

Approval Chart for Curriculum Changes

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

Course Number ENGR 387 or Degree Plan(s) _____

State the requested change and reason. A memo may be attached if more space is necessary.

See Attached

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

Change to a Course		Dept./School	College Academic	Deans	COUNCIL ¹				Provost	President
					TEC	UGEC	UUAC	GRAD		
1.	Title (description, unchanged)	A	A	A		I			I	I
2.	Description (not affecting content)	A	A	A		I			I	I
3.	Course term(s)	A	I	A		I			I	I
4.	Content (substantive change)	A	A	A		I			A	A
5.	Number of hours (lecture, lab, contact)	A	A	A		A			A	A
6.	Course number within the hundred	A	A	I		I			I	I
7.	Course number beyond the hundred	A	A	A		A			A	A
8.	Prerequisites	A	A	A		I			I	I
9.	Course fee(s)	A	I	A		I			A	I
10.	From U to G or G to U	A	A	A		A			A	A
11.	Cross list with another department: U or G level	A	A	A		A			A	A
12.	Department of record	A	A	A		A			A	A
13.	Open or close a course	A	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	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.

Approval Chart for Curriculum Changes

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

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

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

Approval Chart for Curriculum Changes

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

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 ⁷	--	--	--		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.

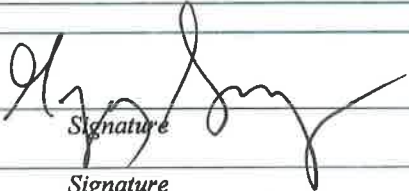
⁷ The UUAC approved the clarification that "general requirements for graduation" means the enumerated items in the "General Requirements for Bachelor's Degrees" section of the catalog.

Revised 3-8-17

Curriculum/Catalog Changes Signature Page

Department/School Chair(s)	
 <i>Signature</i>	<u>10/30/18</u> <i>Approval date</i>
 <i>Signature</i>	 <i>Approval date</i>

College Academic Council(s)	
 <i>Signature</i>	<u>11-20-2018</u> <i>Approval date</i>
 <i>Signature</i>	 <i>Approval date</i>

Dean(s)	
 <i>Signature</i>	<u>11/27/18</u> <i>Approval date</i>
 <i>Signature</i>	 <i>Approval date</i>

Teacher Education Council	
 <i>Chair's signature</i>	 <i>Approval date</i>

General Education Council	
 <i>Chair's signature</i>	 <i>Approval date</i>

Undergraduate Academic Council	
 <i>Chair's signature</i>	 <i>Approval date</i>

Graduate Council	
 <i>Chair's signature</i>	 <i>Approval date</i>

Provost	
 <i>Signature</i>	 <i>Approval date</i>

Faculty	
 <i>Chair of faculty senate</i>	 <i>Approval date</i>

President	
 <i>Signature</i>	 <i>Approval date</i>

Application for a New Course v10.6

Course ID <i>Subject and Number</i>	ENGR 387
Date APPROVED	
Date DENIED	

I. Systems and Catalog Information Complete each item.

1	Course Developer	Darby Hewitt
2	Course Teacher	Darby Hewitt
3	Course Title	Power Electronics and Electromechanics
4	Course Abbreviation (if title is over 30 characters)	Power Electronics
5	College	CAS
6	Department	Engineering and Physics
7	Number of Credit Hours	3
8a.	Number of contact hours - lecture	3
8b.	Number of contact hours – lab/activity	0
9	Is the course for a fixed or variable number of credit hours?	Fixed
10	Explanation for variable credit	
11	Is the course repeatable for additional credit?	No
12	Maximum total number of credit hours a student can earn for this course	3
13	What type of course is this? (Select one. Please see Schedule Type definitions above.)	☒ Traditional lecture ☐ Traditional lab ☐ Traditional lecture/lab ☐ Experiential Learning ☐ Seminar ☐ Studio ☐ Thesis ☐ Dissertation

14	Instructor Workload	standard
15	Grade Mode (check all appropriate):	☒ _X_ Standard ☐ _Credit/No Credit (undergrad only)
16	Maximum Enrollment	18
17	Catalog Description (50 words or less)	This course covers the following list of topics: power and energy fundamentals in the context of electric circuits, mutual inductance, three-phase power, electromechanical forces and torques, cycles of energy conversion, electric machines.
18	List any prerequisites (course/s, test scores, class standing, major, etc.)	ENGR 135/136
19	List any co-requisites	
20	If the course is cross listed, specify the Course ID(s); MUST have signature in Section V from all Department Chairs	
21	Does this course have any special student costs?	☒ _X_ No ☐ _Yes (If yes, must attach a <u>completed</u> "Request to Add or Change Course Fees" form. Describe in section IV-F.)
22a	How frequently will the course be offered in the Fall ? All, even or odd years?	Even years
22b	How frequently will the course be offered in the Spring ? All, even or odd years?	None
22c	How frequently will the course be offered in the Summer ? All, even or odd years?	None
23	First semester this course will be offered <i>New courses may not be taught under their approved course ID until they appear in the catalog, therefore, no earlier than the coming fall.</i>	2020 Fall
24	List course/s that should be deleted, (Also, include the last semester for course/s being deleted)	

25	Is this course required for a degree/s? <i>If "Yes," attach a revised degree plan(s) reflecting the placement of the new course.</i>	☒ _X_No ☐ _Yes
26	Should the addition of this course be retroactively applied to the degree plan it supports?	☐ _No ☒ _X_Yes Explanation: This course should be added to the list of approved ENGR electives for the BSE degree plan.
27	Has this course been offered as a Special Topics course?	☒ _X_No ☐ _Yes <i>If "Yes," specify the Course ID and enrollment for each term it was taught.</i> <i>(Note: New courses are NOT required to be taught as Special Topics courses prior to being approved. However, a course may be taught once as Special Topics before it is proposed. See the Course Descriptions section of the Catalog for details.)</i>
28	List any courses in which the content overlaps the proposed course. (Course ID and Name) <i>Attach a statement from the instructor/dept chair of the existing course justifying the new offering in Section IV-D.</i>	

II. Curriculum

1	Degree Plan Explanation of how this course affects degree requirements.	This course will be required in the electrical engineering discipline-specific elective track of the BSE degree plan.
2	Justification State the justification for adding this course to the current curriculum. Represent the need.	Power Electronics and Electromechanics is a standard course within most electrical engineering undergraduate programs. This course covers electronic power supplies, electric machines, and power distribution in depth, and it will be the first course at ACU to cover these topics.

III. Course Design

1. Audience and Course Goal

1	Describe the intended audience, including prerequisite skills.	Students pursuing a BSE degree who have an interest in electrical engineering.
2	State the overarching course goal(s) in performance terms.	Students who have taken this course will be equipped with the fundamental knowledge necessary to succeed in the power transmission and distribution industry.

2. Competencies and Measurements

	Competency	Measurement
1	Analyze power flow in three-phase power networks	Homework, quizzes, midterm exam, and final exam
2	Balance multi-phase loads	Homework, quizzes, midterm exam, and final exam
3	Explain the operation of transformers	Homework, quizzes, midterm exam, and final exam
4	Analyze circuits which utilize mutual inductance	Homework, quizzes, midterm exam, and final exam
5	Describe the operation of electric machines	Homework, quizzes, midterm exam, and final exam
6	Analyze energy conversion cycles and calculate their efficiency	Homework, quizzes, midterm exam, and final exam
7		
8		
9		

3. Text and Resources

Power Circuits and Electromechanics, by M. A. Pai, Stipes Publishing, LLC

IV. Supporting Documentation

Supporting documents must accompany proposal prior to preliminary approval by chair and dean.

1	Library — Submit new course application and syllabus to the Dean of the Library. Consult with the director and establish a deadline for completion of the library report. Attach the signed copy of the Library report.
2	Instructional Design — The application and syllabus must be reviewed by the Adams Center. Attach a copy of the Adams Center Review Letter.
3	Content Overlap — Include one document for each course you listed in Section I-I. Attach statement from instructor/dept chair of existing course justifying the new offering.
4	Departmental Resources — List the resources that support the course and are available only through the department, if applicable. Attach the list of the holdings and the location/s.
5	Resources — List resources (other than library or departmental resources) that are needed to support this course (computers, lab equipment, other technology, etc.). Attach a complete list of all items and indicate possible sources or estimated cost of each. List the sources of any needed funds.
6	Expenses — List additional expenses needed to implement this course (full-time or part-time faculty, graduate or lab assistants, student employees, travel, special student costs, room renovation, storage facility, etc.). Attach a complete list of all items, the estimated cost of each and the source of the funds.
7	Justification — Attach all documents referred to in Section II-2
8	Syllabus — Attach the syllabus for the course based upon the anticipated first-semester offering.
9	Provide documentation for all additional attachments here

V. Preliminary Approvals

All supporting documentation has been assembled and attached to this application. I believe this course is ready to be presented to appropriate councils. We have a plan to fund this new course.

Course Number and Name _____

07/01/2016

V. Preliminary Approvals

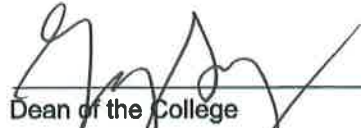
All supporting documentation has been assembled and attached to this application. I believe this course is ready to be presented to appropriate councils. We have a plan to fund this new course.

Course Number and Name ENGR 387

Primary Department


Department Chair

10/30/18
Date


Dean of the College

11/27/18
Date

Cross-listing Department *Add more lines if multiple departments are cross-listing*

Department Chair

Date

Dean of the College

Date

Cross-listing Department *Add more lines if multiple departments are cross-listing*

Department Chair

Date

Dean of the College

Date

VI. Actions *Place all actions on one page.*

Course ID: _____

Course Title: _____

1. College Academic Council: (for all courses)

Note: Insert additional lines for College Academic Council action for each college involved in cross-listed courses.

Approved _____ Denied _____
College Dean or Director Date _____

Approved _____ Denied _____
College Dean or Director Date _____

2. Graduate Council: (for graduate level courses)

Approved _____ Denied _____
Dean of Graduate School Date _____

3. Teacher Education Council: (when applicable)

Approved _____ Denied _____
TEC Chair Date _____

4. University General Education Council: (when applicable)

Approved _____ Denied _____
Provost's designee Date _____

5. University Undergraduate Academic Council: (*undergraduate level courses*)

Approved _____ Denied _____
Vice Provost Date _____

6. Academic Provost: (for all courses)

Approved _____ Denied _____
Provost Date _____

7. President of the University: (for all courses)

Approved _____ Denied _____
President Date _____

Attach notes, comments, or conditions from appropriate councils:

Dr. Darby Hewitt
darby.hewitt@acu.edu
OSC 121B

Re: Review of ENGR 387: Power Electronics and Electromechanics

Dear Dr. Hewitt,

Thank you for the submission of ENGR 387: Power Electronics and Electromechanics. I reviewed the syllabus based on the ACU Syllabus Guidelines. Please check the attached list, which indicates whether items have been addressed.

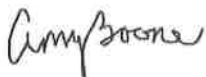
In addition, I also reviewed the syllabus from an instructional design perspective and here are changes that I suggest you make:

- Be sure to include the course calendar in the syllabus prior to distributing to students
- Most professors label multiple exams in the semester "Exam 1 and Exam 2" rather than labeling multiple midterms. Based on grades submitted at the university level, the midterm grade for a course is a specific grade at a specific point of the semester. In order to reduce confusion about the two exams in this course in the semester, you might consider naming them Exam 1 and Exam 2 for clarification. Or if one is the actual midterm and the other is an exam over different content, you could label them as such. Please let me know if this is unclear.

This letter is not meant to be a final approval in the course application process. Instead it is intended as a reference which will be read by your department chair and members of the council, who may also have questions or comments of their own. We would appreciate it if you could modify the syllabus items based on our suggestions, or prepare to justify keeping the items as they are.

We would like to thank you for allowing the Adams Center team to review your course application. The instructional design team would love to work with you on your syllabus, as well as the design, development or revision of this and other courses. If there is anything else we can do to help you, please feel free to let me know.

Sincerely yours,



ABILENE CHRISTIAN UNIVERSITY

LIBRARY

M E M O R A N D U M

DATE: 21:40
TO: Dr. Darby Hewitt
FROM: Mark McCallon, Associate Dean for Library Services
RE: New Course Proposal, ENGR 387 – Power Electronics and Electromechanics

The library has examined the course application and syllabus and is able to support the proposed course. Please contact Erica Pye (exp10a@acu.edu) , Librarian Liaison to the Department of Engineering and Physics, if additional library resources are needed for the course. Thank you for letting us review the course proposal.

Power Electronics and Electromechanics – ENGR 387, Section 01

Abilene Christian University

Fall 2020

Credit Hours, Class Meeting Times, and Location

This is a lecture course which meets for 3 hours a week and which will earn 3 hours of credit.

This course is intended for Engineering majors with an interest in Electrical Engineering.

This course meets Tuesday and Thursday in Onstead Science Center Room 345 from 1:30 pm to 2:50 pm.

Prerequisites/Corequisites

Credit for Introduction to Electric Circuits and its lab (ENGR/PHYS 135/136) as well as Ordinary Differential Equations (MATH 361) are required.

Required Text

Power Circuits and Electromechanics, by M. A. Pai, Stipes Publishing, LLC

Catalog Description

This course covers the following list of topics: power and energy fundamentals in the context of electric circuits, mutual inductance, three-phase power, electromechanical forces and torques, cycles of energy conversion, electric machines.

Instructor Contact Information

Name: Darby Hewitt, Ph.D, Assistant Professor of Engineering and Physics

Office: Onstead Science Center 121B

Phone: 325-674-6732

Email: darby.hewitt@acu.edu

Office Hours: MWF (10:00 am to 11:00 am) TR (3:00 pm to 5:00 pm). Additional office hours can be arranged as needed.

Teaching Philosophy and Christian Perspective

Engineering is a well-respected profession. The public entrusts engineers to be honest, competent, and ethical. Many codes of ethics for these fields indicate that the commitment to protecting the health, safety, and welfare of the public is of paramount importance. These values are in harmony with Christian principles and ideals. Christian engineers should be honest (Matthew 5:37), work hard to ensure competency (Colossians 3:23), and put the public's interest ahead of his or her own (Luke 6:31). In light of these principles, this course will be taught such that you will gain an appreciation for the professional nature of engineering. It will be taught so as to give you every opportunity to begin to develop competency in these fields. This will require homework, quizzes, tests, and group discussion. The instructor especially encourages the discussion of topics that would bear on integrating faith and professional responsibilities (cheating on licensure exams, weapons design and manufacture, environmental laws and employment opportunities in developing nations, etc.)

Learning Objectives

The activities of the course support the assessment of the following ABET Student Outcomes (approved for implementation in the 2019–20 accreditation review cycle)

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors

Competencies

By the end of this course students will be able to:

- Analyze power flow in three-phase power networks
- Balance multi-phase loads
- Explain the operation of transformers
- Analyze circuits which utilize mutual inductance
- Describe the operation of electric machines
- Analyze energy conversion cycles and calculate their efficiency

These competencies will be assessed through homework, quizzes, and tests

Student Conduct

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) Failure to give credit to sources used in a work in an attempt to present the work as one's own, 2) Submission of papers or projects obtained from another source (e.g., research service or club paper file) as one's own, and 3) Falsifying information orally or in writing. 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 visiting www.acu.edu/academic-integrity

Attendance

Attendance is expected at all class sessions. It is also expected that you arrive promptly. If you are absent or tardy it will likely affect your homework and quiz grades.

Grading Policy

Homework –

I encourage you to work together in small groups to solve homework problems, but ***do not copy your classmates' work***. I expect homework to be turned in on time. It will typically be due a week after it is assigned, and will be assigned almost every week. ***No late homework will be accepted***. If you simply cannot finish by the deadline, turn in what you have done on time to receive partial credit. I will drop your lowest homework grade.

Exams –

Two exams will be given during the semester in addition to the final exam. The dates are tentatively shown in the schedule, but may be subject to change. You will have at least one week notice before tests. Make-up tests will only be given for university approved absences with my approval and **you must talk to me about it before the scheduled exam time**. Approved make-up tests will be given at an assigned time at my discretion. Make-up tests will be far more difficult than the in-class test and may be written or oral.

Final Exam –

The final exam will be given at the time scheduled by the university. It will be a cumulative survey of the material presented throughout the entire semester.

Calculation of Final Course Grade-

Homework	10 %
Quizzes	25 %
Exams 1 and 2	30 %
Final Exam	35 %

90% and above	A
80% - 89%	B
70% - 79%	C
60% - 69%	D
59% and below	F

ADA Compliance Statement

"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 call our office directly at 325-674-2667."

Title IX Policy: At ACU, we strive to comply with all applicable legal requirements prohibiting, preventing, and responding to harassment against any member of the ACU community (e.g., Title VI, VII, and IX). Moreover, as a Christian community, ACU has committed itself, unequivocally, to ensuring a working and learning environment in which the dignity of every individual is respected.

Our **Anti-Harassment Policy** outlines specific definitions and procedures related **discriminatory and sexual harassment, sexual misconduct, assault, stalking, and relationship violence**. If you experience harassment in any of these forms, we encourage you to **report it** so that we can help maintain a work and academic environment free of unlawful harassment.

Disclaimer: This syllabus is complete and correct to my knowledge at the present time; however, this syllabus may be modified at any time if I determine that it is in the best interest of the class to do so.

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.

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 ACU:

To educate students for Christian service and leadership throughout the world.