

Approval Chart for Curriculum Changes

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

Course Number _____ or Degree Plan(s) Computer Science (BS)

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

The 33-hour concentration areas were sized chiefly to specify the courses required for our ABET-accredited Computing Theory concentration. ABET has recently revised their accreditation requirements and we are modifying the degree plan to increase flexibility and choice for our students while still adhering to ABET standards. Notably, the concentration areas are reduced to 21 hours, with more major elective hours in the core of the CS degree plan shared among all concentrations.

See attached document "CS-major#listing" for a detailed display of all changes.

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

		COUNCIL ³								
	Change to a Course	Dept./School	College Academic	Deans	TEC	UGEC	UUAC	GRAD	Provost	President
1.	Title (description unchanged)	A	A	A		I			I	I
2.	Description (not affecting content)	A	A	A		I			I	I
3.	Content (substantive change)	A	A	A		I			A	A
4.	Number of hours (lecture, lab, contact)	A	A	A		A			A	A
5.	Course number within the hundred	A	A	I		I			I	I
6.	Course number beyond the hundred	A	A	A		A			A	A
7.	Prerequisites	A	A	A		I			I	I
8.	Course fee(s)	A	--	A		--			A	I
9.	From U to G <i>or</i> G to U	A	A	A		A			A	A
10.	Cross list with another department: U or G level	A	A	A		A			A	A
11.	Department of record	A	A	A		A			A	A
12.	Open or close a course	A	A	A		A			A	A
13.	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										
	Change to a Degree Plan	Dept./School	College Academic	Deans	TEC	UGEC	UUAC	GRAD	Provost	Faculty	President	Board of Trustees
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 ³										
	Provost-Proposed Change	Provost	Department	Dean	TEC	UUAC	Graduate	Faculty	President	Board of Trustees
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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COUNCIL³

	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)	
<u>John Hower</u> Signature	<u>4.03.19</u> Approval date
_____ Signature	_____ Approval date

College Academic Council(s)	
<u>Kyle Jippen</u> Signature	<u>4/3/19</u> Approval date
_____ Signature	_____ Approval date

Dean(s)	
<u>Brian Criss</u> Signature	<u>4/5/19</u> 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

MAJOR REQUIREMENTS (42 hours)**BS: Computer Science Degree Plan (CS) – 2019-2020 - proposed****Computer Science**

CS 120 Programming I

CS 130 Programming II: Data Structures

Select 3 hours from:

CS 220 Computer Organization and Single-User Systems

ENGR 210 Digital Logic

CS 230 Object-Oriented Programming

CS 332 Design and Analysis of Algorithms

CS 374 Software Engineering

IT 220 Introduction to Databases and DBMS

IT 221 Fundamentals of Networking and Data Communications

IT 310 Introduction to Computer and Information Security

ITC 110 Intro to Information, Technology and Computing

ITC 250 History of Computing **

ITC 480 Reflections on Faith and Work (capstone and writing-intensive)

Select 3 hours from:

ITC 399 ITC Research

ITC 499 ITC Internship

Select 6 hours from any of the courses listed below. (Courses required in the concentration will not fulfill these hours.)

CS 200-499

DET 200-499

IT 200-499

ITC 200-499

IS 405 Systems Analysis & Design

IS 432 Data Mining

ENGR 422 Embedded Systems

MGMT 305, 430, 432, 435

BLAW 363

MATH 186, 286, 325, 334, 361, or 432

MAJOR SELECTION OR CONCENTRATION (21 hours)*You must complete the requirements for one of these three concentration areas.***Computing Theory (CT) Total: 21 hours**

CS 341 Numerical Methods

CS 352 Programming Languages

CS 356 Operating Systems

CS 365 Theory of Computation

CS 467 Introduction to Artificial Intelligence

MATH 186 Calculus II

MATH 187 Calculus Computer Laboratory [1 hour]

Select 8 hours from: ** (up to 6 hours count toward university requirements)

CHEM 131, 132, 133, 134

PHYS 110, 111, 112, 113

Software Engineering (SE) Total: 21 hours

CS 315 Mobile Application Development

CS 330 Human-Computer Interaction

CS 352 Programming Languages

CS 375 Software Engineering II

IT 225 Introduction to Web Technologies

Select 3 hours from:

CS 316 Advanced Mobile Application Development

IT 325 Web Application Development

Select 3 hours from:

CS 341 Numerical Methods

CS 356 Operating Systems

CS 365 Theory of Computation

CS 381 Graphics

CS 467 Introduction to Artificial Intelligence

Game Development (GD) Total: 21 hours

Select 3 hours from:

CS 315 Mobile Application Development

IT 225 Introduction to Web Technologies

Select 3 hours from:

CS 316 Advanced Mobile Application Development

IT 325 Web Application Development

CS 375 Software Engineering II
DET 210 Intro to Digital Entertainment
Select 6 hours from:

CS 330 Human-Computer Interaction
DET 200-499

Select 3 hours from:

CS 341 Numerical Methods
CS 356 Operating Systems
CS 365 Theory of Computation
CS 381 Graphics
CS 467 Introduction to Artificial Intelligence

SUPPLEMENT FOR MAJOR (3 hours, after counting 6 toward university requirements)

Mathematics

MATH 185 Calculus I **
MATH 227 Discrete Mathematics **
MATH 377 Statistical Methods I

ELECTIVES (6 hours)

**** Hours may also fulfill university requirements and are not included in total major hours**

Summary of Changes from 2018-2019 catalog:

- 1.) In Requirements for all CS majors:
 - a. CS 220 now appears as one option in a menu with ENGR 210. We are capitalizing on overlapping content, coordinating with Engineering to offer a shared course. Likely CS 220 will be removed from the catalog soon, assuming this move is successful.
 - b. IT 310 will be required of all CS majors, reflecting changes within the discipline as information security becomes a more foundational topic
 - c. ITC 250 will be required of all CS majors, fulfilling the university's Historical Literacy requirement
 - d. All CS students must either complete an internship (ITC 499) or an independent research project (ITC 399)
 - e. Six hours of major electives are selected from a menu. Students will be advised individually on courses from this menu that are best fitted for their skill sets and goals.
- 2.) Changes to the Computing Theory Track:
 - a. The concentration is reduced from 33 hours to 21 hours
 - b. Six hours of upper-level Math are removed from the concentration
 - c. One menu of upper-level CS courses is removed from the concentration, fitted into the menu in the general CS major requirements
 - d. ITC 399 is removed from the concentration, now appearing in the menu in general CS
- 3.) Changes to the Software Engineering Track:
 - a. The concentration is reduced from 33 hours to 21 hours
 - b. All SE students will be required to take both IT 225 and CS 315; they will also be required to take at least one of the following courses: IT 325 or CS 316
 - c. All SE students will be required to take CS 352 Programming Languages; this change is in line with recommendations from our visiting committee
 - d. ITC 499 is moved to the general CS requirements
 - e. Some major elective hours are moved to the general CS requirements
 - f. All SE students will be required to take at least one course from "classical" CS topics: Numerical Methods, Operating Systems, Theory, Artificial Intelligence
- 4.) Changes to the Game Development Track:
 - a. The concentration is reduced from 33 hours to 21 hours
 - b. Some DET hours are removed as concentration requirements, but are still available in the menu in the general CS requirements; these hours are replaced with upper-level CS requirements
 - c. The menu for ITC 399 and ITC 499 is moved to the general CS requirements
 - d. Some major elective hours are moved to the general CS requirements
 - e. All SE students will be required to take at least one course from "classical" CS topics: Numerical Methods, Operating Systems, Theory, Artificial Intelligence

MAJOR REQUIREMENTS (30-42 hours)**BS: Computer Science Degree Plan (CS) – 2019-2020 - proposed****Computer Science**

CS 120 Programming I

CS 130 Programming II: Data Structures

Select 3 hours from:

___ CS 220 Computer Organization and Single-User Systems

___ ENGR 210 Digital Logic

___ CS 230 Object-Oriented Programming

___ CS 332 Design and Analysis of Algorithms

___ CS 374 Software Engineering

___ IT 220 Introduction to Databases and DBMS

___ IT 221 Fundamentals of Networking and Data Communications

___ IT 310 Introduction to Computer and Information Security

___ ITC 110 Intro to Information, Technology and Computing

___ ITC 250 History of Computing **

___ ITC 480 Reflections on Faith and Work (capstone and writing-intensive)

Select 3 hours from:

___ ITC 399 ITC Research

___ ITC 499 ITC Internship

___ Select 6 hours from any of the courses listed below. (Courses required in the concentration will not fulfill these hours.)

___ CS 200-499

___ DET 200-499

___ IT 200-499

___ ITC 200-499

___ IS 405 Systems Analysis & Design

___ IS 432 Data Mining

___ ENGR 422 Embedded Systems

___ MGMT 305, 430, 432, 435

___ BLAW 363

___ MATH 186, 286, 325, 334, 361, or 432

MAJOR SELECTION OR CONCENTRATION (33-21 hours)*You must complete the requirements for one of these three concentration areas.***Computing Theory (CT) Total: 33-21 hours**

___ CS 341 Numerical Methods

___ CS 352 Programming Languages

___ CS 356 Operating Systems

___ CS 365 Theory of Computation

___ CS 467 Introduction to Artificial Intelligence

___ ITC 399 ITC Research (3 semester hours)

___ Select 3 hours from: CS 381, CS 442, ITC 399

___ MATH 186 Calculus II

___ MATH 187 Calculus Computer Laboratory [1 hour]

___ Select 6 hours from: MATH 286, 325, 334, 361, or 432

___ Select 8 hours (up to 6 hours count toward university requirements) from: ** (up to 6 hours count toward university requirements)

___ CHEM 131, 132, 133, 134

___ PHYS 110, 111, 112, 113

Software Engineering (SE) Total: 33-21 hours

___ Select 3 hours from: CS 315 Mobile Application Development or CS 316 Advanced Mobile Application Development

___ CS 330 Human-Computer Interaction

___ CS 352 Programming Languages

___ CS 375 Software Engineering II

___ IT 225 Introduction to Web Technologies

___ ITC 499 ITC Internship

___ Select 3 hours from:

___ CS 316 Advanced Mobile Application Development

___ IT 325 Web Application Development

___ Select 3 hours from: IT 310 Introduction to Computer and Information Security or IT 472 Advanced Security

___ Select 6-3 hours from CS 300-499

___ Select 9 hour block from the following choices:

___ MGMT 305, 430, 432; BLAW 363

___ CS 300-499; IS 405; IT 300-499; ITC 300-499; DET 210; MATH 186, 286, 187, 334;

___ CS 341 Numerical Methods

___ CS 356 Operating Systems

___ CS 365 Theory of Computation

CS 381 Graphics

CS 467 Introduction to Artificial Intelligence

Game Development (GD) Total: ~~33~~ 21 hours

Select 3 hours from:

CS 315 Mobile Application Development

IT 225 Introduction to Web Technologies

Select 3 hours from:

CS 316 Advanced Mobile Application Development

IT 325 Web Application Development

CS 375 Software Engineering II

DET 210 Intro to Digital Entertainment

DET 310 Digital Entertainment Technology II

DET 350 Digital Entertainment Development

Select 3-6 hours from:

CS 330 Human-Computer Interaction

DET 200-499

Select 3 hours from: CS 330 Human-Computer Interaction or CS 381 Graphics

Select 3 hours from:

CS 341 Numerical Methods

CS 356 Operating Systems

CS 365 Theory of Computation

CS 381 Graphics

CS 467 Introduction to Artificial Intelligence

~~CS 375 Software Engineering II~~

Select 3 hours from: ITC 399 (ITC Research) or ITC 499 (ITC Internship)

Select 12 hours from: CS 300-499; DET 300-499; IT 300-499; ITC 300-499; IS 405

SUPPLEMENT FOR MAJOR (3 hours, after counting 6 toward university requirements)

Mathematics

MATH 185 Calculus I **

MATH 227 Discrete Mathematics **

MATH 377 Statistical Methods I

ELECTIVES (6 hours)

**** Hours may also fulfill university requirements and are not included in total major hours**