

University of Texas at El Paso
Electrical and Computer Engineering
Fiber Optic Communications – EE4361 / EE5336, Fall 2014

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OFFICE HOURS:	R 1:30 –3:50 PM, or by appointment
TEXT: (Optional references)	Gerd Keiser, “ <i>Optical Fiber Communications</i> ”, 4 th Edition, McGraw Hill (Reference Not required), Le Nguyen Binh, “ <i>Optical Fiber Communications Systems</i> ”, CRC Press, (Reference Not required) Rajiv Ramaswami, “ <i>Optical Networks</i> ”, 3 rd Edition, Morgan Kaufmann, (Reference Not required)

Course Outcomes

1. Understand light propagation using ray and electromagnetic mode theories
2. Calculate the effects of attenuation and dispersion in optical fibers
3. Understand the operation and calculate the performance of optical fiber transmitters, receivers, and optical devices.
4. Apply optical fiber measurement techniques to the design of optical links
5. Analyze and design Optical communication networks

Content Material

Item #	Topic	Week
1	Introduction to Optical Networks	1
2	Network functions	2
3	Layer model	2
4	Power analysis in optical links	3
5	Channel capacity	3
6	Ray analysis of light propagation in optical fibers	4
7	Exam #1	5
8	Dispersion in multimode fibers	6
9	Wave analysis of optical fibers	7
10	Dispersion in single mode fibers	8
11	Waveguides, couplers and splitters	9
12	Exam #2	10
13	Optical transmission sources (Lasers, LEDs)	11
14	Optical amplifiers	11
15	Photodetectors (PIN and APD)	12
16	Optical Receivers	12
17	Wavelength Division Multiplexing	13
18	Selected Topics	14
19	Exam #3	14
20	FINAL	Week of Final tests

GENERAL COURSE POLICIES

- Samples of student work will be collected for quality assurance purposes. Please notify the professor, in writing, if there is any confidentiality restriction.
- **Attendance is mandatory** and will be checked. Students with more than three missing sessions (six hours) might be dropped with a W or an F from the course depending on the date.
- No late work will be accepted but special circumstances will be considered if reported on time.
- The Professor will be available only during the assigned office hours or by appointment; however there will be frequent response to posted questions in Blackboard.
- Most homework, Special Problems and other assignments will be solved online with **Blackboard**.
- A **Blackboard** (<https://blackboardlearn.utep.edu/>) **account is required**. They normally already exist. If you don't know your account and password, please check with the Help Desk in extension 4357 (or 747-5257 off campus)
- Each piece of written work must have **EE4361 or EE5336, name, student ID, TEAM** number (when applicable) at the **upper right corner** of the first page; and the **name** in all remaining pages.
- All printed work must be stapled, with good presentation. Final results must be emphasized (example **red underline** or **highlighted box**)
- Online work must have in the first text line the name of the student and the team number.
- Due dates for Lab assignments, homework and exams will be notified through Blackboard and in class.
- Computers, cell phones and other electronic instruments can be used only for class purposes only. Students will be warned if they are using applications such as instant messaging, web browsing in sites unrelated to class, or other applications because those activities distract the students. Additional infringements or if the action is very disruptive will result in student dismissal from the classroom and assign corresponding absence.
- Detailed instructions for the **Labs** and other policies will be **provided later** in separate handouts and in **Blackboard**

Academic Honesty

- It is expected that the students will conduct with integrity in all course areas. Do not attempt to engage in a dishonest activity such as copying, plagiarism, falsifying information, etc. The professor will take measures to prevent such instances and will bring a case to the university authorities.
- Information about University wide policies could be found in the Dean of Students Web page at <http://studentaffairs.utep.edu/Default.aspx?alias=studentaffairs.utep.edu/dos>

GRADING

ITEM	Points / Ea
Exams 1, 2, 3 & 4	200
Team class discussions/problems	5
Homework Quiz	10-20
Lab Reports or special assignments	30-60
PowerPoint presentations	40-60
Points given by instructor on student participation	20

- Each element will accumulate points
- Some elements are individual and others depend on team performance
- **Show always all the procedure** to arrive to the solutions. End results without the right procedure are considered conceptual errors.

- In exams each problem has its own weight and will be indicated at the beginning of the problem, points are given by problem section (e.g. sections *a* and *b* of same problem have their own points).
- The grade of an exam answer will be 100% if perfect. 50% for non-conceptual procedural errors and 0% if no answer. There is a tolerance of $\pm 20\%$ based on the relevance of the errors.
- **Graduate Students** will be graded in the exams in the following way: The grade of an exam answer will be 100% if perfect. 50% for numerical or sign errors. and 0% for procedural errors. There is a tolerance of $\pm 10\%$ based on the relevance of the errors.
- To earn partial credit students will need to identify the cause of the errors and provide with an additional correction document stating the proper procedure to obtain a valid answer.
- Labs and special problems have the grades Satisfactory (100%), Attempted (50%) or Unsatisfactory (0%) for the points available. Online quizzes are either “all or nothing” points.
- Letter scale will be **A:** 90%-100%; **B:** 80%-89.9%; **C:** 70%-79.9%; **D:** 60%-69.9%; **F:** below 60% of the reference grade.
- Special assignments and labs will be reported in **teams of 3 UG students (2 UG and 1 Gr, or 2GR)**. However there is always an individual evaluation for each activity.
- PowerPoint presentation will be in groups of 3 students (Only 1 graduate per team).
- **Graduate students** are expected to make a higher quality job than undergraduates.
- All members *must contribute* for each assignment and shall be able to demonstrate it, along with the understanding of their peer’s portions.
- **Each report must have a typed cover page.**
- Reports will be turned in to the professor or the TA before each deadline in through the assignment area in **Blackboard**. Each student must submit a copy of the team report to be graded in the system.
- Additional requirements may be stated in the assignments.