Lab Report Guidelines

ELEC 302

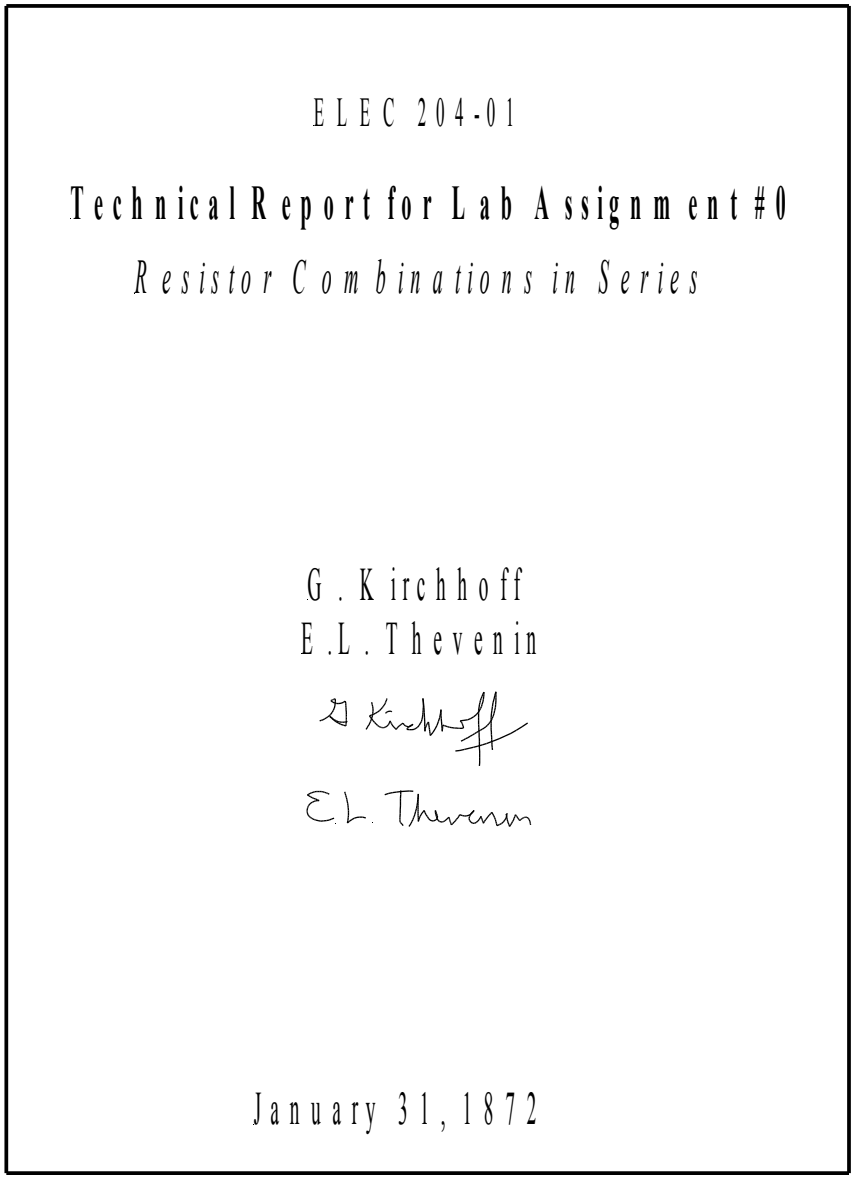
Spring 2013

Basic Requirements

- Succinct and clearly written.
- Sufficient description to enable an engineer familiar with basic electrical measurements to reproduce your results.
- Printed output from a word processor.

Required Elements

- Cover page
- Purpose of experiment
- Circuit tested/ Test configuration
- Test procedure
- Measured results
- Comparison with theoretical results
- Conclusions



Cover Page

- Course/section number
- Assignment number
- Experiment title
- Engineer names
- Engineer signatures
- Date of submission

Purpose of Experiment

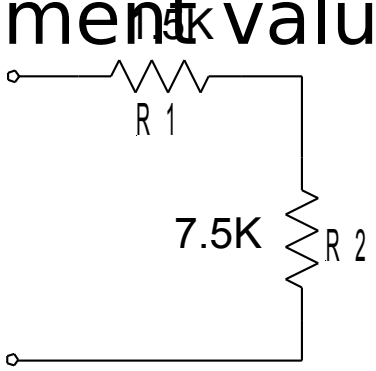
- State the theoretical principles or concepts that this experiment is trying to prove.
- May also be to gain experience in using the lab equipment.

Test Configuration

- Useful for complicated setups (otherwise not required)
- Block Diagram
- Instrument Manufacturer/Model Number

Circuit Tested

- Schematic of circuit
- Show measurement devices
- Reference designators
- Nominal element values should be given.



Test Procedure

- Enough description that someone familiar with basic electrical measurements could reproduce the experiment.
- Sequential
- Paragraph form is usually preferred.
- Write in past tense.
- Do not just copy the instruction lists in the lab assignments.
- Learn to be brief.

Measured Results

- Nominal value is the value expected by looking at the markings on the device.
- Measured value is read off the test equipment during the experiment.
- Use tables where appropriate.
- Deviation from nominal

$$\%deviation = \frac{measured - nominal}{nominal} \times 100\%$$

Comparison with Theoretical

- Measured values versus what would be predicted by a theoretical analysis of the circuit performance.
- For example, compare the measured resistance of two resistors connected in series with R1+R2.
- Express comparison as a %error.

$$\%error = \frac{measured - theoretical}{theoretical} \times 100\%$$

Conclusions

- What theoretical principle or concept did this experiment prove?

Within experimental error, this laboratory exercise has demonstrated that the equivalent resistance of two resistors connected in series is equal to the sum of the individual values.

Typical Grading Form

Name _____

ELEC ### Lab #_____

Completeness

_____ **Introduction – 10 pts.**
- ☐ Objectives paraphrased?
- ☐ Background material & general principles included?

_____ **Procedure – 15 pts.**
- ☐ Paragraph form of what was done?
- ☐ Circuit Diagrams?

_____ **Presentation/Discussion of Results – 25 pts.**
- ☐ All simulations and data present?
- ☐ Theoretical and experimental presented?
- ☐ Data presented concisely?
- ☐ Results compared to theoretical?
- ☐ Differences explained?

_____ **Conclusion – 20 pts.**
- ☐ Support of general principle presented?
- ☐ Questions posed in lab report answered?

Formatting

_____ **Title Page – 5 pts**
- ☐ Title, Date, Name, Partners?
- ☐ Signed Honor Statement?

_____ **Writing Style – 15 pts.**
- ☐ Past tense passive voice?
- ☐ Free of spelling errors?
- ☐ Free of grammatical errors?

_____ **Tables and Figures – 10 pts.**
- ☐ Titled, captioned and referenced?
- ☐ Tables and graphs when appropriate?

_____ **Total Score**

Typical Grading Form

Item	Pts	Comments
Pre – Lab & Lab Notebook (3)		
Lab Performance (1)		
Introduction (1) Objectives/Background/ Principles		
Procedure (1) Paragraph form/Circuit diagrams		
Presentation & Discussion of Results (2) All theoretical & experimental data Differences explained Sample calculations Tables & plots easy to read		
Conclusions (1) Support of objectives & general principles **Lab questions answered**		
General (1) Spelling/grammar/neatness		
Total Points (10)		

Lab Notebook Guidelines

ELEC 302

Spring 2013

Lab Notebooks

- Most companies require their engineers to keep notebooks of their work.
- Effective evidence in patent disputes
- Chronological account of work helps engineers remember what has been done.

Course Requirements

- Bound volume. Loose leaf notebooks are not acceptable.
- All pages must be sequentially numbered. Each side of a sheet is considered a page.
- The first sheet should be reserved for a table of contents.
- Label the first page used for a particular experiment with the title of that experiment, and reference the page number in the Table of Contents.

Course Requirements

- Make all entries in ink.
- Do not erase entries. To delete information, cross it out with a single line.
- The date entries were made must appear on every page.
- Each page must be signed by the engineer taking the data.

Course Requirements

- No blank numbered pages are permitted. Write “This page intentionally left blank.” if necessary.
- Any added material, such as PSPICE plot, must be permanently affixed using tape or glue. The material itself must be signed and dated.

Summary

- A lab notebook is not intended to a publication quality document.
- It is first and foremost a chronological record of the daily work of an engineer.
- As such, it can serve as a valuable legal document and guide for others carrying the work forward.