

CLASS HOURS 45 LECTURE HOURS 45 LAB HOURS CONTACT HOURS (CEU ONLY) 

DEPARTMENT College of Engineering SCHEDULE TYPE Lecture/Lab

☐ COLLEGE OF AERONAUTICS-23 ☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS-25 (e.g., Computer Sciences) (e.g., Lecture, Lab or Special Project)

☐ COLLEGE OF BUSINESS-24 ☐ COLLEGE OF SCIENCE-26 ☐ COLLEGE OF ENGINEERING-01 ☐ UNIVERSITY COLLEGE EXTENDED STUDIES-27

COMPUTER TITLE Restricted to 25 characters, including spaces Construction Soils

CATALOG TITLE Soils, Foundations and Formwork for Construction

This course is to introduce construction students to the nature of soils and illustrates how soil materials may influence certain construction operations, including formwork. This is a geotechnical course specifically arranged to cover soils in construction for those who do not contemplate further study of soil mechanics or foundation engineering.

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

<table>
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<tr>
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<th>Course Number</th>
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GRADES TO BE ISSUED

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

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

If this course replaces a course currently offered in BANNER, please indicate old course information

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 Date

Chair, Graduate Council Date

Department Head/Program Chair

Dean or Associate Dean Date

Chair, Undergraduate Curriculum Committee Date

CATALOG DIRECTOR

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Catalog Director Date

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RG-271-506
CON 3000
Soils, Foundations & Formwork for Construction
Syllabus & Student Assignments

INSTRUCTOR:
Office:
Phone:
E-mail:

• COURSE OVERVIEW & OBJECTIVES:
The purpose of this course is to introduce students to the nature of soils and to illustrate how soil materials may influence certain construction operations. The course is a geotechnical course specifically arranged to deal with soils in construction for those who did not contemplate further study of soil mechanics or foundation engineering. The course begins with an introduction to soil materials in conjunction with the testing methods. The material presented provides the basic background for understanding soil behavior and how construction specifications relate to it. Next the course turns to soils in the construction contract. Specifications from example contracts influenced by soil materials are discussed, as is the application of principles of soil behavior to those specifications. Finally, the course deals with the design and bracing of forms used in construction to control soils and promote safety during construction operations. Contractors, owners, technicians, lawyers, and engineers from other specialties interact with geotechnical design professionals in the conduct of construction operations. They need to know and understand the designer's language and concerns, and they need to understand how to apply selected principles of the geotechnical disciplines to their own work.

• PREREQUISITE: CON 2001; CON 2002; CVE 3012

• TEXTBOOK(s):
Soils in Construction; W.L.Schroeder; S.E.Dickenson; Don C. Warrington; Prentice Hall
Construction Methods & Management; S.W.Nunnally, Prentice Hall

• TOPICS COVERED:
PART I. SOIL MATERIALS
1. Physical Character of Soil Constituents.
2. Natural Soil Deposits.
4. Soil Classification.

PART II. EARTHWORK IN THE CONSTRUCTION CONTRACT
7. Interpretation of Soils Reports.
8. Embankment Construction and Control.
11. Foundation Construction.

PART III: FORMS & FORMWORK
13. Design Principles
14. Design Loads
15. Method of Analysis
16. Slab Form Design
17. Wall & Column Form Design
18. Design of Lateral Bracing

• ASSIGNMENTS & GRADING:
  6 Field trip/Lab assignments, 100 points each = 33% (600)
  3 Chapter tests, 200 points each = 33% (600)
  1 Guest Speaker Reports, 100 points = 5% (100)
  Class Participation/Instructor Evaluation = 10% (200)
  Final Exam = 19% (300)

Total course points = 1800 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.
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<td>PART I – SOIL MATERIALS Physical Character of Soil Constituents.</td>
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<td>Wall Form Design</td>
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<td>Nunnally Ch 13</td>
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<td>Field Trip 6 – Wall &amp; Column Form Design &amp; Construction</td>
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This course is available for student registration only after the approval process has been completed.

SUBJECT CON COURSE NO. 3001 CREDIT HOURS 3 TERM TO BE ADDED TO THE FILE Fall 2008
Alpha Prefix (e.g., CSE) Number Choice (e.g., 1301) (e.g., Fall 2008)

CLASS HOURS 45 LECTURE HOURS 45 LAB HOURS CONTACT HOURS (CEU ONLY) 40 = 4ceus

DEPARTMENT College of Engineering SCHEDULE TYPE Lecture (A)
(e.g., Computer Sciences) (e.g., Lecture, Lab or Special Project)

☐ COLLEGE OF AERONAUTICS–23 ☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS–25
☐ COLLEGE OF BUSINESS–24 ☐ COLLEGE OF SCIENCE–26
☒ COLLEGE OF ENGINEERING–01 ☐ UNIVERSITY COLLEGE EXTENDED STUDIES–27

COMPUTER TITLE Restricted to 5 characters, including spaces Structural Systems

CATALOG TITLE Basic Structures and Structural Systems

CATALOG DESCRIPTION OF COURSE Limited to 350 characters, including spaces
The course covers essential formulas for the solution of structural problems, and solutions to everyday problems that builders encounter on the job. Reviews structural engineering essentials and provides simple design solutions for the vast majority of buildings. Covers building and material codes, problems, and illustrative examples.

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

RESTRICTIONS ☒ Prerequisite CON 2000 ☐ Corequisite 
Course Number

☐ Prerequisite Course Number 
☐ Prerequisite Course Number

☐ Prerequisite Course Number 
☐ Prerequisite 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
(e.g., Major, Class Level, Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information

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.

Originals

Chair, Graduate Council Date

Department Head/Program Chair

Date

Dean or Associate Dean

3-16-07

Chair, Undergraduate Curriculum Committee Date

CATHOLIC DIRECTOR

These changes/additions have been made for the University/Extended Studies Catalog and entered into the BANNER term named above.

Catalog Director

Date

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Florida Institute of Technology • Office of the Registrar
150 West University Boulevard, Melbourne, FL 32901-6975 • (321) 674-8114 • Fax (321) 674-7827
RG-271-506
CON 3001
Structures & Structural Systems for Construction
Syllabus & Student Assignments

INSTRUCTOR:
Office: 
Phone: 
E-mail: 

• COURSE OVERVIEW & OBJECTIVES:
Designed primarily for students in construction this course places emphasis on the practical design and construction of structural elements. The course will review basic design principles with a heavy emphasis on constructability and buildability of wood, steel, and concrete buildings. Course reviews structural engineering essentials and provides simple design solutions that are used for the vast majority of buildings with a focus on Load and Resistance Factor Design Method (LRFD) for steel and concrete structures. The course also covers building and material codes, exercise problems, illustrative examples, essential formulas for the solution of structural problems, and solutions to everyday problems that builders encounter on the job.

• PREREQUISITE(S): CON 2000


• TOPICS COVERED:
1. Investigation of Forces and Force Actions.
2. Force Actions.
3. Investigation of Beams and Frames.
5. Wood Spanning Elements.
7. Connections for Wood Structures.
8. Steel Structural Products.
9. Steel Beams and Framing Elements.
10. Steel Columns and Frames.
11. Bolted Connections for Steel Structures.
12. Light-Gage Formed Steel Structures.
13. Reinforced Concrete Structures.
14. Flat-Spanning Concrete Systems.
15. Concrete Columns and Frames.
16. Footings.

• ASSIGNMENTS & GRADING:
  4 Take-home assignments, 100 points each = 30% (400)
  3 Project technical reports, 100 points each = 10% (300)
  3 Project presentations, 100 points each = 10% (300)
  Class Participation/Instructor Evaluation = 10% (200)
  Final Exam = 25% (300)
  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. 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.
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<td>Session 1:</td>
<td><strong>PART I: Principles of Structural Mechanics</strong>&lt;br&gt;Course Introduction.&lt;br&gt;1. Investigation of Forces and Force Actions.</td>
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<td>Session 2:</td>
<td>2. Force Actions.</td>
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<td>Session 3:</td>
<td>3. Investigation of Beams and Frames.</td>
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<td>Session 5:</td>
<td><strong>Review of Homework on Part I</strong></td>
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<td>Session 6:</td>
<td><strong>PART II: WOOD CONSTRUCTION.</strong>&lt;br&gt;5. Wood Spanning Elements.</td>
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<td>Session 8:</td>
<td><strong>Review of Homework on Part II</strong></td>
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<td>Session 9:</td>
<td><strong>PART III: STEEL CONSTRUCTION.</strong>&lt;br&gt;8. Steel Structural Products.</td>
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<td>Session 11:</td>
<td>10. Steel Columns and Frames.</td>
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<td>Session 13:</td>
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<td>Session 16:</td>
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<td>Session 17:</td>
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<td>Session 19:</td>
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<td>Session 20:</td>
<td><strong>PART V: STRUCTURAL SYSTEMS FOR BUILDINGS.</strong>&lt;br&gt;17. General Considerations for Structures.</td>
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<td>Session 21:</td>
<td>18. Building One Analysis</td>
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<td>Session 22:</td>
<td><strong>Team Project – 1</strong></td>
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<td>Session 23:</td>
<td>19. Building Two Analysis</td>
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<td>Session 24:</td>
<td>Team Project – 2</td>
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<td>Session 25:</td>
<td>20. Building Three Analysis</td>
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<td>Session 26:</td>
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<td>Session 27:</td>
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Florida Institute of Technology

ADDITION A NEW COURSE TO THE CURRICULUM

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

SUBJECT  CON  COURSE NO.  3002  CREDIT HOURS  3  TERM TO BE ADDED TO THE FILE  Fall 2008

CLASS HOURS  45  LECTURE HOURS  45  LAB HOURS  CONTACT HOURS (CEU ONLY)  40 = 4ceus

DEPARTMENT  College of Engineering

☐ COLLEGE OF AERONAUTICS--23  ☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS--25
☐ COLLEGE OF BUSINESS--24  ☐ COLLEGE OF SCIENCE--26
☒ COLLEGE OF ENGINEERING--01  ☐ UNIVERSITY COLLEGE EXTENDED STUDIES--27

COMPUTER TITLE  Restricted to 25 characters, including spaces  Mechanical Systems

CATALOG TITLE  Building Mechanical and HVAC Systems

CATALOG DESCRIPTION OF COURSE  Limited to 350 characters, including spaces

This course will provide the student with a basic knowledge of building mechanical systems, methods to install these systems and verify quality. Course covers the basic engineering principles & design associated with mechanical systems, including principles of code, design, materials and construction of plumbing, HVAC and transportation systems.

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

RESTRICTIONS  ☒ Prerequisite  CON 1001  ☐ Corequisite

☐ Prerequisite  AVS 2101  ☐ Corequisite

☐ Prerequisite  ☐ Corequisite

GRADES TO BE ISSUED  ☒ A, B, C, D, F  ☐ A, B, C, D, F, CEU

☐ CEU  ☐ S, U  ☐ P, F  ☐ Other

ADDITIONAL RESTRICTION

(e.g., Major, Class Level, Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information

SUBJECT  CON  COURSE NO.  3002

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  Chair, Graduate Council  Date

Department Head/Program Chair  Date

Dean or Associate Dean  Date  Chair, Undergraduate Curriculum Committee  Date

CATALOG DIRECTOR

These changes/additions have been made for the University/Extended Studies Catalog and entered into the BANNER term named above.

Catalog Director  Date

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SCARRES  Operator Init  Date

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Florida Institute of Technology - Office of the Registrar

150 West University Boulevard, Melbourne, FL 32901-6975 • (321) 674-8114 • Fax (321) 674-7827
INSTRUCTOR:
Office:
Phone:
E-mail:

• COURSE OVERVIEW & OBJECTIVES:
This course will provide the student with a basic knowledge of building mechanical systems, methods to install these systems and verify quality. Course will cover the basic engineering principles & design associated with mechanical systems. Principles of code, design, methods, and materials applied to plumbing, heating, ventilation and air conditioning, and transportation systems will be covered. The comprehension of mechanical construction plans and specifications is emphasized through exercises in estimating mechanical systems, field trips & reports. Plumbing, Heating, Ventilating, Air conditioning, Fire protection, System Controls, Automation and Specialty mechanical systems will be covered. The emphasis well be on basic mechanical system types, design, cost, and constructability. This course provides realistic design and construction experience with a mechanical system design problem that gives students experience in how to plan, design and construct a mechanical system using fundamental engineering and science principles.

• PREREQUISITE: CON 1001; AVS 2101

• TEXTBOOK: Mechanical and Electrical Equipment for Buildings, 10th Edition; Ben Stein, John S. Reynolds, Walter T. Grondzik, Alison G. Kwok

• TOPICS COVERED:
  1. Introduction to building mechanical systems
  2. Mechanical Systems - history & building impacts
  3. Procedures, and Schedules
  4. Plumbing Design & Materials
  5. Water & Wastewater Treatment (Field Trip)
  6. HVAC Basics (Field Trip)
  7. Heating Design
  8. Ventilating
  9. Air conditioning
  10. Fire protection systems (Field Trip)
  11. Transportation systems (Field Trip)
  12. Controls & automation
  13. Sound transmission systems
  14. Economic analysis of mechanical systems

• ASSIGNMENTS & GRADING:
  6 Take-home assignments, 150 points each = 30% (900)
  2 Oral team presentations, 100 points each = 10% (200)
  4 Field Trip Reports, 50 points each = 10% (200)
  Class Participation/Instructor Evaluation = 10% (200)
  Final Exam and Term Project = 25% (500)
  Total course points = 2000 points

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

• ASSIGNMENTS: 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.
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<td>Heating and Cooling Design Guidelines and Information</td>
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<td>Guidelines for Energy &amp; Resource-Efficient Design</td>
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|           | Fire Protection  
|           | Chapter 24 |
| Session 21: | Field Trip: Installation of Fire Protection Systems |
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|           | Vertical Transportation &  
|           | Passenger Elevators  
|           | Chapter 31 |
| Session 23: | Vertical Transportation: Special Topics  
|           | Chapter 32 |
| Session 24: | Moving Stairways and Walks  
|           | Chapter 33 |
| Session 25: | Field Trip: Installation of Transportation Systems |
| Session 26: | PART IV: ACOUSTICS  
|           | Fundamentals of Architectural Acoustics  
|           | Chapter 17 |
| Session 27: | Sound In Enclosed Spaces  
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|           | Chapter 18  
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| Session 28: | Sound Transmission Data for Walls  
|           | Sound Transmission and Impact Insulation  
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|           | Economic Analysis  
|           | Appendix K  
|           | Appendix L  
|           | Appendix I |
| Session 29: | Term Project Presentations |
| Session 30: | Course evaluation |
| Session 31: | Final Exam |

3
This course is available for student registration only after the approval process has been completed.

SUBJECT CON COURSE NO. 4000 CREDIT HOURS 3 TERM TO BE ADDED TO THE FILE Fall 2008
Alpha Prefix (e.g, CSE) Number Choice (e.g., 1301) (e.g., Fall 2008)

CLASS HOURS 45 LECTURE HOURS 45 LAB HOURS CONTACT HOURS (CEU ONLY) 40 = 4ceu

DEPARTMENT College of Engineering SCHEDULE TYPE Lecture
(e.g., Computer Sciences) (e.g., Lecture, Lab or Special Project)

☐ COLLEGE OF AERONAUTICS-23 ☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS-25
☐ COLLEGE OF BUSINESS-24 ☐ COLLEGE OF SCIENCE-26
☒ COLLEGE OF ENGINEERING-01 ☐ UNIVERSITY COLLEGE EXTENDED STUDIES-27

COMPUTER TITLE Restricted to 25 characters, including spaces Construction Controls

CATALOG TITLE Construction Controls: Budget, Schedule & Quality

CATALOG DESCRIPTION OF COURSE Limited to 350 characters, including spaces
The fundamentals of construction management are covered with an emphasis on the construction budget, schedule & quality. Focus is on the principles of construction administration with coverage of contract types, control of scope, cost, scheduling and quality control & quality assurance are resolution of related problems in construction operations.

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

RESTRICTIONS ☒ Prerequisite BUS 2212 ☐ Corequisite
Course Number

☐ Prerequisite Course Number ☐ Corequisite Course Number
Course Number

☐ Prerequisite Course Number ☐ Corequisite Course Number
Course Number

ADDITIONAL RESTRICTION (e.g., Major, Class Level, Department Head Approval)
If this course replaces a course currently offered in BANNER, please indicate old course information

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.

Chair, Graduate Council Date

Chair, Undergraduate Curriculum Committee Date

OR

Dean or Associate Dean Date

Chair, Graduate Council Date

CATALOG DIRECTOR
These changes/additions have been made for the University/Extended Studies Catalog and entered into the BANNER term named above.

Catalog Director Date

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RG-271-5396
INSTRUCTOR: Ralph V Locurcio, PE
Office: Olin 236D
Tel: (321) 674-7149
Email: locurcio@fit.edu

**COURSE OVERVIEW & OBJECTIVES:**
The first in a series of four courses on Construction Management, this course covers the fundamentals of construction management and administration approached with an emphasis on project management. Focus on basics of construction administration principles including: project delivery, responsibility of parties, contract administration, contract types, control of scope, cost and quality, scheduling and construction operations, changed conditions, claims and disputes, local environment, information and communications, stakeholder relations and project closeout.

**PREREQUISITE:** BUS 2212

**TEXTBOOK(s):**
- *Construction Project Administration* & by Edward R. Fisk (seventh edition)
- *Precedence and Arrow Networking Techniques for Construction*, by Robert B. Harris
- *Student Workbook*, Primavera Corporation

1. Understand all aspects of the construction project delivery process.
2. Understand the roles and responsibilities of all stakeholders and the owner's representative.
3. Understand and utilize the project management process as it relates to construction operations.
4. Develop and utilize an S-Curve weighted value reporting system.
5. Focus on the importance of issue identification at all stages of the project delivery process.
6. Understand project controls, scheduling, costing, change orders and dispute resolution.
7. Understand and utilize automated project management software such as MS Project.
8. Understand the connections between schedule and cost at the time value of money;

**TOPICS COVERED:**
1. Introduction to construction projects and course requirements. (1 class)
2. The construction project delivery system. (1 class)
3. Responsibility and authority of stakeholders. (1 class)
4. Role and responsibility of the Resident Engineer. (1 class)
5. Project documentation records and reports. (1 class)
6. Specifications and drawings, use, modification and certification. (1 class)
7. Meetings and Negotiations (1 class)
8. Risk allocation and sharing of liability. (1 class)
9. Preconstruction operations. (1 class)
10. Planning for construction. (1 class)
11. Fundamentals of CPM construction scheduling. (1 class)
12. Basic Scheduling Concepts
13. Project Breakdown
14. Scheduling Concepts
15. Primavera Overview
16. Basic Arrow Diagramming

- 1 -
17. Basic Precedence Diagramming
18. Computations for Arrow Networks
19. Scheduling Computations for Precedence Networks
20. Project Control
21. Primavera Applications
22. Resource Leveling
23. Primavera Applications
24. Program Evaluation and Review Technique
25. Overlapping Networks
26. Impact of Compressed Schedule
27. Linear Scheduling
28. Fundamentals of construction operations. (1 class)
29. Construction materials and workmanship. (1 class)
30. Changes and extra work. (1 class)
31. Claims and disputes. (1 class)
32. Project closeout. (1 class)
33. Construction Laws and Labor Relations
34. Construction Safety
35. Value Engineering
36. Concrete and Masonry

• ASSIGNMENTS & GRADING:

- 3 Tests (30%) = 600pts
- Pyramid Organization (5%) = 100pts
- Const Tour Report (5%) = 100pts
- Career Day Report (5%) = 100pts
- Resume & Cover (10%) = 200pts
- Pyramid Schedule (5%) = 100pts
- Pyramid Estimate (5%) = 100pts
- Change Order HW (5%) = 100pts
- Ethics Paper (5%) = 100pts
- Notebook (10%) = 200pts
- Participation Points (5%) = 100pts

Class Total = 1800pts
Final Exam (10%) = 200pts
Course Total = 2000pts

• 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.
# CON 4000
## CM-I: Contract Controls; Budget, Schedule & Quality
### Syllabus & Student Assignments

<table>
<thead>
<tr>
<th>Day</th>
<th>Class</th>
<th>Topic and Section</th>
<th>Homework / Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/22</td>
<td>1</td>
<td>Introduction, course requirements</td>
<td>Read Handout</td>
</tr>
<tr>
<td>8/24</td>
<td>2</td>
<td>Project Delivery System; <strong>Pyramid Exercise Handout</strong></td>
<td>Kerzner Ch-1</td>
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<tr>
<td>8/29</td>
<td>3</td>
<td>Stakeholders &amp; Construction Organizations</td>
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</tr>
<tr>
<td>8/31</td>
<td>4</td>
<td>Contract Types &amp; Construction Planning</td>
<td></td>
</tr>
<tr>
<td>9/5</td>
<td>5</td>
<td>Construction Contract Documents</td>
<td><strong>Pyramid Exercise; Kerzner Ch-21</strong></td>
</tr>
<tr>
<td>9/7</td>
<td>6</td>
<td>Preconstruction &amp; Bidding Processes; <strong>Write Resume &amp; Cover</strong></td>
<td>Class notes</td>
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<td>9/12</td>
<td>7</td>
<td>Shop Drawings &amp; Inspection Processes</td>
<td>Kerzner Ch-21</td>
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<tr>
<td>9/14</td>
<td>8</td>
<td>Project Organization &amp; Responsibilities</td>
<td>Class notes</td>
</tr>
<tr>
<td>9/19</td>
<td>9</td>
<td>Hurricane &amp; Disaster Recovery Construction</td>
<td>Turn-in resume; Kerzner Ch-3</td>
</tr>
<tr>
<td>9/21</td>
<td>10</td>
<td>Tour Construction Project Site; <strong>Construction Report Handout</strong></td>
<td>Class notes</td>
</tr>
<tr>
<td>9/26</td>
<td>11</td>
<td><strong>Test #1 &amp; Critique</strong></td>
<td>Kerzner Ch-3</td>
</tr>
<tr>
<td>9/28</td>
<td>12</td>
<td>Scheduling &amp; MS Project; <strong>Pyramid Schedule Handout</strong></td>
<td>Construction Report</td>
</tr>
<tr>
<td>10/3</td>
<td>13</td>
<td>Project Budgets &amp; Cost Control; <strong>Career Day Report Handout</strong></td>
<td>Kerzner Ch-12, 13</td>
</tr>
<tr>
<td>10/4</td>
<td>14</td>
<td><strong>Attend Career Day (conduct interviews)</strong></td>
<td>Kerzner Ch-15</td>
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<tr>
<td>10/5</td>
<td>15</td>
<td>Progress Measurement &amp; Payment</td>
<td><strong>Career Report; Kerzner Ch 8</strong></td>
</tr>
<tr>
<td>10/10</td>
<td>16</td>
<td><strong>FIT Holiday – Columbus Day &amp; Fall Break</strong></td>
<td>Kerzner Ch-20</td>
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<tr>
<td>10/12</td>
<td>17</td>
<td>Quality control</td>
<td><strong>Pyramid Schedule</strong></td>
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<td>10/17</td>
<td>18</td>
<td>Changes and Extra Work; <strong>Change Order Handout</strong></td>
<td>Kerzner Ch-7</td>
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<td>10/19</td>
<td>19</td>
<td>Claims and Disputes</td>
<td><strong>Change Order Problem</strong></td>
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<td>Critique of Pyramid Schedule &amp; Change Order Exercise</td>
<td>Kerzner Ch-16</td>
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<tr>
<td>10/26</td>
<td>21</td>
<td>Negotiations and Meetings</td>
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<tr>
<td>10/31</td>
<td>22</td>
<td><strong>Test-2 &amp; Critique</strong></td>
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<td>11/2</td>
<td>23</td>
<td>Risk Management</td>
<td>Kerzner Ch-17</td>
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<td>11/7</td>
<td>24</td>
<td>Construction Estimating-1; <strong>Pyramid Estimate Handout</strong></td>
<td>Kerzner Ch-14</td>
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<tr>
<td>11/9</td>
<td>25</td>
<td>Value Engineering</td>
<td>Kerzner Ch-14</td>
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<tr>
<td>11/14</td>
<td>26</td>
<td>Project Closeout &amp; Pyramid Estimate Review</td>
<td><strong>Pyramid Estimate</strong></td>
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<tr>
<td>11/16</td>
<td>27</td>
<td>Construction Law &amp; Legal Issues – Guest Lecture</td>
<td>Handout</td>
</tr>
<tr>
<td>11/21</td>
<td>28</td>
<td>Construction Leadership &amp; Ethics</td>
<td>Ethics Paper; Kerzner Ch 8.5</td>
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<tr>
<td>11/24</td>
<td>29</td>
<td><strong>FIT Holiday – Thanksgiving</strong></td>
<td>Class notes</td>
</tr>
<tr>
<td>11/28</td>
<td>30</td>
<td>Civil Engineering Job Opportunities</td>
<td>Notebook turn-in</td>
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<tr>
<td>11/30</td>
<td>31</td>
<td><strong>Test-3 &amp; Critique</strong></td>
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<tr>
<td>12/5</td>
<td>32</td>
<td>Course Wrap-up &amp; Critique</td>
<td>TBA</td>
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<tr>
<td>12/7</td>
<td>33</td>
<td>Course Review for Final Exam</td>
<td></td>
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<tr>
<td>12/12</td>
<td>34</td>
<td><strong>Final Exam (6:00 – 8:00 pm)</strong> – Crawford S220</td>
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</tbody>
</table>
This course is available for student registration only after the approval process has been completed.

Subject: CON 4001  Credit Hours: 3  Term to be Added to the File: Fall 2008

Class Hours: 45  Lecture Hours: 45  Lab Hours: 0  Contact Hours (CEU only): 40 = 4 ceus

Department: College of Engineering  Schedule Type: Lecture (A)

☐ College of Aeronautics-23  ☐ College of Psychology and Liberal Arts-25
☐ College of Business-24  ☐ College of Science-26
☒ College of Engineering-01  ☐ University College Extended Studies-27

Computer Title: Restricted to 25 characters, including spaces

Electrical Systems

Catalog Title: Building Electrical and Electronic Systems

Catalog Description of Course: Limited to 350 characters, including spaces

Principles of code & basic concepts in electrical & electronic theory, circuit design, materials, methods, safety and estimating are applied to electrical, communications, & power machinery systems for buildings. Course provides the student with a basic knowledge of systems operations and methods to install them and verify quality of installation.

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

Restrictions:
- ☒ Prerequisite: CON 1001

Grades to be Issued:
- ☐ A, B, C, D, F
- ☒ A, B, C, D, F, CEU
- ☐ CEU
- ☐ S, U
- ☐ P, F
- ☐ Other

Additional Restriction: (e.g., Major, Class Level, Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information

Subject: CON 1001  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: President  Date: Mar 15, 2007

Chair, Graduate Council  Date:

Chair, Undergraduate Curriculum Committee  Date: 3-16-07

Catalog Director:  Date:

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RG-271-506
CON 4001
Electrical & Electronic Systems for Construction
Syllabus & Student Assignments

INSTRUCTOR:
Office:
Phone:
E-mail:

• COURSE OVERVIEW & OBJECTIVES:
Principles of code and basic concepts in electrical theory, materials, methods, design and estimating are applied to electrical systems for buildings. This course will provide the student with a basic knowledge of building electrical systems and methods to install these systems and verify quality. The course will cover the principles of electrical codes and basic concepts in electrical theory, materials, methods, design and estimating as applied to electrical systems for buildings. Comprehension of electrical construction plans and specifications as well as installation exercises are emphasized through team project experiences, exercises in estimating electrical systems, field trips & reports. The emphasis will be on basic electrical & electronic system types, design, cost, and constructability. This course provides realistic design and construction experience with an electrical system design problem that gives students experience in how to plan, design and construct electrical systems using fundamental engineering and science principles.

• PREREQUISITE: CON 1001; AVS 2101

• TEXTBOOK:
Mechanical and Electrical Equipment for Buildings, 10th Edition; Ben Stein, John S. Reynolds, Walter T. Grondzik, Alison G. Kwok

Electrical Engineering for All Engineers, 2nd Edition; William H. Roadstrum, Dan H. Wolaver

• TOPICS COVERED:
1. Introduction to building electrical systems
2. Electrical Systems - Procedures, and Schedules
3. Principles of Electricity
4. Circuit Analysis
5. Electric wiring Design
6. Electrical Systems & Materials
7. Photovoltaic Systems
8. Lighting design
9. Digital signals
10. Communications systems
11. Microelectronics & computer systems
12. Machines & rotating machinery
13. Electrical Safety

• ASSIGNMENTS & GRADING:
6 Take-home assignments, 150 points each = 30% (900)
2 Oral team presentations, 100 points each = 10% (200)
5 Field Trip Reports, 50 points each = 10% (250)
Class Participation/Instructor Evaluation = 10% (200)
Final Exam and Term Project = 25% (450)
Total course points = 2000 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.
<table>
<thead>
<tr>
<th>DATE</th>
<th>SESSION</th>
<th>TOPIC &amp; TEXT CHAPTER</th>
<th>ASSIGNMENT</th>
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<tr>
<td></td>
<td>Session 1:</td>
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<td>Preface</td>
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<td>Assignment of Term Project</td>
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<td><strong>PART VII: ELECTRICITY</strong></td>
<td>Stein/Reynolds</td>
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<td>Session 3:</td>
<td>Circuit Analysis</td>
<td>Roadstrum</td>
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<td>Session 4:</td>
<td>Alternating-Current Circuit Analysis</td>
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<td>Alternating-Current Power &amp; Transients</td>
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<td><strong>PART I: DESIGN CONTEXT</strong></td>
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<td>Session 6:</td>
<td>Electric Wiring Design</td>
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<td>Session 9:</td>
<td>Field Trip: Installation of Electrical Systems</td>
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<td>Session 10:</td>
<td><strong>PART II: ILLUMINATION</strong></td>
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<td>Lighting Fundamentals</td>
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<td>Session 11:</td>
<td>Lighting Design Process</td>
<td>Chapter 13</td>
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<td>Day lighting Design</td>
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<td>Session 12:</td>
<td>Electric Lighting Design</td>
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<td>Electric Lighting Applications</td>
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<td>Session 13:</td>
<td>Photovoltaic Systems</td>
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<td>Session 14:</td>
<td>Field Trip: Installation of Lighting Systems</td>
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<td>Session 15:</td>
<td><strong>PART III: SIGNAL EQUIPMENT</strong></td>
<td>Chapter 30</td>
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<td>Session 16:</td>
<td><strong>PART IV: ELECTRONICS</strong></td>
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<td>Analog Signals and Instrumentation.</td>
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<td>Session 17:</td>
<td>Digital Signals and Logic</td>
<td>Roadstrum</td>
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<td>Session 18:</td>
<td>Feedback Control Systems</td>
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<tr>
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<td>Session 19:</td>
<td>Communications</td>
<td>Roadstrum</td>
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</tbody>
</table>
Session 20: Field Trip: Installation of Communications Systems
Session 21: Microcomputers Roadstrum
Session 22: Digital Integrated Circuits Roadstrum
Session 23: Transistors & Operational Amplifiers Roadstrum
Session 24: Field Trip: Installation of Computer Systems
Session 25: PART V: MACHINES AND POWER Roadstrum
            Plant Power Systems
Session 26: Transformers and Magnetics Roadstrum
Session 27: Motors & Rotating Machinery Roadstrum
Session 28: Field Trip: Plant Power Systems & Electrical Safety
Session 29: Term Project Presentations
Session 30: Course evaluation
Session 31: Final Exam
Florida Institute of Technology

ADDIMG A NEW COURSE TO THE CURRICULUM

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

SUBJECT CON COURSE NO. 4002 CREDIT HOURS 3 TERM TO BE ADDED TO THE FILE Fall 2008
Alpha Prefix (e.g., CSE) Number Choice (e.g., 1301) (e.g., Fall 2006)

CLASS HOURS 45 LECTURE HOURS 45 LAB HOURS CONTACT HOURS (CEU ONLY) 40 = 4 ceus

DEPARTMENT College of Engineering SCHEDULE TYPE Lecture
(e.g., Computer Sciences) (e.g., Lecture, Lab or Special Project)

☐ COLLEGE OF AERONAUTICS-23 ☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS-25
☐ COLLEGE OF BUSINESS-24 ☐ COLLEGE OF SCIENCE-26
☒ COLLEGE OF ENGINEERING-01 ☐ UNIVERSITY COLLEGE EXTENDED STUDIES-27

COMPUTER TITLE Restricted to 25 characters, including spaces Construction Equipment

CATALOG TITLE Construction Equipment and Safety

CATALOG DESCRIPTION OF COURSE Limited to 350 characters, including spaces
Provides the fundamentals of heavy machine use and production estimating for construction operations. Examines major construction machine types. Includes safety procedures. Requires site visits and a term project on estimating equipment operations.

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

RESTRICTIONS ☒ Prerequisite CON 2001 ☐ Corequisite Course Number
☐ Prerequisite Course Number ☐ Corequisite Course Number
☐ Prerequisite Course Number ☐ Corequisite Course Number

ADDITIONAL RESTRICTION (e.g., Major, Class Level, Department Head Approval)
If this course replaces a course currently offered in BANNER, please indicate old course information

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.

[Signatures and dates]

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

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RG-271-5060
INSTRUCTOR:
Office:
Phone:
E-mail:

• COURSE OVERVIEW & OBJECTIVES:
Course in intended to provide the student with the fundamentals of heavy machine utilization and production estimating for construction operations. All major construction machine types are examined in a logical, simple, and concise process which includes consideration of safety procedures. Classroom and text material is amplified by site visits to observe and analyze actual equipment operations. A term project provides students with actual experience in selecting, employing and estimating construction equipment. This course provides an understanding of machine capabilities and how to properly apply those capabilities to construction challenges.

• PREREQUISITE: CON 2001

• TEXTBOOK:

• TOPICS COVERED:
  1 Concepts of Equipment Economics
  2 Planning for Earthwork Construction
  3 Soil and Rock
  4 Compaction and Stabilization Equipment
  5 Machine Equipment Power Requirements
  6 Dozers
  7 Scrapers
  8 Excavators
  10 Trucks and Hauling Equipment
  11 Finishing Equipment
  12 Drilling Rock and Earth
  13 Blasting Rock
  14 Aggregate Production
  15 Asphalt Mix Production and Placement
  16 Concrete and Concrete Equipment
  17 Cranes
  18 Draglines and Clamshells
  19 Piles and Pile-Driving Equipment
  20 Air Compressors and Pumps
  21 Planning for Building Construction
  22 Forming Systems

• ASSIGNMENTS & GRADING:
  6 Take-home assignments, 100 points each = 30% (600)
  6 Construction Tour Reports, 50 points each = 15% (300)
  1 Guest Speaker Reports, 100 points each = 10% (200)
  1 Team Project Presentation, 400 points = 20% (400)
  Class Participation/Instructor Evaluation = 10% (200)
  Final Exam = 15% (300)
  Total course points = 2000 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.
<table>
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Dump Trucks
Effective Truck Size
Calculating Truck Production
Truck Performance Calculations

Session 12: Field Trip 2 – Earth Moving Finishing Equipment

Session 13: Compressed Air Equipment
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Energy to Compress Air
Effect of Altitude
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Cost of Compressed Air

Session 14: Drilling Rock & Earth
Rotary Drilling
Percussion Drilling
Selecting the Drilling Method
Rates of Drilling Rock
Drilling Production Rates
Drilling Costs

Session 15: Rock Blasting Equipment
Commercial Explosives
Blast Design
Material Handling
Seismic Effects
Safety

Session 16: Aggregate Production Equipment
Crushing Equipment
Feeders
Particle size ranges
Handling Aggregate Materials
Safety

Session 17: Asphalt Mix Production & Placement
Structure of Asphalt Pavements
Asphalt Plants & Operations
Reclaiming Asphalt
Paving Equipment
Compaction Equipment
Safety

Session 18: Field Trip 3 – Rock Drilling & Aggregate Production Equipment

Session 19: Concrete Equipment
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Mixing & Placing Concrete
Finishing Concrete
Forming Operations & Materials
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This course is available for student registration only after the approval process has been completed.

COURSE NO. 4003  CREDIT HOURS 3  TERM TO BE ADDED TO THE FILE Fall 2008

DEPARTMENT College of Engineering
SCHEDULE TYPE Lecture (A)

□ COLLEGE OF AERONAUTICS–23  □ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS–25
□ COLLEGE OF BUSINESS–24  □ COLLEGE OF SCIENCE–26
□ COLLEGE OF ENGINEERING–01  □ UNIVERSITY COLLEGE EXTENDED STUDIES–27

COMPUTER TITLE Restricted to 25 characters, including spaces  Construction Estimating

CATALOG TITLE  Construction Estimating, Bidding & Value Engineering

CATALOG DESCRIPTION OF COURSE Limited to 350 characters, including spaces
This course will cover the basic construction contracts, construction business methods, bidding, construction insurance, and value engineering. This course includes cost principles and value analysis of construction projects, classification of work, quantity take-offs, construction operations cost, and bidding operations and time value of money.

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

RESTRICTIONS  □ Prerequisite BUS 2703  □ Corequisite  
Course Number  Course Number

□ Prerequisite CVE 4000  □ Corequisite  
Course Number  Course Number

□ Prerequisite CVE 2001  □ Corequisite  
Course Number  Course Number

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

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

If this course replaces a course currently offered in BANNER, please indicate old course information.

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:  Date:  Chair, Graduate Council  Date:

Department Chair/Program Chair:  Date:  Chair, Undergraduate Curriculum Committee  Date:

DEAN OR ASSOCIATE DEAN  Date:

CATALOG DIRECTOR

These changes/additions have been made for the University/Extended Studies Catalog and entered into the BANNER term named above.

Catalog Director  Date:

REGISTRAR’S USE ONLY
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Operator Init  Date
CON 4003
CM-II: Bidding, Estimating & Value Engineering
Student Syllabus & Assignments

INSTRUCTOR:
Office:
Phone:
E-mail:

• COURSE OVERVIEW & OBJECTIVES:
The second in a series of four courses on Construction Management, this course will cover the basics of construction contracts, construction business methods, bidding, construction insurance, and value engineering. This course will present an introduction to cost principles and cost analysis of construction projects, including classification of work, quantity survey techniques, construction operations cost, and the preparation of bid proposals.

The first part of this course will introduce the student to the process of construction contracting including an overview of drawings & specifications and the entire estimating and bidding process. Estimating requires a detailed understanding of the project plans, specifications, site conditions, and the economic environment. Estimating consists of building the job on paper, including an evaluation of construction methods, an analysis of work sequences, the selection of construction equipment, evaluating labor productivity, and assigning prices to all elements: materials, labor, equipment, and general expenses. Also covered will be the associated costs of running a construction company.

Value engineering principles and methodology consider the means and methods to achieve optimum construction and operations costs through the building construction process. This includes a review of the original design, contract and construction methodology and the principles of engineering economic analysis and marketing concepts as applied to the design and construction of buildings.

• PREREQUISITE: BUS 2703; CVE 4000

• TEXTBOOK(s):
Estimating Construction Costs; Peurifoy & Oberlender, John Wiley & Sons
The Building Estimators Reference Book, Frank R. Walker, Co.
RS Means, Estimating Building Costs
The Economics of Building, Robert E. Johnson, John Wiley & Sons, Inc.

• TOPICS COVERED:
  1. Construction Contracts.
  2. Drawings and Specifications.
  5. Construction Insurance.
  7. Project Management and Administration.
  9. Value Engineering Principles & Methods
• ASSIGNMENTS & GRADING:
6 Take-home assignments, 150 points each = 30% (900)
2 Chapter presentations, 100 points each = 10% (200)
4 Guest Speaker Reports, 50 points each = 10% (200)
Class Participation/Instructor Evaluation = 10% (200)
Final Exam & Term Project = 25% (500)
Total course points = 2000 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.
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</table>
|      | Session 1: | Course introduction  
Assignment of student projects & homework |            |
|      | Session 2: | Introduction to contract documents  
Construction contracts  
Drawings and specifications  
Project delivery methods  
**Guest Lecture-1: Construction Constructs** |            |
|      | Session 3: | Business ownership, company organization  
Role and responsibilities of industry participants |            |
|      | Session 4: | Contract surety bonds  
Construction insurance  
Business methods  
**Guest Lecture-2: Running a Construction Business** |            |
|      | Session 5: | Cost estimating and bidding  
Project time management  
Project cost management |            |
|      | Session 6: | Building codes, safety, labor relations and laws, union and non-union work |            |
|      | Session 7: | Project set up/site work  
Quantity survey and extensions |            |
|      | Session 8: | Estimating Concrete and Masonry |            |
|      | Session 9: | Metals and Steel |            |
|      | Session 10: | Carpentry/thermal and moisture protection |            |
|      | Session 11: | Plumbing systems |            |
|      | Session 12: | Heating/ventilation/air conditioning systems |            |
|      | Session 13: | Electrical systems |            |
|      | Session 14: | Windows and doors/finishes |            |
|      | Session 15: | Special construction/conveying systems  
**Guest Lecture-3: Realities of Construction Bidding** |            |
<p>|      | Session 16: | Development of a construction bid |            |
|      | Session 17: | Contingencies, Project Overhead &amp; Profit |            |
|      | Session 18: | Types of Bids &amp; Submission of Proposals |            |
|      | Session 19: | Composition of Bid Documents |            |</p>
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<td>Session 23:</td>
<td>Guest Lecture-4: The Concepts of value, worth, cost, &amp; function</td>
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<td>Session 25:</td>
<td>Analysis of construction methodology The time value of money, cash flow, cost control Cash flow analysis, project balance</td>
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<td>Session 26:</td>
<td>Cost data and indexes, project selection Trade-off game, break-even analysis Utility theory, portfolio theory</td>
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<td>Session 27:</td>
<td>Capital planning and budgeting Elements of capital budgets &amp; budgeting decisions Real estate feasibility fundamentals Setting the building budget</td>
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<td>Session 28:</td>
<td>Life-cycle costing, definitions Uses of life-cycle cost analysis Process of life-cycle cost analysis</td>
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<td>Session 29:</td>
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This course is available for student registration only after the approval process has been completed.

SUBJECT CON COURSE NO. 4004 CREDIT HOURS 3 TERM TO BE ADDED TO THE FILE Fall 2008
Alpha Prefix (e.g., CSE) Number Choice (e.g., 1301) (e.g., Fall 2008)

CLASS HOURS 45 LECTURE HOURS 45 LAB HOURS 0 CONTACT HOURS (CEU ONLY) 

DEPARTMENT College of Engineering SCHEDULE TYPE Lecture
(e.g., Computer Sciences) (e.g., Lecture, Lab or Special Project)

☐ COLLEGE OF AERONAUTICS–23 ☐ COLLEGE OF PSYCHOLOGY AND LIBERAL ARTS–25
☐ COLLEGE OF BUSINESS–24 ☐ COLLEGE OF SCIENCE–26
☒ COLLEGE OF ENGINEERING–01 ☐ UNIVERSITY COLLEGE EXTENDED STUDIES–27

COMPUTER TITLE Restricted to 25 characters, including spaces Construction Capstone

CATALOG TITLE Construction Senior Capstone Project

CATALOG DESCRIPTION OF COURSE Limited to 350 characters, including spaces

As a senior level construction project, this class will include development, analysis and feasibility study, project development, and preparation of bidding and construction documentation for a semester team project. This course will integrate the concepts and principles of construction management into a team exercise in construction operations.

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

RESTRICTIONS ☒ Prerequisite senior standing ☐ Corequisite Course Number
☐ Prerequisite Course Number ☐ Corequisite Course Number
☐ Prerequisite Course Number ☐ 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 (e.g., Major, Class Level, Department Head Approval)

If this course replaces a course currently offered in BANNER, please indicate old course information

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.

Original Date

Chair, Graduate Council Date

Department Head/Program Chair

Dean or Associate Dean Date

Chair, Undergraduate Curriculum Committee Date

CATALOG DIRECTOR

These changes/additions have been made for the University/Extended Studies Catalog and entered into the BANNER term named above.

Catalog Director Date

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RG-271-506
CON 4004
CM-IV: Construction Capstone
Syllabus & Student Assignments

INSTRUCTOR:
Office:
Phone:
E-mail:

• COURSE OVERVIEW & OBJECTIVES:
The fourth in a series of four courses on Construction Management, this course is a senior level construction project experience. The class will include project selection, profitability analysis and feasibility study, project development, preparation of bidding and construction documentation and a project management plan for construction operations. This course will integrate the concepts and principles of construction management into a team exercise which demonstrates and sharpens the students’ knowledge of construction operations.

• PREREQUISITE: senior standing

• TEXTBOOK: none

• TOPICS COVERED:

  Part I: Development Analysis and Feasibility Study:
    Identifying client needs and investigating potential projects
    Discussions with public agencies; consideration of codes & construction environment
    Financial feasibility analyses
    Initial consultants such as GeoTechnical Engineer, Civil Engineer, and Architect
    Initial project schedule & profit analysis

  Part II: Project Development: Financing, Preconstruction Construction Financing
    Working agreements (contracts) with architects, engineers, and other consultants
    Final development budget
    Sub-contractor selection process, sub-contractor bids, composite cost estimate
    Final construction cost estimate & bid
    Project payables and receivable accounting system
    Project schedule and final working schedule
    Submission of construction bid

  Part III: Construction
    Construction project management plan
    Construction cost tracking system
    On-site observation
    Construction strategy, phasing, and final scheduling
    Purchase and installation of owner furnished items

• ASSIGNMENTS & GRADING:
  6 Take-home assignments, 150 points each = 30% (900)
  2 Chapter presentations, 100 points each = 10% (200)
  4 Guest Speaker Reports, 50 points each = 10% (200)
  Class Participation/Instructor Evaluation = 10% (200)
  Final = Term Project = 25% (500)
  Total course points = 2000 points

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  A 90-100%
  B 80-89%
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<td>Initial consultants such as GeoTechnical Engineer, Civil Engineer, and Architect</td>
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<td>Session 7:</td>
<td>Team work session</td>
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<td>Session 8:</td>
<td>Report on Initial project schedule &amp; profit analysis</td>
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<td>Session 9:</td>
<td>Working agreements (contracts) with architects, engineers, and other consultants</td>
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<td>Session 10:</td>
<td>Sub-contractor selection process, sub-contractor bids, composite cost estimate</td>
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<td>Session 11:</td>
<td>Final construction cost estimate</td>
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<td>Session 12:</td>
<td>Final bid documents</td>
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<td></td>
<td>Session 13:</td>
<td>Project schedule and final working schedule</td>
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<td>Session 14:</td>
<td>Submission of construction bid</td>
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<td>Session 15:</td>
<td>Construction project management plan</td>
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<td>Session 16:</td>
<td>Construction cost tracking system</td>
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<td>Session 17:</td>
<td>On-site observation &amp; management plan</td>
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<td>Session 18:</td>
<td>Construction purchasing strategy &amp; phasing plan</td>
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<td>Session 19:</td>
<td>Team work session</td>
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<td>Session 20:</td>
<td>Purchase and installation of owner furnished items</td>
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<td>Session 21:</td>
<td>Team work session</td>
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<td>Session 22:</td>
<td>Preparation of construction layout and site management plan</td>
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<td>Session 23:</td>
<td>Team work session</td>
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<td>Session 24:</td>
<td>Development of construction quality management plan</td>
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<td>Session 25:</td>
<td>Team presentation – professional issues in construction</td>
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<td>Session 26:</td>
<td>Team presentation – ethical issues in construction</td>
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<td>Session 27:</td>
<td>Team work session and rehearsal for presentation</td>
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<td>Session 28:</td>
<td>Team Project Presentations</td>
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<td>Session 29:</td>
<td>Course review &amp; critique of project presentations</td>
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<td>Session 30:</td>
<td>Course evaluation</td>
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<td>Session 31:</td>
<td>Final Exam</td>
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