

Instructor: Prof. Carmen S. Menoni  
Class Schedule: Monday Eng. B105; Lab: TBD: ERC B212  
Office: Engineering EC101E and ERC B325, tel: 491.8659

Email correspondence: to [carmen.menoni@colostate.edu](mailto:carmen.menoni@colostate.edu) – Use in subject line: “ECE404” or email through CANVAS

- 11 experiments – You must complete all to earn a passing grade.
- The labs are set up for a week and students can come back to take more data if needed.
- Work will be done individually due to COVID restrictions.
- Discussion among classmates is encouraged.
- A complete lab notebook with data and analysis of results is required for each experiment. It is suggested that before you come to the lab, you read the lab guide and write Part 1, 2 and 3 of the lab. You will then take data and will continue writing Parts 4, 5 and 6 in the lab notebook. You will need a lab notebook with numbered pages. All reports must be written in your lab notebook
- For each lab students will need to put together a power point presentation. There will be a schedule for presentations developed on the first day of class. All presentations need to be uploaded into CANVAS
- Grade is equally split between lab notebook reports and your presentations

## GRADING OF LAB REPORTS/PRESENTATIONS (100 points each)

Parts 1,2,3	—————>	20 points
Part 4	—————>	20
Part 5	—————>	40
Part 6	—————>	10
Style and organization	—————>	100 points

- Due to the COVID situation, we may have to be prepared to go virtual. In this case, we plan to have the labs done remotely. Our plan is to add to one of the tables a camera and microphone. Either myself or Aaron Davenport will be conducting the lab per your directions. We will do this via Zoom or Microsoft Teams.
- You also need to secure a license for Zemax. You will have to choose CSU as your school. If prompted by application you will write: ECE 404 lab.
- If you do not feel well, DO NOT COME TO THE LAB. Let Prof. Menoni know and arrange with her how to do the lab when you are well.

**Lab Etiquette:** You will need to use mask at all times in the lab. Please wear a long sleeve shirt to the lab. You will be asked to wash your hands before entering the lab. You will be given gloves that you will need to use at all times. Every time that you come into the room you will need to disinfect your hands. There will be cleaning supplies to clean up all tables and components and hand sanitizer for you at the entrance of the lab. There will be a thermometer and a log book where you will record your temperature.

No food or drink allowed.

## SECTIONS OF THE PROJECT REPORT AND LAB PRESENTATIONS

---

1. Introduction describing technical concepts and objective
2. Experimental setup
3. Experimental Procedure
4. Data and key observations
5. Results and analysis
6. Conclusion

Parts 1 and 2 to be completed ahead of the lab. They should not be a copy of the guide. Else, style points are 0.

Parts 4 to be completed during lab

Part 5&6 to be completed after the lab

All reports must be written in the lab notebook. There is a printer in the classroom that allows you to plot data or pictures taken during the lab. You can paste material in the notebook during lab.

Reports and presentations are individual work

Graphs can be hand-drawn or plotted with software. When software is used, print and paste in the notebook

You need a lab notebook with pages numbered. Pages can not be cut out from the notebook. If a page is left intentionally blank, it has to be marked as such.

---

- From the following week onwards, we will meet once a week in the classroom and once in the lab.
- The specific lab of the week will be mounted during a whole week for each student to have the opportunity to collect all data.
- If you need to get into the lab and is locked, please come to see Prof. Menoni on B325 (ERC).
- There will be 3 presentations every week. Each student is given 10 minutes - and 5 minutes for discussion
- Presentations should contain not more than 10 slides. Presentations need to include name of lab partners.
- The schedule of presentations will be posted on CANVAS. To accommodate this schedule, you will need to rotate lab partner.

Although the lab is team work, the lab notebook, lab report and presentation are individual work.

The aim of the lab notebook is to provide sufficient information such that someone who reads it can perform the experiment

A laboratory guide will be available in CANVAS one week ahead of the lab

LAB #	TITLE	WEEK	LAB REPORT DUE A WEEK AFTER
1	OPTICAL CAVITIES, ALIGNMENT AND STABILITY	2	
2	GAUSSIAN BEAM CHARACTERIZATION	3	Combined report of Lab 1 and 2
3	TRANSVERSE MODES IN AN OPTICAL CAVITY	4	YES
4	OUTPUT POWER VS DISCHARGE CURRENT FOR A HE-NE LASER	5	YES
5	BREWSTER ANGLE AND THE POLARIZATION OF LIGHT	6	YES
6	LIGHT EMITTING DIODE & LASER DIODE CHARACTERISTICS (A&B)	7	YES
7	NUMERICAL APERTURE OF OPTICAL FIBERS	8	YES
8	OPTICAL FIBER ATTENUATION	9	YES
9	OPTICAL FIBER LINK	10	YES
10	OPTICAL DOMAIN REFLECTOMETRY	11	YES
11	HOLOGRAPHY	12	YES