

FLORIDA STATE COLLEGE AT JACKSONVILLE

COLLEGE CREDIT COURSE OUTLINE

COURSE NUMBER: ETI 2426

COURSE TITLE: Rolling

PREREQUISITE(S): None

COREQUISITE(S): None

CREDIT HOURS: 3

CONTACT HOURS/WEEK: 3

CONTACT HOUR BREAKDOWN:

Lecture/Discussion: 3

Laboratory:

Other:

FACULTY WORKLOAD POINTS: 3

STANDARDIZED CLASS SIZE
ALLOCATION: 30

CATALOG COURSE DESCRIPTION:

This course focuses on the current state-of-the-art processes associated with hot-rolled bar products. Students in this course will develop an in-depth understanding of the structure of solid steel, metallurgical properties of steel products, thermo-mechanical effects of the hot-roll process, and origins of defects in hot-rolled bars. Prior to completing this course each student will actively participate in all phases of the rolling mill process. Enrollment in this course is restricted to AmeriSteel Corporation employees only.

SUGGESTED TEXT(S): The Making Shaping and Treating of Steel, 10th Edition,
Published by AISE

IMPLEMENTATION DATE: Fall Term, 2000 (20011)

REVIEW OR MODIFICATION DATE: Fall Term, 2002 (20031)
Fall Term, 2006 (20071) (was ETI 2159)

COURSE TOPICS	CONTACT HOURS <u>PER TOPIC</u>
I. Introduction	1
A. History	
B. Course outline	
II. Environmental considerations	3
A. Contact water systems	
B. Disposal of lubricants and oils	
C. Scale	
D. Reheat furnace emissions	
E. Lab	
III. Plastic working of steel	4
A. Nature of plasticity	
B. General principles of metal working	
C. Thermo-mechanical treatment	
IV. Construction & operation of rolling mills	20
A. Types of mills	
B. Rolling mill accessories	
C. Roll design and manufacture	
D. Mill drives and power requirements	
E. Rolling mill control systems	
F. Lab	
V. Heating of steel	7
A. Principles of furnace design	
B. Billet reheating furnaces	
C. Lab	
VI. Rolling processes	7
A. Flat products	
(1) Steel plates	
(2) Hot strip	
(3) Cold finished flat-rolled	
B. Long products	
(1) Structural shapes	
(2) Bar	
(3) Wire rod	
(4) Tubular	

COURSE TOPICS (Continued)

CONTACT HOURS
PER TOPIC

VII. Industry trends and direction

3

A. New technologies

B. Increases in efficiency

C. Global output and demands

PROGRAM TITLE: Industrial Management Technology (Steel Mill)

COURSE TITLE: Rolling

CIP NUMBER:

LIST PERFORMANCE STANDARD ADDRESSED:

NUMBER(S): TITLE(S):

11.0 DEMONSTRATE APPROPRIATE UNDERSTANDING OF BASIC SCIENCE - - The student will be able to:

11.01 Understand molecular action as a result of temperature extremes, chemical reaction, and moisture content.

11.02 Draw conclusions or make inferences from data.

18.0 DEMONSTRATE AN UNDERSTANDING OF TECHNICAL OR INDUSTRIAL COMPETENCIES - - The student will be able to:

18.01 Demonstrate an understanding of technical or industrial competencies as specified in the curriculum frameworks of any post-secondary adult or post-secondary vocational program.