

Approval Chart for Curriculum Changes

A = Approve I = Information Item¹ R = Advise & Respond²

Course Number PHYS/ENGR 363 or Degree Plan(s) _____
 State the requested change and reason. A memo may be attached if more space is necessary.

We are proposing to cross-list PHYS 363 with ENGR 363. PHYS 363 is the one hour lab that accompanies the lecture course, PHYS/ENGR 362. PHYS/ENGR 362 and 363 will provide an important elective for engineers interested in optical systems. This will provide additional options for advanced electives in our engineering program. The suggested course number will be ENGR 363.

Circle the number that corresponds to the requested change. Degree plan changes are on the second page.

		COUNCIL ³						
		Dept./School	College Academic	Deans	TEC	UGEC	UUAC	GRAD
Change to a Course								
1.	Title (description unchanged)	A	A	A		I		I
2.	Description (not affecting content)	A	A	A		I		I
3.	Course term(s)	A	I	A		I		I
4.	Content (substantive change)	A	A	A		I		A
5.	Number of hours (lecture, lab, contact)	A	A	A		A		A
6.	Course number within the hundred	A	A	I		I		I
7.	Course number beyond the hundred	A	A	A		A		A
8.	Prerequisites	A	A	A		I		I
9.	Course fee(s)	A	--	A		--		A
10.	From U to G or G to U	A	A	A		A		A
11.	Cross list with another department <u>U</u> or G level	A	A	A		A		A
12.	Department of record	A	A	A		A		A
13.	Open or close a course	A	A	A		A		A
14.	New course — See website for application and process. This change includes combining or splitting a course(s).	A	A	A		A		A

Note: When an academic unit does not have a council, the UGEC and/or UUAC will serve as its academic council, depending on the nature of the issue.

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		COUNCIL ¹								Board of Trustees		
Change to a Degree Plan		Dept./School	College Academic	Deans	TEC	UGEC	UUAC	GRAD	Provost	Faculty	President	
1.	University Requirements — Change in approved course content ⁶	A	A	A		A			A	--	A	--
2.	University Requirements — Add or drop a required course from the University Requirements chart ⁶	A	A	A		A			A	A	A	--
3.	University Requirements — Add or drop a course from a menu within the University Requirements ⁶	A	--	--		A			A	--	A	--
4.	University Requirements — Change hours within a menu on the University Requirements chart ⁶	A	A	A		A			A	A	A	--
5.	Major — Revision of major ^{4,5}	A	A	A		A			A	--	A	--
6.	Major — Adopt or change admission requirements	A	A	A		A			A	--	A	--
7.	Major — Add ^{4,5}	A	A	A		A			A	A	A	I
8.	Major — Discontinue (proposed by the department or college)	A	A	A		A			A	A	A	I
9.	Major — Discontinue (proposed by the Provost)	See below.										
10.	GPA — Revise major or cumulative requirement	A	A	A		A			A	A	A	--
11.	Minor — Revise course selection	A	A	A		I			I	--	I	--
12.	Minor — Add	A	A	A		A			A	--	A	--
13.	Minor — Discontinue (proposed by the department or college)	A	A	A		A			A	--	A	--
14.	Minor — Discontinue (proposed by the Provost)	See below.										
15.	Degree — Add	A	A	A		A			A	A	A	I
16.	Degree — Discontinue (proposed by the department or college)	A	A	A		A			A	A	A	I
17.	Degree — Discontinue (proposed by the Provost)	See below.										
18.	Any change to a graduate degree program	A	A	A		A			A	--	A	--

		COUNCIL ¹								Board of Trustees
Provost-Proposed Change		Provost	Department	Dean	TEC	UUAC	Graduate	Faculty	President	
1.	Major/Graduate Program — Discontinue (proposed by the Provost)	A	R	R		A		A	A	I
2.	Minor — Discontinue (proposed by the Provost)	A	R	R		A		--	A	--
3.	Degree — Discontinue (proposed by the Provost)	A	R	R		A		A	A	I

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COUNCIL ³										
	Change to the Catalog Information	Dept./School	College Academic	Deans	UGEC	UUAC	GRAD	Provost	Faculty	President
1.	General requirements for graduation including course requirements that are common to all majors for all degrees?	--	--	--		A		A	A	A
2.	Admission requirements	--	--	--		A		A	A	A
3.	Policies governing academic probation and suspension	--	--	--		A		A	A	A
4.	Requirements for graduating with honors	--	--	--		A		A	A	A
5.	Other academic policy changes	--	--	--		A		A	--	A

¹ Councils may request additional information about "Information" items. These items are approved as "Consent Agenda."

² The Dean and Department should respond to the Provost's recommendation to close a program in writing. Advise & Respond (R) requires that the voting body should receive the written responses at least one week prior to the vote.

³ All courses that meet University Requirements for general education must go through UGEC. Courses or degrees offered only to students seeking teacher certification must go through the Teacher Education Council. All undergraduate changes must go before the UUAC. All graduate degree plan changes must go through the Graduate Council.

⁴ A minimum of 30 hours is required for a major. A maximum is specified for each degree (e.g., BA, BS). The university minimum for elective hours is 6, unless the requirements of external accrediting bodies make it impossible.

⁵ Program or course changes that apply to any major that includes Teacher Certification will be reviewed by the college, the Teacher Education Council (TEC), and then the UUAC.

⁶ Courses that satisfy ACU's University Requirements (General Education) will normally have lower-level numbering, be free of prerequisites and co-requisites, appeal to more than one or two majors, and "not narrowly focus on those skills, techniques, and procedures specific to a particular occupation or profession" (SACS 2.7.3). Departments may request exceptions to the first three criteria.

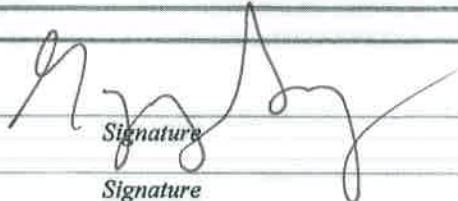
⁷ The UUAC approved the clarification that "general requirements for graduation" means the enumerated items in the "General Requirements for Bachelor's Degrees" section of the catalog.

Revised 1-8-17

Curriculum/Catalog Changes Signature Page

Department/School Chair(s)	
 Signature	11/27/18 Approval date
_____ Signature	_____ Approval date

College Academic Council(s)	
 Signature	2-22-19 Approval date
_____ Signature	_____ Approval date

Dean(s)	
 Signature	3/1/19 Approval date
_____ Signature	_____ Approval date

Teacher Education Council	
_____ Chair's signature	_____ Approval date

General Education Council	
_____ Chair's signature	_____ Approval date

Undergraduate Academic Council	
_____ Chair's signature	_____ Approval date

Graduate Council	
_____ Chair's signature	_____ Approval date

Provost	
_____ Signature	_____ Approval date

Faculty	
_____ Chair of faculty senate	_____ Approval date

President	
_____ Signature	_____ Approval date

PHYS/ENGR 363 – Optics Lab 1 hours, Fall 2018

Location: OSC B17

Time: R 2-4:50

Prerequisites: PHYS 222/PHYS 223, MATH 186

Corequisite: PHYS/ENGR 362

Prof: Dr. Larry Isenhower

Email: ldi00a@acu.edu

Phone: 325-674-2165

Office: Onstead 123E

Office hours: MWF 10-11:00 am, TR 8:30-11:00 am, other times by appointment

The mission of Abilene Christian University

The mission of Abilene Christian University is to educate students for Christian service and leadership throughout the world.

The mission of the College of Arts and Sciences

The College of Arts and Sciences engages students with humanity's greatest ideas to create understanding, apply insights, and serve the world as Christian thinkers and problem solvers.

The mission of the department of Engineering and Physics

The faculty of the department of Engineering and Physics admire God's handiwork in the laws of the universe, and they seek to help students understand and apply those principles to solve big problems while improving the lives of people around the world.

Course Description:

Laboratory course to accompany PHYS 362. Students will get hands-on experience using optical devices to study material covered in PHYS 362.

Audience:

This course is aimed at physics majors and engineering majors interested in optical science and engineering. Typically it is taken during the junior year.

Outline of topics:

1. Overview of course and safety training
2. Geometric and physical optics
3. Light Detection, index of refraction, and optical fibers
4. E&M waves – speed of light, Gaussian beams, and interference
5. Student choice Lab I
6. Student choice Lab II

Format of Course:

This laboratory course gives students first hand experience using optical devices and focuses on studying concepts covered in PHYS 363. During the first half of the semester students will work in groups to perform the same labs covering fundamental topics such as: geometric optics, EM waves, interference, and light detection. During the second half of the semester students engage in longer more complex labs on advanced topics. These are chosen from a list of available options based on student interest.

Required Texts:

none

Learning Objectives:

	Competency	Measurement
1	Apply design strategies to produce solutions that meet specified needs.	Lab book, proposals
2	Communicate effectively with a range of audiences	Lab book, proposals, final reports, and final presentation
3	Effectively work on a team.	observation during labs, proposals, and final reports
4	Develop and conduct appropriate experimentation, analyze and interpret data, and use scientific judgement to draw conclusions.	Lab book, proposals, final reports, and final presentation

Grading:

20% Experimental proposals
30% Lab books
35% Final reports
15% Final presentation

Scores will be converted to grades according to a standard scale:

A: 90%-100%
B: 80%-90%
C: 70%-80%
D: 60%-70%
F: 0%-60%

Experimental Proposals:

You will receive a prompt for each lab that you do. You will then need to research the needed background material to write a proposal for how your group will perform the required measurements. You should be able to find adequate information in the textbooks or online, but you are expected to come discuss your ideas with the professor to help you fine-tune your proposal and prevent any major issues before coming to lab. Your proposal **must** include: introduction to the necessary background information for the lab, bill of materials needed, reasonably complete set of steps needed to perform the measurements, and an estimate of error expected for your final measurement. This should come in the form of a paper turned in by your group and will typically be 2-5 single spaced pages long (depends on formatting somewhat). It should be easy to read, grammatically correct, cite sources as necessary, and look professional.

Lab books:

You will keep a laboratory notebook of all work done in the lab. This book should have enough information in it that anyone with optics lab experience can easily repeat your measurements. More specifically I expect to see: sketches of optics layouts, equations and simple calculations to check work as you are performing your experiments, experimental data, comments about any difficulties encountered during the experiment, etc. If you don't know what should be in a lab book ask friends, the TA, and the professor.

Formal Write-ups:

As you complete each lab you need to write a formal write-up of your results. The formal write-up should look similar to academic published articles. There should be an introduction and background, experimental description with enough information an expert could repeat the experiment, experimental data, error analysis, and conclusions. It is likely (probably required) that you will have supporting figures showing experimental layouts, data, or other relevant information. Again this must look professional and be well written. Obvious grammar mistakes will lose points. You should be growing in your ability to analyze and critically evaluate your data and methods. I expect to see discussions of your sources of error and what you did to minimize those errors. If you changed designs due to a specific problem or major source of error, discuss that. Human error is not a valid option in most cases. Errors are due to the tools and methods used to make a measurement and how those interplay to arrive at a final measured quantity.

I do expect you to discuss your write-up with me before finishing to get feedback about layout and expectations and any other advice I can give you to improve your writing. These are due within 2 weeks of finishing a lab. The first three labs that are mandated for all students will have final reports submitted by the entire group. The last two student selected labs will be individual lab reports.

Final Presentation:

During finals week each student will give a 20 minute oral presentation on the lab of their choice. This is to be similar to a conference talk or job report. Visual aids (powerpoint, slides, pictures, etc.) are strongly encouraged but any video shown must be less than 5 minutes in total. As in the formal write-up you should cover: introduction, background, relevance, experimental setup, data, and conclusions.

You should dress professionally. If you use less than 16 or more than 23 minutes there will be a score penalty. A rubric will be shared on Canvas for understanding the other criteria used for grading. Again, I strongly encourage you to come give a practice talk to me before the final presentation to receive feedback.

Attendance:

You need to do every lab. Any missed lab will be recorded as a zero except in rare extreme circumstances. You will be working with a partner so "attendance" is not as formally scheduled. Upon turning in your group's proposal you will receive feedback on your proposal and will be able to start the lab at a convenient time for your group. I strongly recommend choosing times that I or the TA can be around to answer questions. For most labs we have enough materials for all groups to work at the same time, but some labs will require separate lab times due to limited apparatus access.

Academic Integrity:

Academic integrity is defined as academic work completed as assigned for each class by the individual or group responsible for the work. Violations of academic integrity and other forms of cheating involve the intention to deceive, mislead, or misrepresent and therefore, are a form of lying. Such actions are contrary to behavioral norms that flow from the nature of God. Academic misconduct includes, but is not limited to, the following: 1) Failing to give credit to sources used in a work in an attempt to present the work as one's own, 2) Submitting papers or projects obtained from another source (e.g., research service or club paper file) as one's own, 3) Falsifying information orally or in writing, and 4) Receiving, giving, or using unauthorized aid on an examination or quiz. Academic misconduct may result in, but is not limited to, a zero on the assignment and/or an F in the course. Additionally, the department chair, Dean of the College of Arts and Sciences, and the Dean of Student Life will be notified. See the full university policy, including how to appeal a decision, by following this link:

<http://www.acu.edu/community/offices/administrative/office-of-the-provost/academic-integrity-policy.html>

ADA Compliance Policy:

Abilene Christian University is dedicated to removing barriers and opening access for students with disabilities in compliance with ADA and Section 504 of the Rehabilitation Act. The Alpha Scholars Program facilitates disability accommodations in cooperation with instructors. In order to receive accommodations, you must be registered with Alpha Scholars Program, and you must complete a specific request for each class in which you need accommodations. If you have a documented disability and wish to discuss academic accommodations, please email alpha@acu.edu call our office directly at 325-674-2667.

Anti-Harassment Policy:

Consider adding the following text from the harassment policy of ACU:

“As a Christian community, Abilene Christian University has committed itself, unequivocally, to ensuring a working and learning environment in which the dignity of every individual is respected. Harassment is defined as unwelcome behavior or conduct based on sex, religion, race, age, color, national origin, veteran's status, disability, or any other characteristic protected by law when (1) submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment, education, or participation in University programs or activities, (2) submission to, or rejection of, such conduct by an individual is used as the basis for a decision affecting an individual's employment, education, or participation in University programs of activities, or (3) such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive environment for work, education, or participation in a University program or activity. See the full university policy by following [this link](#).

Note:

This syllabus is as accurate as possible at this time; however, it may be necessary to change certain aspects to improve the course or address concerns arising during the semester. These changes will be announced in class and on Canvas.