



UNIVERSITY OF
CENTRAL FLORIDA

OSE 2050 - INTRO. TO PHOTON. ENG. DESIGN

Section: 0001
Optics and Photonics

Course Information

Term: Fall 2025

Class Meeting Days: W

Class Meeting Time: 06:00PM - 07:50PM

Class Meeting Location: CROL A210

Modality: P

Credit Hours: 1.00

Instructor Information

Name: Kyu Young Han

Title: Associate Professor

Office Location: A334 in CREOL

Email: kyhan@creol.ucf.edu

Teaching Assistants

Enis Zuo (enis.zuo@creol.ucf.edu)

Arjent Imeri (arjent.imeri@ucf.edu)

Katelyn Canedo (katelyn.canedo@ucf.edu)

Their offices are located in A310 and A311.

Course Description

OSE 2050 OPTIC-OPTICS 1(0,2)Introduction to Photonics Engineering Design: PR: Rule Not Selected Hands-on experiments on real-life optics & photonics, to develop abilities in design, control, and communication with photonic devices used in computers and/or smartphones. Spr.

Optics and Photonics is a key enabling discipline in modern industry. Understanding their working principles and applying them to real life are increasingly important. This lab course will introduce how our daily life benefits from photonics techniques by making and designing simple devices. Various topics will be included such as lightning, display, smart home and autonomous mobile, etc. This course will use open-source hardware and software. No prior knowledge is required to take the course; however, the very basic knowledge of electronics will be helpful.

Student Learning Outcomes

After successful completion of this course, students will be able to:

- Design basic photonics devices
- Communicate with devices through computers
- Program scripts to control devices and process commands
- Develop their own projects

Required Course Materials and Resources

No textbook (Lecture notes will be provided through Webcourses)

Recommended Course Materials

Title: Arduino Tutorials

Online Access: <https://docs.arduino.cc/tutorials/>

Course Assessment and Grading Procedure

Attendance	50%
Assignment + Quizzes	30%
Final presentation	20%

Grading Scale

Grading Scale

Letter Grade	Percentage
A	91-100%
A-	81-90%
B+	76-80%
B	71-75%
B-	66-70%
C+	61-65%
C	56-60%
C-	51-55%
D+	46-50%
D	41-45%
D-	36-40%
F	0-35%

Policies for Course Grade

Makeup Work Policy: If you have an emergency, you can request a makeup session through TA, which should be done before the next class.

Missed/Late Assignments: No credits.

Attendance: You must attend the lab sessions in-person.

Disability Access & Accommodations

The University of Central Florida is committed to providing equal access to all students with disabilities (ADHD, learning disabilities, Autism, chronic medical conditions, physical disabilities, etc.). To receive consideration for reasonable disability-related course accommodations, disabled students must contact Student Accessibility Services (SAS) and complete the steps required for SAS to review accommodation requests. More information can be found on the UCF [Student Accessibility Services](#) website under the Start Here tab or by contacting SAS directly (Ferrell Commons 185; sas@ucf.edu; Phone - 407-823-2371).

Approved accommodations are shared with course instructors via the SAS Course Accessibility Letter. Implementing certain accommodations may require discussion about specific considerations of the course design, course learning objectives, and the individual academic and course challenges experienced by the student. While students with disabilities or chronic health needs are also encouraged to discuss any course concerns with professors in addition to contacting SAS, professors are not required to facilitate disability-related adjustments to the course unless the professor has received a Course Accessibility Letter from SAS that outlines approved accommodations.

Academic Integrity

Students should familiarize themselves with UCF's Code of Conduct at [Student Conduct and Integrity Office](#). According to Section 1, "Academic Misconduct," students are prohibited from engaging in:

- a. Academic misconduct is defined as any submitted work or behavior that obstructs the instructor of record's ability to accurately assess the student's understanding or completion of the course materials or degree requirements (e.g., assignment, quiz, and/or exam). Examples of academic misconduct include but are not limited to: plagiarism, unauthorized assistance to complete an academic exercise; unauthorized communication with others during an examination, course assignment, or project; falsifying or misrepresenting academic work; providing misleading information to create a personal advantage to complete course/degree requirements; or multiple submission(s) of academic work without permission of the instructor of record.

- b. Any student who knowingly helps another violate academic behavior standards is also in violation of the standards.
- c. Commercial Use of Academic Material. Selling of course material to another person and/or uploading course material to a third-party vendor without authorization or without the express written permission of the University and the instructor of record. Course materials include but are not limited to class notes, the instructor of record's slide deck, tests, quizzes, labs, instruction sheets, homework, study guides, and handouts.
- d. Soliciting assistance with academic coursework and/or degree requirements. The solicitation of assistance with an assignment, lab, quiz, test, paper, etc., without authorization of the instructor of record or designee is prohibited. This includes but is not limited to asking for answers to a quiz, trading answers, or offering to pay another to complete an assignment. It is considered Academic Misconduct to solicit assistance with academic coursework and/or degree requirements, even if the solicitation did not yield actual assistance (for example, if there was no response to the solicitation).

Responses to Academic Dishonesty, Plagiarism, or Cheating

Students should also familiarize themselves with the procedures for academic misconduct in UCF's student handbook, [The Golden Rule](#). UCF faculty members have a responsibility for students' education and the value of a UCF degree, and so seek to prevent unethical behavior and respond to academic misconduct when necessary. Penalties for violating rules, policies, and instructions within this course can range from a zero on the exercise to an "F" letter grade in the course. In addition, an Academic Misconduct report could be filed with the Office of Student Conduct and Academic Integrity, which could lead to disciplinary warning, disciplinary probation, or deferred suspension or separation from the University through suspension, dismissal, or expulsion with the addition of a "Z" designation on one's transcript.

Being found in violation of academic conduct standards could result in a student having to disclose such behavior on a graduate school application, being removed from a leadership position within a student organization, the recipient of scholarships, participation in University activities such as study abroad, internships, etc.

Let's avoid all of this by demonstrating values of honesty, trust, and integrity. No grade is worth compromising your integrity and moving your moral compass. Stay true to doing the right thing: take the zero, not a shortcut.

Title IX

Title IX prohibits sex discrimination, including sexual misconduct, sexual violence, sexual harassment, and retaliation. If you or someone you know has been harassed or assaulted, you can find resources

available to support the victim, including confidential resources and information concerning reporting options at [Let's Be Clear](#) and [UCF Cares](#).

For more information on access and community engagement, Title IX, accessibility, or UCF's complaint processes contact:

- Title IX – ONAC – [Office of Nondiscrimination & Accommodations Compliance](#) & askanadvocate@ucf.edu
- Disability Accommodation – Student Accessibility Services – [Student Accessibility Services](#) & sas@ucf.edu
- [Access and Community Engagement](#) (including the Ginsberg Center for Inclusion and Community Engagement, Military and Veteran Student Success, and HSI Initiatives)
- UCF Compliance and Ethics Office – [Compliance, Ethics, and Risk Office](#) & complianceandethics@ucf.edu
- The [Ombuds Office](#) is a safe place to discuss concerns.

Reporting an Incident or Issue

If you believe you have experienced discrimination by any faculty or staff member, contact the Office of Nondiscrimination & Accommodations Compliance via the [ONAC website](#) or at 407-823-1336. You can also choose to report using the UCF Integrity Line either anonymously or as yourself at 1-855-877-6049 or by using the [online form](#). UCF cares about you and takes every report seriously. For more information see the [Reporting an Incident or Issue Webpage](#).

Deployed Active-Duty Military Students

Students who are deployed active duty military and/or National Guard personnel and require accommodation should contact their instructors as soon as possible after the semester begins and/or after they receive notification of deployment to make related arrangements.

Campus Safety

At UCF Public Safety and Police, safety is the top priority. Emergencies on campus are rare, but if one should arise, it's important to be familiar with some basic safety and security concepts.

- In an emergency, always dial 911.

- Every UCF classroom has an **Emergency Procedure Guide** posted on a wall near the door, which will show you how to respond to a variety of situations. This guide can also be found online [here](#).
- In the event of an active threat, remember **AVOID, DENY, DEFEND**. Choose the best course of action and act immediately. Watch the video [here](#) to learn more.
 - **AVOID**. Pay attention to your surroundings and have an exit plan. Get as much distance and as many barriers between you and the threat as quickly as possible.
 - **DENY**. When avoiding is difficult or impossible, deny the threat access to you and your space. Lockdown by creating barriers, turning the lights off and remaining quiet and out of sight. Make sure your cell phone is silenced, but do not turn it off.
 - **DEFEND**. When you are unable to put distance between yourself and the threat, be prepared to protect yourself. Commit to your actions, be aggressive and do not fight fairly. Do whatever it takes to survive.
- For emergencies on campus, UCF will utilize the [UCF Alert](#) system. All UCF students, faculty and staff are automatically enrolled to receive these email and text alerts, however, it's a good idea to frequently ensure your [contact information is up to date](#).

Financial Aid Accountability

All instructors/faculty are required to document students' academic activity at the beginning of each course. In order to document that you began this course, please complete this activity by the end of the first week of classes or as soon as possible after adding the course. Failure to do so may result in a delay in the disbursement of your financial aid.

Class Schedule

Course Schedule	
Week	Topic
1	Introduction and Module1 Basics of Arduino programming LED control & dimming
2	Module1: Hello LED LED digital dimming, LED switch (pushbutton)
3	Module1: Hello LED LED switch (counting), LED wand Module2: Smart Home Photoresistor

Week	Topic
4	Module2: Smart Home Photodiode Integration of LED and light sensing Seven segment display
5	Module2: Smart Home Libraries Auto-dimming, People counter
6	Module3: Touch screen display Basic functions Controlling LED with touch screen
7	Module3: Touch screen display LED dimming with touch screen Light sensing and display with touch screen Graphing & statistics
8	Module4: Smart Auto LIDAR Measuring distance with light
9	Module4: Smart Auto Proximity sensor and warning Exporting data using MATLAB (serial communication)
10	Module4: Smart Auto 1D LIDAR imaging Servo
11	Module5: Imaging Camera (ArduCam) Image processing
12	Module5: Imaging Optical microscope Measuring feature size Imaging + LIDAR
13	Final Project: Showcase Group 1
14	Final Project: Showcase Group 2
15	Semester ends
16	