

**Department of Electrical & Computer Engineering Technology (A.S.)**

School of Engineering, Technology, and Advanced Manufacturing

West Campus Building 9, Room 140 (407) 582-1902/1903

<https://valenciacollege.edu/academics/departments/engineering/electrical-and-computer-engineering-technology.php>



**Course Syllabus for ETS 2210C – Principles of Photonics**

**(3 Credit hours)**

**Catalog Course Description:** A course exploring the fundamentals of Photonics theory, concepts, and applications. Contents include the nature and properties of light, light sources, human vision, and laser safety; basics of geometric and physical optics, and basic principles and applications of Holography. Laboratory experimentations will complement theoretical concepts of the course. (Special Fee: \$78.00)

**Prerequisites:** MTB 1329 or MAC 1105 or higher

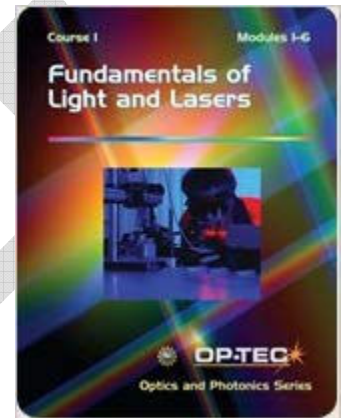
**Class Time and Location:** Wednesday 5:30 PM – 8:00 PM | MM | Bldg. 9 – Room 208

**Textbook:** Fundamentals of Light & Lasers, CORD Communications  
ISBN # 978-1-57837-377-2

**Reference:** Introducing Photonics, Brian Culshaw, SPIE & Cambridge University Press (2020), ISBN: 978-1316609415

IEEE Photonics - <https://www.photonicsociety.org/>

Photonics Media - <https://www.photonics.com/>



**Professor Information:**

**Name:** Dr. Radu Bunea  
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**Email:** [rbunea@valenciacollege.edu](mailto:rbunea@valenciacollege.edu)  
**Office Hours:** TBA

**Student Performance Assessment:**

Evaluation		
Homework <sup>1</sup> :	15%	90 - 100 % = A 80 - 89 % = B 70 - 79 % = C 60 - 69 % = D 59 - 0 % = F
Quizzes <sup>2</sup> :	20%	
Lab Work (Hands On + Reports) <sup>1</sup> :	20%	
Midterm Exam <sup>2</sup> :	20%	
Final Exam <sup>2,3</sup> :	25%	

<sup>1</sup> No Late work will be accepted. Assignments due dates are posted on Canvas.

<sup>2</sup> No make-up quizzes, exams will be given.

<sup>3</sup> Final Exam will be comprehensive

**Important Dates:**

<b>Monday, September 2</b>	Labor Day – <b>College is closed.</b>
<b>Monday, November 11</b>	Veterans Day – <b>College is closed</b>
<b>November 27 – December 1</b>	Thanksgiving Break – <b>College is closed</b>
<b>Friday, October 25</b>	<b><u>Withdrawal deadline for “W” Grade</u></b>
<b>Tuesday, December 10</b>	Final Grades Viewable in ATLAS

**DISCLAIMER:** Any Changes in the policy and/or schedule of this syllabus may be made at the discretion of the professor at any time during the semester.

### Learning Outcomes

- Students will obtain an understanding of duality nature of light and their properties and mechanisms that affect light propagation in a medium and its transmissions.
- This module enables students to understand and distinguish between different types of lasers and non-laser light sources and identify their characteristics. Become familiar with human eye and vision. Recognize and avoid various laser beam hazards.
- To learn and understand the two main divisions of basic optics – geometrical (ray) and physical (wave) optics, reflection, refraction, diffraction, interference, polarization, and the use of mirrors, prisms, lenses, gratings, and quarter-waves.
- This module helps to understand the fundamentals and describe some common optical detectors and their important characteristics. Emphasis will be on detectors that are most commonly encountered in Photonics applications.
- The objective of this module is to present students with the basic characteristics and applications of optical fibers and their importance in Telecommunication, Sensing, and Photonics industries.
- This module explains the terminology associated with images, how images are acquired and stored, how images are displayed by various devices, and the basic theory and principles of Holography.

### Rules and Comments

- Attendance will be taken every class meeting. **Regular attendance** and **class participation** are significant factors that promote success in this course. Students are expected to attend every class, be punctual, and complete all assignments. All classes start at the time indicated on your class schedule. Being late to class or leaving early is a disruption and is discourteous to the students and your professor. Please keep in mind that I am responsible to report no-show attendance, at the beginning of each term, if students fail to attend during the no-show reporting period.
- If you are unable to participate in the course for other reasons, e.g. illness, family emergency, etc., please communicate with me as soon as possible in order to create a plan to complete any missed assignments so that your learning can progress in your course. In the case of a prolonged absence of one week or more, continuation in the course will be determined on a case-by-case basis through discussion with your professor. Absences may require documentation of extenuating circumstances before being excused.
- **Quizzes & Exams** – work (formulas and the steps required to reach the answers) must be properly and adequately organized (numerical order) and shown (box the final answers) to earn credit. Answers without any work will not be given any credit and receive a grade of zero. Cell phones **must be put away** during the quiz/exam.
- Only a **scientific calculator** (**not** a cell phone/tablet/laptop) will be allowed during the quiz/exam. The calculator memory must be cleared out before the quiz/exam (i.e. **TI-84Plus** – Press **2<sup>nd</sup>**, Press **+** (Mem), Press **7** (Reset), Select **“All Memory”**, Select **(OK)**; **TI-Nspire** – Press **Home**, Select **(My Documents)**, when folder open Press **Menu**, Arrow down to **“Delete All”**, Select **(OK)** to clear all).
- **Formula Sheet** – only **one page** (8.5”x11”), front and back, allowed per quiz/exam. The formula sheet should contain **only formulas and constants** presented in textbook, class notes, and laboratory procedures. Anything else will constitute as cheating (i.e. formula/constant labels, examples, drawings, diagrams, worked

out problems, etc.).

- ❑ All **Assignments** are due [on the dates provided on Canvas](#). The student is encouraged to install the Canvas application on their cell phone.
- ❑ All **homework** must be properly and adequately organized (numerical order) and **work shown** to earn credit. Simply written down answers will not be given any credit and receive a grade of zero. **No late work will be accepted**. Homework due dates are posted on Canvas. The submission can be [handwritten \(legible\) or typed](#) and the document must be in [word or pdf](#) format.
- ❑ All laboratory experiments [must be completed](#) during class time. Any other time will require [prior approval](#) from the professor. You are encouraged to take notes (document the procedure) in preparation for the lab report. The numerical results/pictures can be shared among the group members; however, the lab report (discussion, analysis, graphs, etc.) must be an individual effort. The lab report format (including the cover page) and the associated rubric are provided on Canvas. Lab reports ([typed](#)) are to be submitted (on Canvas – in [word or pdf](#) format) in an organized, well documented, and structured manner representative of the student's best effort. Pictures of the laboratory setup and results will be required for the lab report. **No hand-written or scanned/photocopied materials will be accepted in the lab reports**. If the lab report requires the inclusion of graphs, a **software** (Excel, MathLab, etc.) must be used. [No late work will be accepted](#). Submission of a lab report without actually completing the procedure (using only group collected information) will constitute as cheating.
- ❑ [No make-up labs, quizzes, homework, or exams](#) are permitted unless [prior arrangement](#) with the professor has been made.
- ❑ If you are considering [withdrawing](#) from this course, please contact me to discuss your circumstances, and how I can support your academic progress. To better understand the implications of how withdrawal will impact you academically and financially, I recommend that you contact your advisor (student success coach), as you consider withdrawal.
- ❑ It is important to note that [only you can withdraw yourself](#) from this course; per college policy, professors and deans cannot withdraw students from a course. Students failing to withdraw by this deadline will receive the grade earned, which will be calculated according to the grading criteria outlined in the course. Students must consult the academic calendar and adhere strictly to these deadlines.
- ❑ [You are encouraged to ask relevant questions during class](#).
- ❑ **Grades will not be disclosed over the telephone or via e-mail, except through your Atlas account.**
- ❑ You must satisfactorily complete all the course requirements in order to receive a passing grade. The requirement could include:
  - ❑ **In-class requirements** (Exams, Quizzes, Lab Reports, Homework, and Projects)
- ❑ Students may record video or audio of **class lectures only** for their own personal educational use. A class lecture is **defined** as a planned presentation by a professor, during a scheduled class, delivered for the purpose of transmitting knowledge or information that is reasonably related to the pedagogical objective of the course in which the student is enrolled. **Recording class activities other than class lectures, including but not limited to class discussions, student presentations, labs, academic exercises involving student participation, and private conversations, is prohibited.** Recordings may not include the image or voice of other students in the class, may not be used as a substitute for class participation and class attendance, and may not be published or shared without the written consent of the professor. Failure to adhere to these requirements may constitute a violation of the College's Student Code of Conduct.
- ❑ **Disruptive Behavior:** Any student engaging in disruptive behavior will be advised on the first offense and will be **dropped** from the course on the second offense.
- ❑ **Cheating is prohibited.** Using any human, written, electronic, or other resource in any manner not explicitly authorized by the professor will result in a grade of zero on the exam or assignment involved. Any student caught

cheating, **the instructor has the right to withdraw the student from the class and recommend expulsion from the program.**

- **Student Code of Conduct excerpt:** “B. Academic dishonesty allegations may be processed by the professor as academic violations and/or may be processed in accordance with student conduct procedures set forth in this Code. Students may be subject to both the Student Conduct Code and academic sanctions as determined in the academic judgment of the professor in cases where there is a combination of alleged violations of academic and nonacademic regulations. Any student determined by the professor to have been responsible for engaging in an act of academic dishonesty shall be subject to a range of academic penalties (apart from any sanctions that may be imposed pursuant to the Code) as determined by the professor which may include, but not be limited to, one or more of the following: loss of credit for an assignment, examination, or project; a reduction in the course grade; or a grade of "F" in the course. For more information, see College Policy 8-11 Academic Dishonesty.”
- Students are strongly encouraged to read the Valencia policy Manual *Student Code of Conduct* and *Acceptable Use of Information Technology Resources* and *Student Core Competencies* found at the following links:
  - <https://catalog.valenciacollege.edu/academicpoliciesprocedures/studentcodeofconduct/>
  - <https://valenciacollege.edu/about/general-counsel/policy/documents/volume7a/7a-02-acceptable-use-of-information-technology-resources.pdf>
  - <http://valenciacollege.edu/competencies>
- **Students with disabilities** who qualify for academic accommodations must provide a letter from the Office for Students with Disabilities (OSD) and discuss specific needs with the professor, **preferably during the first two weeks of class.** The Office for Students with Disabilities determines accommodations based on appropriate documentation of disabilities (West Campus SSB 102, ext. 1523).
- Learning Support Services provides students with academic support through distance tutoring, face to face tutoring at the campuses, writing consultations, library services, and resources. Tutoring is offered in most academic disciplines including math, science, foreign languages, English for academic purposes (EAP), computer programming and writing assistance for any course. Assistance with library research can be accessed online through Atlas or the tutoring LibGuide. For more information on how to access tutoring and library research assistance, please visit the college-wide Learning Support Services LibGuide at: [www.valenciacollege.edu/tutoring](http://www.valenciacollege.edu/tutoring)
- **Please note:** Brainfuse is Valencia’s 24/7 online tutoring and learning hub, which is available to all of Valencia’s students. This service is best used as a back up to Valencia’s Distance Tutoring service, not as a replacement. Brainfuse is accessible through Canvas or by visiting [www.valenciacollege.edu/tutoring](http://www.valenciacollege.edu/tutoring)

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