

## FLORIDA STATE COLLEGE AT JACKSONVILLE

## COLLEGE CREDIT COURSE OUTLINE

COURSE NUMBER: ETM 2317

COURSE TITLE: Drive and Pump Systems

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:

Fluid mechanics and machine design studied in detail using basic load theories with various component support systems.

SUGGESTED TEXT(S): None

IMPLEMENTATION DATE: Fall Term, 2008 (20091)

REVIEW OR MODIFICATION DATE: Summer Term, 2008 (20083)  
Fall Term, 2009 (20101) - Proposal 2009-11

## COURSE TOPICS

CONTACT HOURS  
PER TOPIC

I.	Pump Principles	10
II.	Pump Maintenance	10
III.	Valve Principles	10
IV.	Valve Maintenance	10
V.	Heat Exchangers	10
VI.	Hands-on testing	6
VII.	Written Testing	4

PROGRAM TITLE: Engineering Technology

Specialization Tract: Advanced Manufacturing

COURSE TITLE: Drive and Pump Systems

CIP NUMBER: 1615.061300 AS

LIST PERFORMANCE STANDARD ADDRESSED:

NUMBER(S): TITLES(S):

12.0 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):

15.0 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>ETM 2317</b>		SEMESTER CREDIT HOURS: <b>3</b>
COURSE TITLE: <b>Drive and Pump Systems</b>		
Section 2		
TYPE OF COURSE: (Click on the box to check all that apply)		
<input type="checkbox"/> <b>AA Elective</b>	<input type="checkbox"/> <b>AS Required Professional Course</b>	<input type="checkbox"/> <b>College Prep</b>
<input checked="" type="checkbox"/> <b>AS Professional Elective</b>	<input type="checkbox"/> <b>AAS Required Professional Course</b>	<input type="checkbox"/> <b>Technical Certificate</b>
<input type="checkbox"/> <b>Other _____</b>		
<input type="checkbox"/> <b>General Education: (For General Education courses, you must also complete Section 3 and Section 7)</b>		
Section 3 (If applicable)		
INDICATE BELOW THE DISCIPLINE AREA FOR GENERAL EDUCATION COURSES:		
<input type="checkbox"/> <b>Communications</b>	<input type="checkbox"/> <b>Social &amp; Behavioral Sciences</b>	<input type="checkbox"/> <b>Mathematics</b>
<input type="checkbox"/> <b>Natural Sciences</b>	<input type="checkbox"/> <b>Humanities</b>	
Section 4		
INTELLECTUAL COMPETENCIES:		
<input checked="" type="checkbox"/> <b>Reading</b>	<input type="checkbox"/> <b>Speaking</b>	<input checked="" type="checkbox"/> <b>Critical Analysis</b>
<input checked="" type="checkbox"/> <b>Writing</b>	<input checked="" type="checkbox"/> <b>Listening</b>	<input type="checkbox"/> <b>Information Literacy</b>
		<input type="checkbox"/> <b>Quantitative Skills</b>
		<input type="checkbox"/> <b>Ethical Judgment</b>
		<input type="checkbox"/> <b>Scientific Method of Inquiry</b>
		<input checked="" type="checkbox"/> <b>Working Collaboratively</b>
<b>Section 5</b>		
	<b>LEARNING OUTCOMES</b>	<b>METHOD OF ASSESSMENT</b>
•	A student will be able to apply the basic concepts relating to pump principles in the manufacturing environment.	Hands-on exercises, written quizzes or tests.
•	A student will be able to apply the basic principles relating to pump maintenance in the manufacturing environment.	Hands-on exercises, written quizzes or tests.
•	A student will be able to apply the basic concepts relating to valve principles in the manufacturing environment.	Hands-on exercises, written quizzes or tests.
•	A student will be able to apply the basic principles relating to valve maintenance in the manufacturing environment.	Hands-on exercises, written quizzes or tests.
•	A student will be able to apply the basic concepts relating to heat exchangers in the manufacturing environment.	Hands-on exercises, written quizzes or tests.
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Section 6		
Name of Person Completing This Form: <u>Darrell J. High</u>		Date: <u>05/07/2008</u>