17-04

BYU Hawaii Curriculum Proposal Number [ ]

Section 1 - Approvals

Approvals

Name of Proposal: CIS 401 to CS 401

Submitted by: Christopher Slade Signature:

Date: October 4, 2016

Procedure	Recommendation/Signature	Date
Faculty Vote: For [7], Against [0], Abstain [0], Absent [0]		
1. Approved by Department	Signature: Chair: **Stuart Wolthuis**	1 Mar 17
2. Approved by College	Signature: Dean: **James Lee**	10 Mar 2017
3. Approved by General Education (if any GE course is affected)	Signature: GE: **Russel Carlson**	3/7/17
4. Approved by University Curriculum Committee	Signature: UCC: **Jennifer Lane**	3/13/17
5. Approved by Deans' Council	Signature: N/A AVP: **John Bell**	
6. Approved by the President's Council (for new majors)	Signature: N/A Pres: **John Tanner**	

Section 2 – Overview (Support)

Summary: This proposal will turn CIS401, a class that all students in the CIS majors are required to take, into CS401 which will only be required by Computer Science (CS) majors. In proposal 16-18, the IT major removes CIS401 from its requirements. In proposal 16-22, the IS major removes CIS401 from its requirements.

In the past 5-10 years Web Application Development has become a much more complicated process than it previously has been. Lots of new technologies have been developed that increase what can be done on the web, but also increase the complexity of web application development. In addition, the requirements to develop secure (prevent against hacks) web applications have increased dramatically, further complicating web application development. In order to keep up with the changes, we need to redevelop this course to include the latest technologies and security measures. Since this course will only be taken by CS majors, we are renaming the course CS401 instead of CIS401. In addition, we will modify the perquisites to make sure students are prepared to take the course.

Currently, CIS401 has as prerequisites CIS101, IT240 or CS301, and IS350. We will change the prerequisites to CS203 and IS350. The prerequisite change will not affect how long it will take for a student to graduate. A sample map with the change will be attached to the proposal to demonstrate this.

This proposal will not change the load on the students. They will still take the same number of credit hours.

The teaching load will not be negatively impacted. It might reduce our load, since we will not need to offer CS401 as often as CIS401. With the reduction in load, we might be able to introduce a new course aimed at giving IT and IS students more experience with programming. This will give our department greater flexibility when adjusting to the new GE program.

Graduation Requirement changes:

CS Majors – 3 Credits of CIS 401 are exchanged for 3 credits of CS401.

No change in required credit hours.

Section 3 - Program Revision Proposal

Upon approval, the information presented on this course proposal sheet will become binding on the department and the university. Any material changes require a new program proposal.

Effective Date: Immediate upon approval.

College: College of Business, Computing and Government

Abbreviation: CS

***BS in Computer Science MRS attached.**

Immediately following this page, attach the revised Major Requirements Sheet and sample Major Academic Plan.

Following the MRS and MAP, attach PDF copies of the online catalog web pages that should change as a result of this proposal. Indicate the location of changes that should be made.

B.S. in Computer Science

COMPSCBS.2014 (mrs 998)
60 credits

Effective Date: 04/2014

Name of Student:		
Student ID #:		Graduation Date
Home Country:		☐IWORK
Advisor:	Name	Date

Required courses for admission to the major — 12 Credits

Student must pass the following courses with a grade of C or better.

Course #	*Title*	*Hr.*	*Prerequisites*	*Offered*	*Sem.*	*Grade*
CIS 101	Beginning Programming	3		F,W,S		
CIS 202	Object-Oriented Programming I	3	CIS 101	F,W,S		
CIS 205	Discrete Mathematics I	3	CIS 101	F,W,S		
IT 280	Computer Networking	3		F,W,S		

To be accepted into this major, you must pass all courses listed above with a C or better. You must also have a cumulative GPA of 2.0 or higher. I understand that **One retake is allowed per class, for up to three classes. Additional retakes require special permission**. I understand that if I exhaust my repeats, I risk the chance of not being able to continue in the major or any other major in the CIS department. Please acknowledge that you understand this policy by signing below.

Academic Advisor _____ Date _____ Student _____ Date _____ Accepted into the major: CS Program Chair _____ Date _____

Core Requirements — 41 Credits

Classes marked "MO" are for admitted majors only.

CIS 206	Discrete Mathematics II	3	CIS 202, CIS 205		W		
CIS 305	Systems Engineering I	3	CIS 202; Co/Prereq: IS 350	MO	F,W		
~~CIS 401~~	~~Web Application Programming~~	~~3~~	~~CIS 101, IT 240, or CS 301, and IS 350~~		~~F,W,S~~		
CIS 405	Systems Engineering II	3	CIS 305	MO	W,S		
CIS 470	Ethics in Computer & Info Sciences	2	CIS 405	MO	F,S		
CS 203	Object-Oriented Programming II	3	CIS 202		W		
CS 210	Computer Organization	3	CIS 101		S		
CS 301	Algorithms & Complexity	3	CS 203, CIS 206	MO	S		
CS 320	Introduction to Computational Theory	3	CS 203, CIS 206	MO	S		
CS 400	Computer Science Proficiency	0	Last semester in residence	MO	F,W,S		
CS 401	Web Applications Programming	3	CS 203, IS 350		W		
CS 415	Operating Systems Design	3	CS 210, CS 301	MO	W		
CS 420	Programming Languages	3	CS 301, CS 320	MO	S		
CS 490R	Advanced Topics in Computer Science	3	CS 301	MO	F,W,S		
CS 490R	Advanced Topics in Computer Science	3	CS 301	MO	F,W,S		
IS 350	Database Management Systems	3	CIS 101	MO	F,W		

Math and Science Requirements — 7 Credits

Students majoring in CS are expected to take Calculus (Math 119 or Math 112/113) in fulfillment of their "Quantitative Reasoning" General Education requirement

MATH 221	Principles of Statistics I	3	MATH 106 or 110 or equivalent	F,W,S		
PHYS 121/L	General Physics I/ Lab	4	MATH 112 and either High School Trigonometry or MATH 111	F,S		

Supplemental Courses — 0 Credits

For students considering graduate school, we recommend taking MATH 343 and one additional lab-based course from the list below

MATH 343	Elementary Linear Algebra	3	MATH 112 or MATH 119	F-odd, W-even, S-even		
PHYS 122/L	General Physics II/ Lab	4	PHYS 121	F,S		
PHYS 221/L	General Physics III/Lab	4	PHYS 121	W		
CHEM 105/L	General Chemistry I/ Lab	4	MATH 110 or equivalent	W,S		
BIOL 212/L	Marine Biology/Lab	4	BIOL 100 or BIOL 112	S		

Total Credits Mapped for Graduation:

1. One D+, D, D- is allowed above. All other credits must be C- or better.
2. One retake is allowed per class, for up to three classes. Additional retakes require special permission. _____

The terms of this MRS will be honored by the Department and University within the next 8 years. If courses cease to be offered, options for substitution will be provided.

Sample CS Map

Fall: CIS101

Winter: CIS202, CS 210

Spring: CIS205

Fall: CS 203, CIS206, IT280

Winter: CS301, CS320, CIS305, IS350

Spring: CS420

Fall: CS415, CS490R(1), CIS405

Winter: CS401, CIS470, CS490R(2)

(Math, Science, and Supplemental courses can be taken at any time.)

Students can finish the major in a total of 8 semesters. The prerequisite change gives students more flexibility, not less.

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Section 5 - Course Proposal (core)

Upon approval, the information presented on this course proposal sheet will become binding on the department and the university. Any material changes require a new course proposal.

Effective Date: Immediate Upon Approval

College: College of Business, Computing, and Government

Course Prefix: CS

Course Number: 401

Changed Course Number:

Current: CIS 401

Revised: CS 401

Full Title: Web Applications Development

Short Title (for Transcript, 30-char max): Web App Development

Catalog Entry (50-word recommended maximum):
401. Web Applications Development (3) (W) Web application programming using databases and current front-end and back-end web technologies. (Prerequisite: CS203 and IS 350.)

Prerequisites: CS 203 and IS 350

Equivalency: CIS 401

Credit Hours: 3

Frequency: The new course will only be offered once per year, instead of 3 times per year that CIS401 was offered.

Learning Objectives: By the end of this course the student should be able use existing frameworks to create web applications. They should also be familiar with the following: Using the console, Source Code Repositories, Test-Driven Development, Integrating with Mobile Applications, Integrating with other sites, Authentication with O-Auth, Security, JSON and Web Services, Deployment and Scalability, JavaScript/DOM/jQuery/AXAJ, and Single Page Applications.

Assessment Methods:

Students will be evaluated on a normal grade scale. The grading components are 40% for projects, 30% for a final project, 20% for class participation, and 10% for a final exam.

Immediately following this page, attach a sample syllabus if needed.

Following this page, attach PDF copies of the online catalog web pages that should change as a result of this proposal. Indicate the location of changes that should be made.

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Section 5 - Course Proposal (core)

Upon approval, the information presented on this course proposal sheet will become binding on the department and the university. Any material changes require a new course proposal.

Effective Date: Immediate Upon Approval

College: College of Business, Computing, and Government

Course Prefix: CIS

Course Number: 401

Equivalency: CIS 401

[X] Make inactive after Spring 2017

Computer Science (CS)

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400. Computer Science Proficiency (0) (F,W,S) Students demonstrate proficiency at important Computer Science skills by examination.

401. Web Applications Development (3) (W) Web application programming using databases and current front-end and back-end web technologies. (Prerequisites: CS 203 and IS 350.)

415. Operating Systems Design (3) (W) Operating systems principles. concurrency, scheduling, dispatch, memory management. (Prerequisites: CS 210, CS 301.)

Computer & Information Sciences (CIS)

~~**401. Web Applications Development** (3) (F, W, S) Web application programming using databases and current web technology. (Prerequisite: CIS 101, IT 240 or CS 301, and IS 350.)~~

Computer & Information Sciences (Dept. Catalog Page)

B.S. Computer Science (60 hours)

The Bachelor of Science in Computer Science is a traditional computer science degree. It prepares a student for employment or graduate study in computer science. Students are also prepared to pursue a graduate degree in another technology-related area, business or education.

Admission Requirements (12 hours)

- CIS 101 Beginning Programming (3)
- CIS 202 Object-Oriented Programming (3)
- CIS 205 Discrete Mathematics I (3)
- IT 280/L Data Communications Systems and Networks (3)

Core Requirements (41 hours)

- CIS 206 Discrete Mathematics II (3)
- CIS 305 Systems Engineering I (3)
- ~~CIS 401 Web Application Programing (3)~~
- CIS 405 Systems Engineering II (3)
- CIS 470 Ethics in Computer & Information Sciences (2)
- CS 203 Object-Oriented Programming II (3)
- CS 210 Computer Organization (3)
- CS 301 Algorithms and Complexity (3)
- CS 320 Introduction to Computational Theory (3)
- CS 400 Computer Science Proficiency (0)
- CS 401 Web Applications Programming (3)
- CS 415 Operating Systems Design (3)
- CS 420 Programming Languages (3)
- CS 490R Advanced Topics in Computer Science (6)
- IS 350 Database Management Systems (3)

Math and Sciences Requirements (7 hours)

- MATH 221 Principles of Statistics I (3)
- PHYS 121/L General Physics I/Lab (4)

Supplemental Courses (0 hours)

- MATH 343 Elementary Linear Algebra (4)
- PHYS 122/L General Physics II/Lab (4)
- PHYS 221/L General Physics III/Lab (4)
- CHEM 105/L General Chemistry I/Lab (4)
- BIOL 212/L Marine Biology/Lab (4)