Photonics Fundamentals 102 (103 & 104)
Lab Write-Up instructions. Read and study and ask questions.
The Lab Write-Up sheet format follows the analysis explanation.

HEADINGS (1.0, 2.0, 3.0, etc.) are labeled for what is expected under each (1.1, 2.1, 3.1, etc.) The explanations shown under each heading (such as 1.1, 2.1, 2.2, 3.1, 4.1, 5.1, etc.) are for clarification/example only & are not part of the write-up.

1.0 Name of lab.
1.1 Record the name of the lab here. For example; Familiarization with Lab Equipment and Components

2.0 Person(s) involved in lab. With more than one person involved, it is **required** to rotate responsibilities.
2.1 Your name goes here as scribe,author,writer/tech.
2.2 Second team member name as tech.
2.3 If necessary: Third team member name as Laser Safety Officer (LSO).
2.3.1 Special instructions will be given for a LSO.

NOTE: One Lab Write-Up per lab per team means the lab grade will be the same for all team members. This is a collaboration so be sure to review and edit before submitting the lab. Team members will alternate lab submissions.

3.0 Date and time in/out when working on lab.

Date	**Time Started**	**Time Stopped**	**Elapsed Time**
2/2/19	9:30 a.m.	11:21 a.m.	1 hour, 51 minutes
2/4/19	9:30 a.m.	10:30 a.m.	1 hour
		Total Time	2 hours, 51 minutes

4.0 Objective(s)
4.1 These are in the Lab Instructions.
4.2 You may and should add more. See analysis explanation in 7.0.

5.0 Equipment used in the lab.

Equipment Description	**Quantity Used**
Filter Set, Color (Red, Green, Blue, Cyan, Magenta, Yellow)	1
Laser Diode Module	1
Laser Diode Power Supply	1

6.0 Data. **There may be more than one table, drawing, graph, etc. under this heading.**
6.1 Most labs will have data (numbers, values, observations, drawings, graphs, etc. pertinent to completion of the lab).
6.1.1 All data calculated, measured, observed, etc. **must** be recorded.
6.1.1 With more than one person involved, it makes sense to take turns gathering data, etc.
6.2 Create as many entries as needed (see 3.1 & 5.1) using appropriate headings for columns & rows.
6.2.1 Quite a few tables are included in the Lab Instructions and may be duplicated here.
6.3 Include with Lab Write-Up five or more pictures to include the following.
6.3.1 Lab components selected, laid out neatly on the Optical Breadboard.
6.3.2 Completion of your lab set-up (should resemble the drawings with each lab instructions).
6.3.2.1 If there are several sections/parts to the lab, include a "Completion of the lab set-up" picture for each section/part.
6.3.4 Results of lab (each part) such as a photo of the visible light spectrum, diffraction pattern, etc.
6.3.4 Other labs as appropriate to show/prove lab work.
6.4 All calculations are to be included, showing the equation used and the answer obtained.

7.0 Analysis of lab & results.
ANALYSIS:
1. A method of research in which a problem is identified and observations, experiments or other relevant data are gathered; a hypothesis is put into words and is empirically tested (verified by observations or experience).
   a. Hypothesis: a supposition or proposed explanation made on the basis of limited evidence **as a starting point** for further investigation.
   b. A hypothesis states your predictions about what your research will find. It is a tentative answer to your research question that has not yet been tested. For some research projects, you might have to write several hypotheses that address different aspects of your research question.
   c. A hypothesis is not just a guess — it should be based on existing theories and knowledge. It also has to be testable, which means you can support or refute it through scientific methods (such as experiments, observations and statistical analysis of data).
2. Identify the challenge, task, objective or purpose to solve or accomplish.
   a. THINK: hypothesize a possible outcome; include in objective.
3. Use the lab to complete the objective and test your hypothesis.
   a. Perform the experiment(s).
   b. Gather the data.
4. Analyze the results of the process.
   a. An examination of data and facts to uncover and understand the cause/effect relationships.
5. Accept, reject, or modify the hypothesis.
6. Explain your reasoning.

Lab Write-Up format:

1.0 Name of lab.
    1.1

2.0 Person(s) involved in lab.
    2.1
    2.2

3.0 Date and time in/out of working on lab.

4.0 Objective(s)
    4.1
    4.2

5.0 Equipment used in the lab.

6.0 Data.
    6.1
    6.2

7.0 Analysis of lab & results.
    7.1
    7.2