BASIC HOME/OFFICE ELECTRICAL/ELECTRONICS EQUIPMENT SERVICING

Level-II

Learning Guide-33

Unit of Competence: Apply Routine Problem Solving Techniques

Module Title: Applying Routine Problem Solving Techniques

LG Code EEL HOS2 M09 -3 LG-33

TTLM Code: EEL HOS2 M09 TTLM 0919v1

LO3: Recommend solution to higher management

Instruction Sheet	Learning Guide #33

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

- Preparing report
- Presenting Recommendations
- Following recommendation
- Experimenting Propos solutions

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, upon completion of this Learning Guide, you will be able to –

- Prepare report
- Present Recommendations
- Follow recommendation
- Experiment Propos solutions

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 to 5.
3. Read the information written in the information “Sheet 1, Sheet 2, and Sheet 3.
4. Accomplish the “Self-check 1, Self-check 2, and Self-check 3.
5. Do the “LAP test” (if you are ready).

Information Sheet-1	Preparing report

3.1. STRUCTURE OF REPORTS

INTRODUCTION

The purpose of a technical report is to completely and clearly describe, these are: *technical work,*

why it was done, results obtained and implications of those results. The technical report serves as a means of communicating the work to others and possibly providing useful in formation about that work at some later date.

A wellwritten report allows the reader to quickly understand what has been accomplished.The report also provides sufficient detail to allow the reader to recreate th e results although the level of detail provided depends heavily on the report's audience and any proprietary nature of the work.

THE FORMAL TECHNICAL REPORT

The formal technical report contains a complete, concise, and wellorganized description

of the work performed and the results obtained. Any given report may contain all of the sections described herein or a subset, depending upon the report requirements. These r equirements are decided by the author and are based on the audience and expected use of the report.

All reports have certain aspects in common regardless of expected usage. Common rep ort sections are presented first, and all possible sections potentially included in a report are discussed afterwards.

UNIVERSAL ASPECTS OF ALL REPORTS

- The report should be written in an active voice using the third person in most instanc es. Avoid using personal pronouns. Personal pronouns tend to personalize the techn

ical information that is generally objective rather than subjective in nature. Use corre ct grammar, punctuation, and spelling.

Attention to these details results in a professional tone to the report.

- All diagrams must be neatly presented and should be computer generated. Use a computer software package, such as Paint, Multisim or AutoCAD, to draw diagrams. Leave at least a oneinch margin on all sides of a full page diagram and always number and title all figures.
- *Always insert a full page diagram or graph so it can be read from the bottom or from the right side of the page.*
- All pages of the report after the Table of Contents must include the page number.
- Any information in the report that is directly quoted or copied from a source must be cited using the proper notation.
  Any information in the report that is directly derived or paraphrased from a source must be cited using the proper notation.

Any reference material derived from the web must come from credible and documentabl e sources Students need to evaluate websites critically. The first step is to verify a credible author.

Wikipedia is not a credible reference because the information changes over time and au thors are not necessarily people with verifiable expertise or credentials.

REPORT FORMAT

The pages of the report are to be assembled in the following order.

This is the recommended order; however, certain reports may lend themselves to either reordering sections and/or excluding sections.

TITLE PAGE

The format for this page may vary, however, the following information is always include: report title, who the report was prepared for, who the report was prepared by, and the date of submission. This is not a numbered page of the report.

ABSTRACT

An abstract is a concise description of the report including its purpose and most importa nt results. An abstract must not be longer than half a page and must not contain

figures or make reference to them.

The results may be summarized in the abstract but qualitatively, not quantitatively. No s pecific technical jargon, abbreviations, or acronyms should be used.

This is not a numbered page of the report.

TABLE OF CONTENTS

Include all the report sections, subsections, and appendices. This is not a numbered pa ge of the report.

INTRODUCTION

Give the objective of the work, a brief description of the problem, and how it is to be atta cked. This section should provide the reader with an overview of why the work was perf ormed, how the work was performed, and the most interesting results. This can usually be accomplished with ease if the work has clearly stated objectives. After introducing th e problem, indicate how those objectives are met.

The length of this section depends on the purposebut the author should strive for brevity , clarity, and interest.

Be careful not to use specific technical jargon or abbreviations such as using theterm “oscope”instead of “oscilloscope”. Also, make sure to define any acronyms or abbreviai ons prior to using them. For example, in a surveying lab report a student might want to r efer to the electronic distance measuring (EDM) device.

The first time the device is referred to, the student must Spell

out what the acronym stands for before using the acronym as

demonstrated in the previous sentence.

This practice should be applied throughout the report

then the author wants to use an acronym thathas not yet been defined within the

report. Do not assume that the reader is familiar with ll the

acronyms that are familiar to the author.

BACKGROUND THEORY

Include, if necessary, a discussion of relevant background theory. For example, if the ph se shift of an RC circuit is to be measured, give the derivation of the theoretical phase s hift. Include any preparation specified in the lab manual. In deciding what should or not

should be included as background theory,consider presenting any material specific to th e lab t hat you had to learn prior to performing the lab.

DESIGN / THEORETICAL ANALYSIS

Give the details of your design procedure. Be sure to introduce and describe your desig n work using sentences, equations alone are not sufficient. Use citations if you wish to refer the reader to reference material. Divide this section into subsections where appropriate. For example, a lab design may consist of designing several circuits that are subsequently interconnected; you may choose to treat each circuit design in its own subsection. Keep this section as general as possible, only applying Specific numbers after the design is explained.

If there is no design but strictly analysis, then provide the important details of all the analysis

performed.Be brief It is not necessary to show every step; sentences can be used to de scribe the intermediate steps. Furthermore, if there are many step

to the analysis, the reader should be directed to the appendix for complete details.

PROCEDURE

This section varies depending on requirements of the one who assigned the work and theaudience. At a minimum, the author *discusses* the procedure by describing the Methods to test a theory verify a design or conduct a process.

Presentation of the procedure may vary significantly for different fields and different audiences, however, for all fields; the author should be brief and get to the point. Like with any written work, if it is unnecessarily wordy, the reader becomes bored and the author no longer has an audience.

Also, the procedure section should never include specific measurements/results, discussion of results, or explanation of possible error sources. Make sure all diagrams provided are numbered, titled, and clearly labeled.

Self Check #1	**Written Test**

Directions: **WRITE TRUE IF THE STETEMENT IS TRUE OR FALSE IF THE**

STETEMENT IS FALSE

Name: _____Date: _____

Time Start: _____Time Finish: _____

1. All pages of the report after the Table of Contents must include the page number.
2. Be sure to introduce and describe your design work using sentences, equations alone are not sufficient.
3. An abstract must not be longer than half a page and must not contain figures.
4. Figures always must not have number and title.

information Sheet-2	Presenting Recommendations

3.2. Clear presentation of results

Is at least as important as the results themselves; therefore, writing a report is an exerci se in effective communication of technical information. Results, such as numerical valu es, designed systems or graphs by themselves are not very useful. To be meaningful to others, results must be supported by a written explanation describing how results were obtained andwhat significance they hold, or how a designed system actually functions.

Although the person reading the report may have a technical background, the author sh ould assume unfamiliarity with related theory and procedures. The author must therefor e supply details that may appear obvious or unnecessary.

With practice, the technical report writer learns which details to include.

The key to a wellwritten report is organization. A report that is divided into several sections, occurring in a logical sequence, makes it easy for the reader to quickly obtain an overview of the contents as well as locate specific information. This document provi des guidelines for producing well-written technical report.

Self Check #1	**Written test**

Name: _____Date: _____

Time Start: _____Time Finish: _____

Directions: **WRITE TRUE IF THE STETEMENT IS TRUE OR FALSE IF THE STETEMENT IS FALSE**

1. Clear presentation of results is at least as important as the results themselves.
2. Writing a report isnot an exercise in effective communication of technical information.
3. With practice, the technical report writer learns which details to include.

Information Sheet-3	Following recommendation

3.3. Follow up

Although this is not an official step of the troubleshooting process it nevertheless. Should be done once the equipment has been repaired and put back in service.
You should try to determine the reason for the malfunction.

- Did the component fail due to age?
- Did the environment the equipment operates in cause excessive corrosion?
- Are there wear points that caused the wiring to short out?
- Did it fail due to improper use?
- Is there a design flaw that causes the same component to fail repeatedly?

Through this process further failures can be minimized. Many organizations have their own follow-up documentation and processes. Make sure you check your organization's procedures.
Adopting a logical and systematic approach such as the Troubleshooting Approach can help you to troubleshoot like an expert!

Self Check #1	**Written test**

Name: _____Date: _____

Time Start: _____Time Finish: _____

Directions: **WRITE TRUE IF THE STETEMENT IS TRUE OR FALSE IF THE STETEMENT IS FALSE**

1. For good maintenance have their own follow-up documentation and processes.
2. Follow up recommendations Should be done once the equipment has been repaired and put back in service

Information Sheet-4	Experimenting Propos solutions

3.4. Propose solutions are experimented

Set goals: - once you have thought about the program from d/t angles. You can identify your goals. What is that you want to achieve? Sometimes you may become frustrated by a problem and for get to think about what you want to achieve.
For e.g you might become ill, struggle to complete number of assignments on time & feel so unmotivated that you let due dates pass

- Improve your health
- Increase your management skills
- Complete the assignments to the best of your ability
- Finish the assignments as soon as possible.

If you decide your goal is to improve your health that will lead to d/t solutions to that linked with the goal of completing your assignments as soon as possible. One goal may lead you to a doctor and another may lead you to apply for extensions for your assignments. so working out your goals is a vital part of the problem solving process .

Self Check #1	**Written test**

Name: _____Date: _____

Time Start: _____Time Finish: _____

Directions: for the following questions fill in the blank spacejil

1. struggle to complete number of assignments on time & feel so unmotivated that you let due dates pass should be

   A._____

   B._____

   C._____

   D._____

Operation Sheet- 1	Preparing report

Techniques for Preparing report

Step 1. prepare important materials

Steps 2. Analysis the result

Step 3. Develop report

Operation Sheet- 2	**Presenting Recommendation**

Techniques for Presenting Recommendation

Step1.analysis the work

Step 2. Identify the wekenes and strangths

Step 3. Put recomandations

Operation Sheet- 3	**Following recommendation**

Techniques for Following recommendation

Step1. see the recommendations.

Step 2. see the corrective options.

Step 3. Following the recommendations.

Operation Sheet- 4	**Experimenting Propos solutions**

Techniques for Experimenting Propos solutions

Step1. List deferent propose solutions

Step 2. Experiment each propose solutions.

Step 3. Select the best propose solution

LAP Test	**Practical Demonstration**

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 8-12 hours.

Task 1**:** Preparing report
Task2: Presenting Recommendation
Task 3: Following recommendation
Task 4: Experimenting Propos solutions