

FLORIDA STATE COLLEGE AT JACKSONVILLE

COLLEGE CREDIT COURSE OUTLINE

COURSE NUMBER:	ETD 2542
COURSE TITLE:	Structural Drafting
PREREQUISITE(S):	CGS 2470
COREQUISITE(S):	None
CREDIT HOURS:	3
CONTACT HOURS/WEEK:	4
CONTACT HOUR BREAKDOWN:	
Lecture/Discussion:	2
Laboratory:	2
Other _____:	
FACULTY WORKLOAD POINTS:	3
STANDARDIZED CLASS SIZE ALLOCATION:	25
CATALOG COURSE DESCRIPTION:	
<p>This course is a study of the required steel and concrete plans for buildings and the preparation of the shop details from those plans. Given the structural design of a building, the student prepares both the structural plan and the shop details necessary for the fabrication of the structural members.</p>	
SUGGESTED TEXT(S):	<p>Weaver, Gerald L. <u>Structural Detailing for Technicians</u>, McGraw-Hill Book Company. 1974.</p> <p><u>Fundamentals of Civil Engineering Graphics</u>, Ketzner and Rights Stipes Publishing</p>
IMPLEMENTATION DATE:	Fall Term, 1983 (841)
REVIEW OR MODIFICATION DATE:	<p>Fall Term, 2002 (20031) Fall Term, 2006 (20061) Fall Term, 2008 (20091) - Outline Review 2007</p>

COURSE TOPICS

Rationale: This course covers the various types of plans and detailed drawings which are necessary in the development of structural steel and concrete construction. The methods and symbols which are studied are AISC standards and ACI standards which are used in architectural engineering.

Intent: The intent is to develop an understanding of steel and concrete shop drawing necessary for the fabrication of the structural members.

CONTACT HOURS
PER TOPIC

Suggested Distribution:

I. Structural Steel		30
A. Structural Steel Shapes	(4)	
B. Types of Steel Drawings	(4)	
C. Detailing Structural Steel	(4)	
1. Terms		
2. Rivets and Bolts		
3. AISC Standards		
4. Dimensioning		
5. Marking		
D. Framed Connector Design	(4)	
E. Seated Connector Design	(4)	
F. Base Plate Design	(5)	
G. Column Detail Drawings	(5)	
H. Trusses		
1. Types		
2. Terms		
3. Design Drawings		
4. Shop Drawings		
II. Structural Concrete		30
A. Concrete	(15)	
1. Stresses		
2. Bars		
3. Spacing Bars		
4. Footing		
5. Foundation Walls		
B. Concrete Drawings	(15)	
1. Layout		
2. Engineering Drawings		
3. Placing Drawing		
4. Symbols		
5. Marks		
6. Schedules		
7. Bar Supports		
8. Bar List		

COURSE SYLLABUS (continued)

SUGGESTED DISTRIBUTION

- C. Foundation Drawings
- D. Two-way Slab Drawings
- E. Beam Placement Drawings

PROGRAM TITLE: Architectural Design and Construction Technology

COURSE TITLE: Structural Drafting

CIP NUMBER: 1615010100

LIST PERFORMANCE STANDARDS ADDRESSED:

- | NUMBER(S) | TITLES(S): |
|-----------|---------------------------------------------------------------------------------------------------------------------------|
| 01.0 | <u>COMMUNICATE EFFECTIVELY</u> - The student will be able to: |
| 01.01 | Identify communication channels in organizations. |
| 01.02 | Develop and use effective means of communications. |
| 01.03 | Develop an effective working relationship with others. |
| 01.04 | Prepare business correspondence, memos, and reports. |
| 01.05 | Compose clear and concise oral and written technical reports and presentations. |
| 01.06 | Participate in technical discussion and meetings. |
| 02.0 | <u>IDENTIFY, SELECT, APPLY, AND MAINTAIN DRAFTING AND GRAPHIC MATERIALS, AND EQUIPMENT</u> - The student will be able to: |
| 02.02 | Use architectural and engineering scales. |
| 02.03 | Identify and select drawing materials. |
| 02.07 | Identify and select reproduction materials. |
| 02.08 | Identify, operate, and maintain reproduction equipment. |
| 02.09 | Select and apply architectural and engineering curves and templates. |
| 02.16 | Operate calculators. |
| 02.18 | Identify and apply metric system. |
| 03.0 | <u>IDENTIFY CONSTRUCTION MATERIALS AND THEIR APPLICATION</u> - The student will be able to: |
| 03.01 | Identify formwork materials and methods. |
| 03.02 | Identify concrete materials and applications. |
| 03.03 | Identify reinforcing steel and applications. |
| 03.04 | Identify structural steel shapes and applications. |
| 03.05 | Identify waterproofing materials and vapor barriers and applications. |
| 03.06 | Identify wood construction materials and applications. |
| 03.07 | Identify masonry materials and applications. |
| 03.08 | Identify exterior finishes and applications. |
| 03.09 | Identify insulation materials and applications. |
| 03.10 | Identify glass and glazing materials and applications. |
| 03.11 | Identify roofing materials and applications. |
| 03.12 | Identify flashings and applications. |
| 03.13 | Identify adhesives and sealants and applications. |
| 03.14 | Identify floor finish materials and applications. |
| 03.15 | Identify wall finish materials and applications. |
| 03.16 | Identify ceiling finish materials and applications. |
| 03.17 | Identify plastic materials and applications. |
| 03.18 | Identify miscellaneous metals and applications. |
| 03.19 | Identify millwork and applications. |

03.20 Identify finish hardware and applications.

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LIST PERFORMANCE STANDARDS ADDRESSED: (Continued)

NUMBER(S):

TITLES(S):

- 03.21 Identify manufactured specialties and applications.
- 03.22 Identify basic electrical components.
- 03.23 Identify basic H V A C components.
- 03.24 Identify basic plumbing components.
- 03.25 Identify paving materials and applications.
- 03.26 Identify fire proofing materials and applications.
- 03.27 Identify applications of pre-engineered and prefabricated structures.

04.0 INTERPRET DRAWINGS AND DOCUMENTS - The student will be able to:

- 04.01 Interpret technical symbols.
- 04.02 Interpret topographical drawings.
- 04.03 Interpret aerial photographs and maps.
- 04.04 Interpret site drawings.
- 04.05 Interpret architectural drawings.
- 04.06 Interpret specifications.
- 04.07 Interpret addendums.
- 04.08 Interpret notice of change and change orders.
- 04.09 Interpret shop drawings.
- 04.10 Interpret structural drawings.
- 04.11 Interpret mechanical drawings.
- 04.12 Interpret electrical drawings.
- 04.13 Interpret modular approach to buildings.
- 04.14 Identify and interpret contracts.
- 04.15 Identify and interpret liens.
- 04.16 Interpret deeds.
- 04.17 Interpret master and development plans and documents

05.0 INTERPRET AND APPLY BASIC PRINCIPLES OF ARCHITECTURAL AND ENGINEERING DESIGN -

- The student will be able to:

- 05.01 Conduct and interpret concrete slump test.
- 05.02 Take test cylinder and interpret results.
- 05.03 Interpret soil analysis reports.
- 05.04 Interpret compaction test reports.
- 05.05 Interpret theory of loads.
- 05.06 Determine effect of loads on materials.
- 05.07 Interpret principles of expansion and contraction and control
- 05.08 Interpret and apply fundamentals of site requirements.
- 05.09 Determine and apply space relationships.

07.0 PRODUCE ARCHITECTURAL WORKING DRAWINGS - The student will be able to:

- 07.01 Prepare floor plan drawings.
- 07.02 Prepare foundation plan and detail drawings.
- 07.03 Prepare elevation drawings.
- 07.04 Prepare landscape layouts.
- 07.05 Prepare schedules.

LIST PERFORMANCE STANDARDS ADDRESSED: (Continued)

NUMBER(S): TITLES(S):

- 07.07 Build architectural models.
- 07.08 Prepare truss drawings.
- 07.09 Prepare stairway drawings.
- 07.10 Prepare fireplace drawings.

08.0 PRODUCE STRUCTURAL DRAWINGS IN STEEL AND CONCRETE - The student will be able to:

- 08.01 Draw beam connections.
- 08.02 Draw structural assemblies.
- 08.03 Prepare erection plans.
- 08.04 Prepare structural drawings.
- 08.05 Make take-offs from reinforced concrete engineering drawings.
- 08.06 Prepare footing and foundation drawings.
- 08.07 Prepare column detail drawings. 08.08 Prepare floor and roof detail drawings.
- 08.09 Prepare special structure detail drawings.
- 08.10 Prepare framed beam connection drawings.
- 08.11 Prepare stiffened seat connection drawings.
- 08.12 Prepare bolted column detail drawings.
- 08.13 Prepare gusset plate drawings.

13.0 DEMONSTRATE APPROPRIATE COMMUNICATION SKILLS - The student will be able to:

- 13.01 Write logical and understandable statements, or phrases, to accurately fill out forms/invoices commonly used in business and industry.
- 13.02 Read and understand graphs, charts, diagrams, and tables commonly used in this industry/occupation area.
- 13.03 Read and follow written and oral instructions.
- 13.04 Answer and ask questions coherently and concisely.
- 13.05 Read critically by recognizing assumptions and implications and by evaluating ideas.
- 13.06 Demonstrate appropriate telephone/communication skills.

14.0 DEMONSTRATE APPROPRIATE MATH SKILLS - The student will be able to:

- 14.01 Solve problems for volume, weight, area, circumference and perimeter measurements for rectangles, squares, and cylinders.
- 14.02 Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, feet and inches.
- 14.03 Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
- 14.04 Determine the correct purchase price, to include sales tax for a materials list containing a minimum of six items.
- 14.05 Demonstrate an understanding of federal, state and local taxes and their computation.

16.0 DEMONSTRATE EMPLOYABILITY SKILLS - The student will be able to

- 16.01 Conduct a job search.
- 16.02 Secure information about a job.
- 16.03 Identify documents which may be required when applying for a job interview.
- 16.04 Complete a job application form correctly.
- 16.05 Demonstrate competence in job interview techniques.

LIST PERFORMANCE STANDARDS ADDRESSED: (Continued)

NUMBER(S): TITLES(S):

- 16.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor or other employees.
- 16.07 Identify acceptable work habits.
- 16.08 Demonstrate knowledge of how to make job changes appropriately.



NOTE: Use either the Tab key or mouse click to move from field to field. The box will expand to accommodate your entry.

<i>Section 1</i> COURSE PREFIX AND NUMBER: ETD 2542	SEMESTER CREDIT HOURS: 3
COURSE TITLE: Structural Drafting	

Section 2
 TYPE OF COURSE: (Click on the box to check all that apply)

<input type="checkbox"/> AA Elective	<input type="checkbox"/> AS Required Professional Course	<input type="checkbox"/> College Prep
<input checked="" type="checkbox"/> AS Professional Elective	<input type="checkbox"/> AAS Required Professional Course	<input type="checkbox"/> Technical Certificate
<input type="checkbox"/> Other _____		
<input type="checkbox"/> General Education: (For General Education courses, you must also complete Section 3 and Section 7)		

Section 3 (If applicable)
 INDICATE BELOW THE DISCIPLINE AREA FOR GENERAL EDUCATION COURSES:

<input type="checkbox"/> Communications	<input type="checkbox"/> Social & Behavioral Sciences	<input type="checkbox"/> Mathematics
<input type="checkbox"/> Natural Sciences	<input type="checkbox"/> Humanities	

Section 4
 INTELLECTUAL COMPETENCIES:

<input checked="" type="checkbox"/> Reading	<input checked="" type="checkbox"/> Speaking	<input checked="" type="checkbox"/> Critical Analysis	<input checked="" type="checkbox"/> Quantitative Skills	<input checked="" type="checkbox"/> Scientific Method of Inquiry
<input checked="" type="checkbox"/> Writing	<input checked="" type="checkbox"/> Listening	<input type="checkbox"/> Information Literacy	<input type="checkbox"/> Ethical Judgment	<input checked="" type="checkbox"/> Working Collaboratively

	LEARNING OUTCOMES	METHOD OF ASSESSMENT
•	detailing structural steel members for buildings	drafting projects
•	design of connectors for structural steel members	lecture
•	design steel columns for structural steel buildings	laboratory projects
•	detailing reinforced concrete structures for buildings	drafting projects
•	design reinforcement steel for concrete structures	drafting projects
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Section 6
 Name of Person Completing This Form: Martin Johnson Date: 09/14/05