

FLORIDA STATE COLLEGE AT JACKSONVILLE

NON-COLLEGE CREDIT COURSE OUTLINE

COURSE NUMBER: TRA 0077
COURSE TITLE: Heavy Equipment Operators II
PREREQUISITE(S): None
COREQUISITE(S): None
TOTAL CONTACT HOURS: 210-222

(For Office Use Only:
Vocational Credits _____)

FACULTY WORKLOAD POINTS: N/A

COURSE DESCRIPTION:

This course is designed to teach students the operation and maintenance of heavy equipment. Heavy emphasis will be placed on safety. Topics included are: operation of pneumatic and crawler-type tractors, back hoes, motor graders, scrapers, trenches, rollers and an introduction to rigging and welding.

SUGGESTED TEXT(S): None

IMPLEMENTATION DATE: Fall Term, 1996 (971)

REVIEW DATE:

COURSE TOPICS	CONTACT HOURS <u>PER TOPIC</u>
I. Introduction to Apprenticeship Program	16
A. Classroom Procedures	
B. Safety	
II. Fuel Oils and Safety	24
A. Diesel	
B. Gas	
C. Hydraulics	
D. Oils	
III. Demonstrate & Understand the Operation and Maintenance of Heavy Equipment	36
A. Preventive Maintenance	
B. Safety	
IV. Pneumatic and Crawler-Type Tractor	24
A. Move, Level and Spread Top Soil	
B. Remove Stumps	
C. Pile Debris	
D. Remove and Replace Dozer Blades	
E. Remove and Replace Buckets	
F. Attach Cutting Teeth	
G. Safety Load Dump Trucks	
V. Operate Back Hoe	32
A. Dig Pit to a Specified Grade	
B. Safety	
C. Dig Ditches for Drainage or Pipes	
D. Attach Bucket Teeth	
VI. Operate a Motor Grader	12
A. Grade to Specified Levels	
B. Build a Road Bod	
C. Perform a Blue-Top Grade (Finish)	
D. Change out Blade	
VII. Utility Construction Equipment	12
VIII. Communication Skills	12
IX. Welding	18

COURSE TOPICS (Continued)	CONTACT HOURS <u>PER TOPIC</u>
X. Rigging and Reeving A. Basics in Ropes and Types B. Maintenance Methods C. Rigging Hardware D. Read and Understand Charts, Tables & Manufacturer's Safe Working Load	28

PROGRAM TITLE: Heavy Equipment Operation
 COURSE TITLE: Heavy Equipment Operators Apprenticeship II
 CIP NUMBER: 0649.020200

LIST PERFORMANCE STANDARD ADDRESSED:

- | NUMBER(S) | TITLE(S) |
|-----------|--|
| 01.0 | <u>DEMONSTRATE UNDERSTANDING OF PROCEDURES</u> -- The student will be able to:
01.01 Apply safety practices during operation of heavy equipment.
01.02 Discuss function of each piece of heavy equipment as appropriate.
01.03 Turn and back-up equipment safely.
01.04 Operate equipment on roadway safely. |
| 02.0 | <u>DEMONSTRATE UNDERSTANDING OF OPERATION AND MAINTENANCE OF MECHANICAL SYSTEMS AND ENGINES</u> -- The student will be able to:
02.01 Perform preventive maintenance on equipment including greasing, changing oil, and replacing filters.
02.02 Perform additional maintenance based on specific equipment needs.
02.03 Safety check equipment prior to operation. |
| 03.0 | <u>OPERATE PNEUMATIC AND CRAWLER-TYPE TRACTOR WITH ATTACHMENTS</u> -- The student will be able to:
03.01 Move, level, and spread top soil.
03.02 Remove stumps.
03.03 Pile debris for burning.
03.04 Remove and replace dozer blade.
03.05 Remove and replace bucket.
03.06 Attach cutting teeth as needed.
03.07 Safely load dump trucks. |
| 04.0 | <u>OPERATE BACK HOE</u> -- The student will be able to:
04.01 Dig pit to specified grade.
04.02 Observe for cables, pipes, and underground utilities.
04.03 Dig ditches for drainage and pipes.
04.04 Install bucket teeth to back hoe. |
| 05.0 | <u>OPERATE A MOTOR GRADER</u> -- The student will be able to:
05.01 Grade to specific levels.
05.02 Apply use of grading stakes when operating motor grade.
05.03 Build a road-bed.
05.04 Perform blue-top grade (finish).
05.05 Change blade and sacrificial teeth on motor grader. |
| 06.0 | <u>OPERATE A CRANE</u> -- The student will be able to:
06.01 Apply crane safety procedures.
06.02 Review <u>Construction Industry Manufacturers Association</u> safety manuals. |

LIST PERFORMANCE STANDARD ADDRESSED: (Continued)

- | NUMBER(S): | TITLE(S): |
|------------|---|
| 07.0 | <u>UTILIZE UTILITY CONSTRUCTION EQUIPMENT AS APPLICABLE</u> -- The student will be able to:
07.01 Operate scraper.
07.02 Operate trencher.
07.03 Operate tar kettle.
07.04 Operate rollers.
07.05 Operate concrete mixer. |
| 08.0 | <u>DEMONSTRATE APPROPRIATE COMMUNICATION SKILLS</u> -- The student will be able to:
08.01 Write logical and understandable statements, or phrases, to accurately fill out forms/invoices commonly used in business and industry.
08.02 Read and understand graphs, charts, diagrams, and tables commonly used in this industry/occupation area.
08.03 Read and follow written and oral instructions.
08.04 Answer and ask questions coherently and concisely.
08.05 Read critically by recognizing assumptions and implications and by evaluating ideas.
08.06 Demonstrate appropriate telephone/communication skills. |
| 09.0 | <u>DEMONSTRATE APPROPRIATE MATH SKILLS</u> -- The student will be able to:
09.01 Solve problems for volume, weight, area, circumference and perimeter measurements for rectangles, squares, and cylinders.
09.02 Measure tolerance(s) on horizontal and vertical surfaces using millimeters, centimeters, feet and inches.
09.03 Add, subtract, multiply and divide using fractions, decimals, and whole numbers.
09.04 Determine the correct purchase price, to include sales tax for a materials list containing a minimum of six items.
09.05 Demonstrate an understanding of federal, state and local taxes and their computation. |
| 10.0 | <u>DEMONSTRATE APPROPRIATE UNDERSTANDING OF BASIC SCIENCE</u> -- The student will be able:
10.01 Understand molecular action as a result of temperature extremes, chemical reaction, and moisture content.
10.02 Draw conclusions or make inferences from data.
10.03 Identify health related problems which may result from exposure to work related chemicals and hazardous materials and know the proper precautions required for handling such materials.
10.04 Understand pressure measurement in terms of P.S.I., inches of mercury and K.P.A. |
| 11.0 | <u>DEMONSTRATE EMPLOYABILITY SKILLS</u> -- The student will be able to:
11.01 Conduct a job search.
11.02 Secure information about a job.
11.03 Identify documents which may be required when applying for a job interview.
11.04 Complete a job application form correctly.
11.05 Demonstrate competence in job interview techniques.
11.06 Identify or demonstrate appropriate responses to criticism from employer, supervisor or other employees.
11.07 Identify acceptable work habits.
11.08 Demonstrate knowledge of how to make appropriate job changes. |

LIST PERFORMANCE STANDARD ADDRESSED: (Continued)

NUMBER(S): TITLE(S):

11.09 Demonstrate acceptable employee health habits.

11.10 Demonstrate a knowledge of the "Florida Right-To-Know Law" as recorded in Florida Statutes Chapter 442.

12.0 DEMONSTRATE AN UNDERSTANDING OF ENTREPRENEURSHIP -- The student will be able to:

12.01 Define entrepreneurship.

12.02 Describe the importance of entrepreneurship to the American economy.

12.03 List the advantages and disadvantages of business ownership.

12.04 Identify the risks involved in ownership of a business.

12.05 Identify the necessary personal characteristics of a successful entrepreneur.

12.06 Identify the business skills needed to operate a small business efficiently and effectively.