

## FLORIDA STATE COLLEGE AT JACKSONVILLE

## COLLEGE CREDIT COURSE OUTLINE

COURSE NUMBER:	EST 2527
COURSE TITLE:	Electromechanical Components and Mechanism
PREREQUISITE(S):	None
COREQUISITE(S):	None
CREDIT HOURS:	3
CONTACT HOURS/WEEK:	4
CONTACT HOUR BREAKDOWN:	
Lecture/Discussion:	3
Laboratory:	1
Other _____:	
FACULTY WORKLOAD POINTS:	3.67
STANDARDIZED CLASS SIZE ALLOCATION:	24
CATALOG COURSE DESCRIPTION:	
This course covers gears and gearboxes, belts and pulleys, chains and sprockets, alignments and measures found in the industrial environment.	
SUGGESTED TEXT(S):	None
IMPLEMENTATION DATE:	Fall Term 2006 (20071)
REVIEW OR MODIFICATION DATE:	Fall Term, 2009 (20101) - Proposal 2009-11

COURSE TOPICS	CONTACT HOURS <u>PER TOPIC</u>
I. <i>Gears and Gearboxes</i>	8
II. <i>Belts and Pulleys</i>	10
III. <i>Chains and Sprockets</i>	5
IV. <i>Symbols and Diagrams</i>	5
V. <i>Alignments and Measures</i>	10
VI. <i>Applicable Practical Exercises</i>	10
VII. <i>Hands-on testing</i>	8
VIII. <i>Written Testing</i>	4

PROGRAM TITLE: Engineering Technology

Specialization Tract: Advanced Manufacturing

COURSE TITLE: Electromechanical Components and Mechanism

CIP NUMBER: 1615.061300 AS

LIST PERFORMANCE STANDARD ADDRESSED:

NUMBER(S):            TITLES(S):

OPERATE, TROUBLESHOOT, AND MAINTAIN PNEUMATIC, HYDRAULIC AND ELECTROMECHANICAL COMPONENTS AND/OR SYSTEMS - The student will be able to:

- 12.01 Identify, classify and describe the function of pneumatic, hydraulic and electrical machines and components.
- 12.02 Construct flow diagrams and of pneumatic, hydraulic, and electromechanical systems.
- 12.03 Perform basic operation maintenance of pneumatic, hydraulic and electromechanical components, devices and/or machines.
- 12.04 Troubleshoot errors, faults, and inconsistencies of pneumatic, hydraulic and electromechanical components, machines and/or systems.
- 12.05 Define special applications of electromechanical, hydraulic and pneumatic machines and devices used process sheet metal, plastics, food and beverages, and other materials.
- 12.06 Describe important limitations of electromechanical, pneumatic and hydraulic machinery.
- 12.07 Operate independent pneumatic, hydraulic and electrical machines properly.
- 12.08 Describe the important operating parameters of pneumatic, hydraulic and electrical machines and/systems.
- 12.09 Identify and use appropriate monitoring gages for pneumatic, hydraulic, and electromechanical machines and/or systems.

13.0 IDENTIFY AND IMPLEMENT LEAN CONCEPTS IN MANUFACTURING ENVIRONMENTS - The student will be able to:

- 13.01 Demonstrate product manufacturing requirements and processing flow.
- 13.02 Demonstrate the role of management in production operations.
- 13.03 Integrate personnel, hardware, and software capabilities for timely completion of products and product orders.
- 13.04 Apply manufacturing resources planning, just-in-time concepts to production and process planning.
- 13.05 Demonstrate good examples of lean manufacturing principles of pull production, perfect first-time quality, waste minimization, continuous improvement, flexibility, and building long lasting relationships with suppliers and customers.
- 13.06 Implement minimization of wastes in the form of waiting time, inventory, processing, motion, over-production, transportation, and scrap.
- 13.07 Apply the 5S's: Sort, Set in Order, Shine, Standardize, and Sustain.
- 13.08 Apply six sigma criteria correctly.

LIST PERFORMANCE STANDARD ADDRESSED: (Continued)

NUMBER(S):            TITLES(S):

5.0 TROUBLESHOOT INDUSTRIAL AUTOMATION SYSTEMS - The student will be able to:

- 15.01 Apply troubleshooting techniques to identify root cause, errors and faults of a problem.
- 15.02 Isolate systems for troubleshooting.
- 15.03 Develop a strategy for making system improvements based on troubleshooting activities.
- 15.04 Identify needed expertise to address the issue.
- 15.05 Participate in troubleshooting and resolution team effectively.



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

Section 1	
COURSE PREFIX AND NUMBER: <b>EST 2527</b>	SEMESTER CREDIT HOURS: <b>3</b>
COURSE TITLE: <b>Electromechanical Componets and Mechanism</b>	

Section 2

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

**AA Elective**                       **AS Required Professional Course**                       **College Prep**  
 **AS Professional Elective**                       **AAS Required Professional Course**                       **Technical Certificate**  
 **Other** \_\_\_\_\_  
 **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:

**Communications**                       **Social & Behavioral Sciences**                       **Mathematics**  
 **Natural Sciences**                       **Humanities**

Section 4

INTELLECTUAL COMPETENCIES:

**Reading**     **Speaking**     **Critical Analysis**     **Quantitative Skills**                       **Scientific Method of Inquiry**  
 **Writing**     **Listening**     **Information Literacy**                       **Ethical Judgment**                       **Working Collaboratively**

Section 5		
	LEARNING OUTCOMES	METHOD OF ASSESSMENT
•	A student will be able to apply the basic principles relating to gears and gearboxes in the manufacturing environment.	Hands-on exercises, written quizzes or tests.
•	A student will be able to apply the basic principles relating to belts and pulleys in the manufacturing environment.	Hands-on exercises, written quizzes or tests.
•	A student will be able to apply the basic principles relating to symbols and diagrams in the manufacturing environment.	Hands-on exercises, written quizzes or tests.
•	A student will be able to apply the basic principles relating to alignments and measurements in the manufacturing environment.	Hands-on exercises, written quizzes or tests.

Section 6 Name of Person Completing This Form: Darrell J. High Date: 05/07/2008