NEA07 LABORATORY PRACTICAL EVALUATION

EMPLOYEE'S NAME:_____ Emp. ID: _____
LAST FIRST MI

UNIT # DATE APS SUPERVISOR NAME CONTRACTOR AFFIL

EXAM # NEA07P00107

COURSE TITLE: Electronic Controls

APPROVED BY: Freitas, Jeffrey (Z36100)

Digitally signed by Freitas, Jeffrey (Z36100)
DN: cn=Freitas, Jeffrey (Z36100), email=Jeffrey.Freitas@aps.com
Reason: I am approving this document
Date: 2007.02.01 05:54:33 -07'00'

DATE: _____

PASS _____ FAIL _____ EVALUATOR (print) _____
LAST FIRST MI

EVALUATOR SIGNATURE _____

DIRECTIONS TO EMPLOYEE: When I tell you to begin, you are to perform the individual objectives in the Electronic Controls Lab Guide NEA07 that are associated with the Solid State Fundamentals Textbook and Workbook. I will describe general conditions and provide equipment to perform each objective. Before starting, I will state the standard(s) and answer any questions you might have.

A. GENERAL CONDITIONS:

1. Lab Practical exercises will be performed in the electronics lab.

B. GENERAL TOOLS AND EQUIPMENT: (Required for objective performance)

1. Multimeter
2. Osilloscope
3. Function Generator
4. Electronic Kits, Workbench & Associated Power Supplies

C. GENERAL REFERENCE:

1. Solid State Fundamentals Text Book & Work Book
2. Electronic Controls Lab Guide NEA07
3. Tektronix 2445 Oscilloscope Operators Instruction Manual

D. SAFETY:

1. Safe work practices and PPE required in designated area:
2. Electrical protective equipment must be worn per 01DPOIS13 Procedure.
3. Safety Glasses with Side shields
4. All jewelry removed
5. Live Dead Live performed when applicable

NEA07 LABORATORY PRACTICAL EVALUATION

E. KNOWLEDGE OBJECTIVES:

- Completes all applicable assignments in the Solid State Fundamentals Workbook

Seq. No.	Complete the following exercises in the Solid State Fundamentals for Electricians Workbook, Chapters 3 through 11.	Pass/Fail P/F
1.	Exercise 3-1 through 3-4: Diode Theory	
2.	Exercise 4-1 through 4-3: Rectifier Theory	
3.	Exercise 6-1 through 6-4: Transistor Basics	
4.	Exercise 7-1 through 7-3: SCR Basics	
5.	Exercise 8-1 through 8-2: Triacs, Diacs, and UJTs	
6.	Exercise 10-1 through 10-2: JFET & MOSFET Basics	
7.	Exercise 11-1 through 11-2: Integrated Circuits (Op Amps)	
8.	Exercise 12-1 through 12-3: Fiber Optic Basics	

Student Signature: _____ Date: _____

NEA07 LABORATORY PRACTICAL EVALUATION

TPE Preamble

- I will be evaluating you on your compliance with all applicable Management Expectations and work practices.

- I will be taking notes during the evaluation so that I can provide better feedback after the evaluation.

- We will conduct a feedback session following the completion of each lab section.

- Interruptions and distractions of our attention during this evaluation must be minimized in order to maintain proper command and control. If you or I need to attend to an important issue, the evaluation will be suspended until we return

- Talk through each step: explain what you are doing and why you are doing it (whenever possible).

- I cannot coach you in any way (like answering questions, prompting you, or correcting you) during the evaluation since my goal is make sure that you can perform this task independently.

- This evaluation will proceed as follows: {This is where YOU, the TPE Evaluator, set up the particular task performance evaluation and describe items such as: the initiating conditions, special considerations (i.e. if any objectives will be simulated-ensuring TPD downgrade requirements are met), acceptance criteria: Given the objectives found in the Electronic Fundamentals Lab Guide, build, test, and calibrate electronic circuits and devices using proper test equipment. (knowledge-80% correct unless otherwise designated, practical-100% correct)}.

- Do you have any further questions about the way we are going to precede with this evaluation?

- Tell me when you are ready to begin.

NEA07 LABORATORY PRACTICAL EVALUATION

Safe work practices and PPE required in designated area:

- **Electrical protective equipment must be worn per 01DPOIS13 Procedure.**
- **Wear appropriate PPE (Safety Glasses with Side shields)**
- **All jewelry removed**
- **No lanyards with metal**
- **Low voltage gloves when applicable**
- **Live Dead Live performed when applicable**

F. PERFORMANCE OBJECTIVES

Seq. No.	Using the Electronic Controls Lab Kits and Lab Guide, complete the following objectives by building, testing, and analyzing electronic circuits and devices using proper test equipment.	PASS/FAIL P/F
1.	Objective 5: Given a lab kit, build/test/analyze a series and series parallel diode circuit.	
2.	Objective 7: Given a lab kit, build/test/analyze a Zener diode voltage regulator circuit.	
3.	Objective 9: Given a lab kit, build/test/analyze a Power Supply circuit using an oscilloscope to determine how capacitor filters affect circuit ripple voltage.	
4.	Objective 12: Given a lab kit, build/test/analyze an LED circuit.	
5.	Objective 14: Given a lab kit, build/test/analyze a transistor switching circuit.	
6.	Objective 16: Given a lab kit, build/test/analyze an SCR circuit using an oscilloscope to determine circuit function.	
7.	Objective 18: Given a lab kit, build/test/analyze a TRIAC circuit using an oscilloscope to determine circuit function.	
8.	Objective 18: Given a lab kit, build/test/analyze a DIAC circuit using an oscilloscope to determine circuit function.	
9.	Objective 18: Given a lab kit, build/test/analyze a Unijunction Transistor (UJT) circuit using an oscilloscope to determine circuit function.	
10.	Objective 20: Given a lab kit, build/test/analyze a Field Effect Transistor (FET) circuit using an oscilloscope to determine circuit function.	
11.	Objective 22: Given a lab kit, build/test/analyze an Inverting Op Amp circuit using an oscilloscope to determine circuit function.	
12.	Objective 22 Cont: Given a lab kit, build/test/analyze a Non-inverting Op Amp circuit using an oscilloscope to determine circuit function.	
13.	Objective 22 Cont: Given a lab kit, build/test/analyze a Basic Comparator Op Amp circuit using an oscilloscope to determine circuit function.	

Seq. No.	Using the Electronic Controls Lab Kits and Lab Guide, complete the following objectives by building, testing, and analyzing electronic circuits and devices using proper test equipment	PASS/FAIL P/F
14.	Objective 22 Cont: Given a lab kit, build/test/analyze a Timing Comparator Op Amp circuit using an oscilloscope to determine circuit function.	
15.	Objective 22 Cont: Given a lab kit, build/test/analyze a Summing Amplifier circuit using an oscilloscope to determine circuit function.	
16.	Objective 22 Cont: Given a lab kit, build/test/analyze a Difference Amplifier circuit using an oscilloscope to determine circuit function.	
17.	Objective 22 Cont: Given a lab kit, build/test/analyze a Single-Supply Integrator circuit using an oscilloscope to determine circuit function.	
18.	Objective 22 Cont: Given a lab kit, build/test/analyze a Dual-Supply Integrator circuit using an oscilloscope to determine circuit function.	
19.	Objective 22 Cont: Given a lab kit, build/test/analyze a Single-Supply Differentiator circuit using an oscilloscope to determine circuit function.	

Any step marked as failure requires leader (training and/or line) approval prior to remediation evaluation.

Name of leader contacted: _____

I have completed and understand all portions of the above LPE.

_____

Employee's Signature