

Approval Chart for Curriculum Changes

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

Course Number ENGR 450 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.

		Dept./School	College Academic	Deans	COUNCIL ³				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	--	A		--			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.

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

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

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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 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.

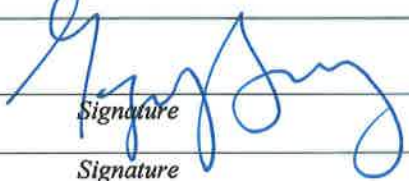
⁷ The UUAC approved the clarification that "general requirements for graduation" means the enumerated items in the "General Requirements for Bachelor's Degrees" section of the catalog.

Revised 3-8-17

Curriculum/Catalog Changes Signature Page

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

College Academic Council(s)	
 <i>Signature</i>	<i>12-7-2018</i> <i>Approval date</i>
<i>Signature</i>	<i>Approval date</i>

Dean(s)	
 <i>Signature</i>	<i>12/17/18</i> <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 450
Date APPROVED	
Date DENIED	

I. Systems and Catalog Information Complete each item.

1	Course Developer	Lori Houghtalen
2	Course Teacher	A faculty member in the department of Engineering and Physics
3	Course Title	Systems Simulation
4	Course Abbreviation (if title is over 30 characters)	Systems Simulation
5	College	Arts and Sciences
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	N/A
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

		☐ Dissertation
14	Instructor Workload	3
15	Grade Mode (check all appropriate):	☒ Standard ☐ Credit/No Credit (undergrad only)
16	Maximum Enrollment	18
17	Catalog Description (50 words or less)	Fundamentals of simulation methods. Systematic development, programming, and analysis of computer simulation models using Arena software. Applications of simulation to industrial settings.
18	List any prerequisites (course/s, test scores, class standing, major, etc.)	ENGR 377 (Statistics for Engineers) or MATH 377 ENGR 115/116 (Introduction to Engineering and Physics)
19	List any co-requisites	None
20	If the course is cross listed, specify the Course ID(s); MUST have signature in Section V from all Department Chairs	None
21	Does this course have any special student costs?	☒ 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?	None
22b	How frequently will the course be offered in the Spring ? All, even or odd years?	Odd
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>	Spring 2021

24	List course/s that should be deleted, (Also, include the last semester for course/s being deleted) <i>A course cannot be deleted when it is a requirement in a degree plan in any department.</i>	None
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>	☐ No ☒ Yes
26	Should the addition of this course be retroactively applied to the degree plan it supports?	☒ No ☐ Yes Explanation:
27	Has this course been offered as a Special Topics course?	☒ No ☐ Yes <i>If "Yes," specify the Course ID and enrollment for each term it was taught. (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>	PHYS 451 (Simulations and Modeling)

II. Curriculum

1	Degree Plan Explanation of how this course affects degree requirements.	The course will be a depth elective for students pursuing an emphasis in Industrial Engineering within the Bachelor of Science in Engineering degree.
2	Justification State the justification for adding this course to the current curriculum.	Based upon recent (Fall '17 and Spring '18) feedback from the ACU Engineering Industrial Advisory Board, ACU admissions, recent ('17

	Represent the need.	and '18) senior exit surveys, and the American Society of Engineering Educators, additional depth in engineering disciplines is needed within our degree plan to increase competitiveness of ACU graduates in the job market. Systems Simulation is a standard course offering in an Industrial Engineering curriculum, it prepares students to model and analyze complex manufacturing systems and the impact of changes and uncertainty on those systems.
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III. Course Design

1. Audience and Course Goal

1	Describe the intended audience, including prerequisite skills.	Third-year engineering students pursuing the Industrial Engineering emphasis.
2	State the overarching course goal(s) in performance terms.	Students will be able to: 1. Analyze systems from a systems simulation viewpoint. 2. Model and interpret effects of stochastic properties of systems. 3. Understand basic principles of simulation languages through Arena.

2. Competencies and Measurements

	Competency	Measurement
1	Develop ability to identify system features and formulate models to provide information for decision makers	Homework, Exam 1
2	Utilize the Arena modeling package to develop basic simulation models	Homework, Exam 2
3	Utilize the Arena modeling package to develop simulation models of systems that are similar in complexity of those found in industrial situations	Homework, Exam 3

4	Apply simulation modeling concepts to develop a model and then apply analysis techniques to provide information for decision making	Project
5		
6		
7		
8		
9		

3. Text and Resources

1. Give the full publication information of the textbook/s and other required resources and outside readings.

Kelton, D., R. Sadowski, and N. Swets, *Simulation with Arena*, 6th ed., McGraw-Hill Education, 2015. ISBN 978-0073401317

2. For **combined undergraduate/graduate** courses, make two lists:
 - a. full publication information; label **Undergraduate**.
 - b. full publication information; label **Graduate**. Indicate number of pages required.

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 ENGR 450

Primary Department


Department Chair

Dean of the College

10/30/18
Date

Date

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

Department Chair

Dean of the College

Date

Date

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

Department Chair

Dean of the College

Date

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:

October 23, 2018

Dr. Lori Houghtalen
Onstead Science Center 137E
Lori.houghtalen@acu.edu
325-674-6534

Re: Review of ENGR450

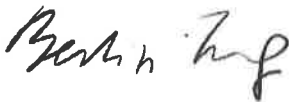
Dear Dr. Houghtalen,

Thank you for submitting ENGR450: Systems Simulation. I have reviewed it based on the ACU Syllabus Guidelines. I find the syllabus to be meeting all requirements in an exemplary way, except the following details:

- Please add a section about competencies and measurements
- Please add information about the meeting time and place when it becomes available.

There is no need to bring the syllabus to the Adams Center for further review. However, please note that 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.

If you have any questions, please feel free to let me know. Please also let me know if we can be of any help in the design and facilitation of this course.



Director of Instructional Design, Adams Center

ABILENE CHRISTIAN UNIVERSITY

LIBRARY

M E M O R A N D U M

DATE: 21:31
TO: Dr. Lori Houghtalen
FROM: Mark McCallon, Associate Dean for Library Services
RE: New Course Proposal, ENGR 450 – Systems Simulation

The library has examined the course application and syllabus and is able to support the proposed course. Please contact Erica Pye (expl0a@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.

Systems Simulation Abilene Christian University

Class Meeting Times and Location

Assigned class meeting time is ...

The final exam period is scheduled for ...

Catalog Description

Fundamentals of simulation methods. Systematic development, programming, and analysis of computer simulation models using Arena software. Applications of simulation to industrial settings.

Credit Hours: 3**Required Text**

Kelton, D., R. Sadowski, and N. Swets, *Simulation with Arena*, 6th ed., McGraw-Hill Education, 2015. ISBN 978-0073401317

Intended Audience

ENGR 450 is depth elective course intended for engineering students pursuing the Industrial Engineering emphasis.

Prerequisites

ENGR 115/116 (Introduction to Engineering and Physics) and ENGR 377 (Statistics for Engineers)

Contact Information

Name: Lori Houghtalen, Ph.D.

Office: Onstead Science Center 137E

Phone: 325-674-6534

Email: lori.houghtalen@acu.edu

Office Hours: Tues 1-3pm, Wed 9-10am, Thurs 9-11am and 1-3pm, or by appointment

I have an open door policy; if my door is open you are welcome to come in. The times listed above are when I anticipate being in my office and will make every effort to be available. At times I have to be off campus or in meetings out of my office due to other departmental and campus responsibilities; in the event you need me and do not find me in my office please send me an email and we can set up a meeting as soon as possible.

TEACHING PHILOSOPHY

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. 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.)

The instructor reserves the right to modify this document. The most up-to-date version of the document will be available on Canvas, and changes will announced in class and/or communicated via email.

LEARNING OBJECTIVES

After completing this course students will be able to:

- Identify system features and formulate models to provide information for decision makers
- Utilize the Arena modeling package to develop basic simulation models
- Utilize the Arena modeling package to develop simulation models of systems that are similar in complexity of those found in industrial situations
- Apply simulation modeling concepts to develop a model and then apply analysis techniques to provide information for decision making

COMPETENCIES

	Competency	Measurement
1	Develop ability to identify system features and formulate models to provide information for decision makers	Homework, Exam 1
2	Utilize the Arena modeling package to develop basic simulation models	Homework, Exam 2
3	Utilize the Arena modeling package to develop simulation models of systems that are similar in complexity of those found in industrial situations	Homework, Exam 3
4	Apply simulation modeling concepts to develop a model and then apply analysis techniques to provide information for decision making	Project

COURSE GRADING

Each of the following grade categories is discussed in more detail below.

Course Assignments	25%
Exam 1 (Feb X)	15%
Exam 2 (Mar X)	15%
Exam 3 (Apr X)	15%
Project	20%
Participation and Professionalism	10%

Calculation of Final Course Grade*

The grading scale will be as follows:

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

*Instructor reserves the right to decrease the lower bound of the grade cut-offs.

Course Assignments

There will be approximately seven course assignments in which students will be required to demonstrate mastery in simulation concepts, modeling, and analysis. Instructor may assign groups. These assignments will be equally weighted. Each assignment will have instructions regarding when and how it should be submitted, as well as how the assignment will be graded (which will be using a specifications-grading approach).

Exams

There will be three in-class exams. Students will be permitted to use limited resources (i.e. notes and/or provided reference material) during in-class exams; further instructions will be provided well in advance of each exam. Make-up exams will not be given. If a student must miss an exam for a University-approved reason, the instructor should be notified as far in advance as possible.

Project

A project will be assigned approximately halfway through the course in which students will be expected to work in a group, respond to a scenario using real data, construct a simulation model and provide written analysis and interpretation of their results. More details forthcoming.

Participation and professionalism*Participation*

Students are responsible for anything covered in class (which may include material not in the textbook). My commitment is to make our class time meaningful; I expect each student to come prepared to think and to engage, and to be on time. Classroom time will be a mix of lecture, discussion, and individual and small group activities. Participation in these (and all classroom activities) is expected, and will make for a much better class experience.

If a student is absent from class, it is his or her responsibility to get the notes and class assignments before the next class meeting. Students are required to attend at least 80% of class meetings in order to receive credit for the course. If you miss more than 20% of the classes, you may be dropped from the class with a WF.

Professionalism

Engineers are expected to behave in a professional manner. For the purposes of this course, professionalism means that students show up, are prepared, are engaged, treat peers and the instructor with respect (both verbally and in written communication), and do not engage in disruptive classroom activities. Disruptive activities include but are not limited to: inappropriate use of phones, computers, tablets, etc.; "sidebar" conversations during class discussions or presentations, arriving late, leaving or packing up early, and repeatedly exiting and entering the classroom.

A *projected* participation and professionalism grade will be posted on Canvas when mid-term grades are reported.

COURSE POLICIES**Communication**

ACU email and Canvas are the two official forms of class communication. General announcements and supplementary course materials will be posted on Canvas, and Canvas will also be used to report grades. Announcements that are time sensitive will be sent via ACU email.

Classroom rules

Cell Phones should be placed on 'Silent' mode while in class. In the case of an emergency you may answer your phone and quietly leave the room and return when you have finished your call. It is not in your best interest to text while in class.

Computers, laptops, tablets, etc. are not permitted to be used in the classroom unless they are being utilized as part of an in-class activity.

Removal from course

The instructor reserves the right to remove from the course any student whose behavior is disruptive to the learning environment for students or faculty.

DEPARTMENT POLICIES**Calculators**

If the course instructor determines that calculators may be used during the exams or other in-class graded activities, only NCEES approved calculators will be permitted. This is to help you begin preparing for the FE exam. Also per NCEES policy, software that simulates approved calculators will not be permitted. The NCEES policy may be reviewed at <http://ncees.org/exams/calculator-policy>. If you are unsure about your calculator, it is your responsibility to check with the instructor for approval. If you are caught using a non-approved calculator, you will not be allowed to complete the activity, and you will receive a zero for that activity (including tests).

The approved calculators include the following:

- Hewlett Packard – HP 33s, HP 35s, and no other
- Casio – All FX-115 models. Any Casio calculator must contain FX-115 in its model name.
- Texas Instruments – All TI-30X and TI 36X models. Any TI calculator must contain either TI-30X or TI-36X in its model name.

Late work: In order to assist students in developing the discipline of meeting deadlines, assignments must be turned in on time in order to receive credit. Students who are absent, for any reason and including absences for University approved activities, on the day an assignment is due should contact the instructor before the assignment is due for directions.

Engineering computation paper: All handwritten quantitative homework solutions must be submitted on engineering paper. ESA engineering paper may be purchased from ESA in Mr. Ray Smith's office. Each page should be labeled as indicated on the ESA pages, or as follows on other engineering paper:

<i>Student Name</i>	<i>Date submitted</i>	<i>Course and Assignment</i>	<i>Pg #</i>
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The instructor reserves the right to modify this document. The most up-to-date version of the document will be available on Canvas, and changes will announced in class and/or communicated via email.

ACADEMIC INTEGRITY POLICY

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 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."

THE MISSION OF ACU:

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 ENGINEERING AND PHYSICS DEPARTMENT:

The ACU engineering program strongly supports the university's mission of educating students for Christian service and leadership throughout the world. In support of this mission, ACU engineering graduates will attain:

- a deep and broad understanding of engineering principles and practices as evidenced by professional employment, continued professional development, and graduate study in engineering or other professional fields.
- an extensive knowledge of the innovative design processes unique to engineering professionals as demonstrated by using critical thinking skills to contribute to the scientific and technical literature, patents and intellectual property, professional societies, and creative designs.
- a thorough understanding of Christian service and leadership as shown in their commitments to professionalism, ethics, and service and leadership within the engineering profession, the church, and society.

Tentative Course Schedule

Week	Topic	Required Reading
1	Introduction to Simulation	Ch 1, Ch 2
2	Introduction to Arena	Ch 3
3	Modeling Basic Operations and Inputs	Ch 4
4	Modeling Detailed Operations	Ch 5
5	Statistical Analysis of Output	Ch 6
6	Intermediate Modeling, Steady-State Analysis	Ch 7
7	Entity Transfer	Ch 8
8	Advanced Modeling Issues and Techniques	Ch 9
9	Arena Integration and Customization	Ch 10
10	Continuous and Combined Models	Ch 11
11	Further Statistical Issues	Ch 12
12	Conducting Simulation Studies	Ch 13
13	Projects	
14	Review	
15	Project Presentations	

Tips for success:

This course will at times move very quickly through a lot of material. Students are expected to **complete the week's reading before class each Monday**; this initial reading should be for familiarity, not mastery. Failure to complete the reading will prevent meaningful participation during class activities, and will make it difficult to keep up with course assignments and expectations. If you are struggling to manage the workload, please contact me in a timely fashion for guidance. (Also, without input from students I won't have any way to know what adjustments to make!)

The instructor reserves the right to modify this document. The most up-to-date version of the document will be available on Canvas, and changes will announced in class and/or communicated via email.

proposed courses

Mark Phillips <mhp04a@acu.edu>

Thu, Oct 25, 2018 at 8:46 AM

To: Lori Houghtalen <lori.houghtalen@acu.edu>, Ray Smith <ray.smith@acu.edu>

I examined several of the courses you are proposing:

ENGR 251

ENGR 450

ENGR 351

For the first two there is no meaningful overlap with courses we offer.

For the third, there is slight overlap, but in practice this would not matter. Further, its focus is far more advanced than anything we offer or anticipate offering.

For ENGR 352 and ENGR 353 I was unsure and referred these to Don Pope, who responded via separate email to you, in which he detailed finding little to no overlap in these courses as well.

Thank you for the chance to look at these courses in advance of your applications. Good luck in that process, and I look forward to exploring further avenues for collaboration between our two disciplines.

Mark

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