Computer Information Systems

Cycles included in report:
Cycle #3 8/1/14 to 7/31/15

Program Name: Computer Information Systems
Program Cycle: #3 8/1/14   to 7/31/15

1 Program Summary

HandbookProgramReviewFall2014 [PDF 2,136 KB 9/11/14]
Information Systems [PDF 777 KB 9/11/14]
REVISED Information Systems [PDF 767 KB 9/23/14]

1.1 Degree Offerings

AAS in Computer Information Systems
AS in Information Systems Technology

1.2 Certificate Offerings

Computer Information Systems - Software Developer

2 Program Resources

2011-2012 Faculty
201106 --> FT: 5 PT: 3 Total: 8
201108 --> FT: 11 PT: 10 Total: 21 (6 FTRs in the department)
201201 --> FT: 11 PT: 11 Total: 22 (6 FTRs in the department)
(One FT on full-time special assignment)

2012-2013 Faculty
201206 --> FT: 4 PT: 6 Total: 10
201208 --> FT: 10 PT: 12 Total: 22 (6 FTRs in the department)
201301 --> FT: 11 PT: 11 Total: 22 (6 FTRs in the department)

2013-2014 Faculty
201306 --> FT: 3 PT: 4 Total: 7
201308 --> FT: 10 PT: 11 Total: 21 (7 FTRs in the department)
201401 --> FT: 10 PT: 12 Total: 22 (7 FTRs in the department)
(Beginning 201308, one FTR from a different department who was consistently teaching a full load of
CIS124 sections, joined the CS/CIS department)

3 Reflection on Institutional Data

- Major courses closed out in fall (Steve has that data)

Credit Hours: CS/CIS program courses separated from service course (CIS 124)
2011-2012 --> Program: 4578; CIS124: 1881; Total = 6459
2012-2013 --> Program: 4989; CIS124: 1683; Total = 6672
2013-2014 --> Program: 5269; CIS124: 1389; Total = 6658

When reflecting upon credit hours, the program courses gained 691 credit hours over the 3 year period
- a 15% increase. The service course lost (CIS 124) 492 credit hours over this period - a 26%
decrease. Thus, even though the total credit hours increased by 199 credit hours (3%), a more
accurate picture is revealed in that the program gained 15%. The 26% decrease in the service course
may be attributed to entering students already possessing computer productivity skills (e.g. word
processing and spreadsheets) and JCCC programs adjusting their requirements accordingly.
Additionally, the course may mirror to a certain extent the decrease in enrollment across the institution.

(In the fall 2014, 84% of sections filled. This is capping enrollment due to availability of rooms and
instructors. Six new adjuncts were hired and began teaching in the fall; however, we still couldnt find
qualified adjuncts to teach all sections as discussed later in this document. Also, in the fall of 2014, the
department offered 226 total credit hours. (7 x 15) / 226 produces an FTR percentage of 46.4%.)

The institutional data counts hybrid courses under the online category. There instead should be a separate category for hybrid. The past definition given to the department by administration is that if a student must access anything online outside of face-to-face classroom time, then the course should be hybrid. The institution needs to clarify this as it seems most students are accessing D2L even if the course is primarily face-to-face.

The enrollment for CIS 264 (the capstone course for the AAS degree) is increasing. A new additional section was offered fall, 2014.

CS250 has a high attrition rate. Course concepts are advanced, and the C++ syntax is rather heavy. For fall 2014, the prerequisites were made somewhat more rigorous. The C++ track overall needs to be re-examined for consistency and rigor.

An attrition rate of 0.0% in CS255 seems low given the advanced concepts that are in this course.

An analysis of past ITPs suggests that the department may have been charged for capital expenditures that should have been charged elsewhere. This includes direct charges to the account number or charges to the Assistant Dean account for which the department would have paid approximately 40% overhead. **Thus, the cost per credit hour may actually be lower than shown. There needs to be great care and accuracy in the handling of ITP charges.**

4 Student Success

4.1 Define Student Success

A successful transfer student exiting the CS/CIS program will be sufficiently prepared to excel in the next level of courses at their chosen transfer institution. The student will be confident in foundational skills, concepts, and competencies that are mirrored in courses at other schools. The student will also possess beginning knowledge of and experience in industry tools and techniques that are not always found in purely academic work.

A successful career student exiting the CS/CIS program will be sufficiently prepared to excel in entry-level software development and related positions. The student will be grounded in foundational concepts, educated in a curriculum that reflects key industry needs and trends, and confident in applying best practices and tools to solve real-world problems. The student will communicate effectively and successfully contribute to a team-oriented software development project that culminates the program.

4.2 Achieve/Promote Student Success

To promote student success, faculty will
- remain current in their field and adjust program and course content accordingly;
- connect with and solicit feedback from industry partners;
- employ best practices of effective teaching and learning;
- remain current with program and course requirements at transfer institutions and adjust program and course content accordingly;
- establish professional relationships with students;
- maintain consistency across multi-section courses.

4.3 Successful Transfer

The following courses transfer as direct course equivalents to KU, UMKC, KSU and/or other schools:
CIS 124 Introduction to Computer Concepts and Applications (3 Hours)
CIS 201 Introduction to Information Systems (3 Hours)
CS 200 Concepts of Programming Algorithms Using C++ (4 Hours)
CS 210 Discrete Structures I (3 Hours)
CS 211 Discrete Structures II (3 Hours)
CS 225 Digital Logic with VHDL (2 Hours) with

ELEC 125 Digital Electronics I (4 Hours)
CS 250 Basic Data Structures using C++ (4 Hours)

The following additional courses satisfy major requirements for KU's Bachelor of Science in Information Technology:
CIS 204 UNIX Scripting and Utilities (3 Hours)
CIS 260 Database Management (4 Hours)
CS 134 Programming Fundamentals (4 Hours)
CS 201 Concepts of Programming Algorithms using C# (4 Hours)
CS 205 Concepts of Programming Algorithms using Java (4 Hours)
CS 255 Basic Data Structures Using Java (4 Hours)

5 Assessment of Student Learning Outcomes

CS-CIS-Assessment [XLSX 16 KB 11/20/14]

5.1 Reflection on table provided on assessment.

The CS/CIS department overhauled its curriculum in the last few years. For example, a number of courses were deactivated, the AAS degree and many related course outlines were updated, three certificates were merged into one, and a new AS degree was created. Now that the curriculum is more stable (even though the field is dynamic), a greater focus on assessments is the next step.

5.2 Significant Assessment Findings

These are to come. However, there was one assessment of a CS134 flipped classroom section filed with the Office of Outcomes Assessment by Mark Van Gorp. The results indicated that the students enjoyed the opportunity for more active learning in the classroom and also benefited by being able to listen to lectures multiple times. A second CS201 flipped classroom was also developed. An assessment of this classroom has not yet occurred; however, it was found that in-classroom quizzes about online lecture video content does still not ensure that lectures will be watched.

5.3 Ongoing Assessment Plans

In the fall of 2014, CIS 124 is initiating assessment that involves SLO #8. The next course to follow will be CS134. CS200, CS201, and CS205 will begin assessment -- in particular because CS200 and CS205 are transfer courses to local universities.

6 Curriculum Reflection

Please see uploaded spreadsheet.

CSIS-Curriculum [XLSX 14 KB 11/15/14]

6.1 Honors Contract(s)

Please see uploaded spreadsheet.

6.2 New Course Offerings

Please see uploaded spreadsheet.

7 Faculty Success

7.1 Departmental Accomplishments

- Modified 11 courses, deleted 12 courses, and created 4 new courses.
- Merged 3 certificates into one software developer certificate.
- Performed major revision of the AAS in Computer Information Systems per advisory board recommendations.

- Created the AS in Information Systems Technology and the 2+2 program with KU-Edwards.
- Partnered with Blue Valley CAPS and KU-Edwards for the Degree in Three Initiative. High school diploma, AS in Information Systems Technology, and BS in Information Technology achievable in a 3-year span.
- Conduct semiannual advisory board meetings

7.2 Faculty Accomplishments

Innovative Research, Teaching, Service
- Modified/re-aligned C++ transfer courses (S. Hansen, M. Van Gorp).
- Integrated MyProgrammingLab (I. Chen, S. Hansen, P. Wallack).
- Created Mobile Application Development course per advisory board recommendations (P. Wallack).
- Conducted special research project to implement Apple IOS / Objective-C into coursework (P. Wallack).
- Converted CIS204 from UNIX to Linux per advisory board recommendations (P. Wallack).
- Created and integrated course over 100 video lectures and presentations (S. Hansen, M. Van Gorp).
- Created flipped classroom for sections of CS134 and CS201 (M. Van Gorp).
- Redesigned CIS 264 (Capstone course) to enhance student communication and engage campus and community business partners on team software development projects and presentations (M. Carter). Continued project work and course teaching by A. Sunderland.
- Redesigned CIS 277 and CIS 275 to better model real-world use of ASP.NET (M. Carter).
- Redesigned CIS 260 to integrate Oracle per advisory board recommendations (M. Carter).
- Piloted integration of Python in Discrete Structures (M. Carter).
- Created and taught an Android development course for continuing education (M. Carter).
- Created and taught an HCIS Data Visualization course utilizing Tableu, Python, R, and Javascript (M. Carter).
- Researched Hadoop and Big Data (M. Carter).
- Created CS134 waiver test for CS205 (I. Chen).
- Integrated Emporia State ERP simulation into CIS 201 (A. Sunderland).
- Redesigned CIS 124 (Computer Concepts and Applications) including Web 2.0 integration, KCOG alignment, and SAM online tutoring and assessment (A. Sunderland).
- Created Special Topics course in Python (S. Hansen).
- Created Python programming contest for the 2015 JCCC CTE competition (M. Carter).
- Member and Chair, Ed Affairs (S. Hansen).
- Member, Division Curriculum Committee (M. Van Gorp).
- Member, Ed Affairs (M. Van Gorp).
- Chair, Peer review of A. Sunderland, (M. Carter).
- Member, Peer review of A. Sunderland, (M. Van Gorp).

Community Service and Outreach
- Conducted two Saturday computer programming workshops for area K-12 teachers (S. Hansen, M. Van Gorp).
- Conducted Java/Greenfoot summer computer programming 4-day workshop for secondary teachers (S. Hansen, M. Van Gorp).
- Member, Olathe USD Business and Computing CTE Advisory Committee (M. Van Gorp).
- Member, Blue Valley USD Computing CTE Advisory Committee (S. Hansen, A. Sunderland, M. Van Gorp).
- College Now high school computing observations and professional development (A. Sunderland).
- Developed relationships with Blue Ocean Consulting, Balance Innovations, Sprint (and Sprint Accelerator), Cerner, NeuAnalytics, Digital Lagoon, Perceptive Software, Riverpoint, and Propaganda3 (M. Carter, A. Sunderland, M. Van Gorp).

Conference & Symposiums
- Attended SIGCSE 2011 (I. Chen, S. Hansen)
- Attended Colleague 2 Colleague (2011-2014, I. Chen, S. Hansen)
- Attended Techstars Mobile Health Presentations at Kaufmann (M. Carter, A. Sunderland, M. Van Gorp)
- Attended JCCC Big Data Conference (M. Carter)
- Attended Compute Midwest (A. Sunderland, M. Van Gorp)

7.3 Innovative Research, Teaching or Community Service

- At this time, the only means of encouraging innovative research, teaching, or community service is external funding that is available from the college. Some colleagues have discussed the potential of pooling resources on alternating years to attend conferences.
- Other than the potential of college funding, it has been up to internal motivation of the faculty members to explore/improve in the area of research, teaching, or service.

8 Goal Setting and Action Plan

8.1 Long-term Goals Increased CS134 Flexibility

By the end of AY18, increase program flexibility by allowing students multiple means of meeting CS134 competencies

General Outcomes Links

Key Performance Indicators	Campus-wide KPIs
Full-time Graduate and Transfer	Full-time Graduate and Transfer (3-year cohort)
2 - Part-time Graduation and Transfer	Part-time and Graduation and Transfer (6-year cohort)
4 - Student Satisfaction	(Measured by Noel-Levitz Student Satisfaction Inventory) on the following indicators: Instructional Effectiveness Registration Effectiveness Concern for Individual Academic Advising/Counseling Safety and Security

8.1.1 Actions/Resources Required

By the end of AY16
- Create rough draft of waiver test (fall, 2015). Pilot ready by end of spring 2016.
- Create plan for non-credit version and credit version of LOOC (fall, 2015).
- Create outline of associated learning modules for public Localized Open Online Course (LOOC).

By the end of AY17
- Revise and finalize waiver test.
- Finish content for CS134 LOOC. Finalize prereqs and offering logistics.

By the end of AY18
- Offer pilot of CS134 LOOC.
- Finalize CS134 LOOC.

8.1.2 Updates on Long-Term Goals

8.2 Long-term Goals Common Assessments

By the end of AY17, increase consistency of learning outcomes by integrating common assessments for at least two multi-section courses.

General Outcomes Links

Key Performance Indicators	Campus-wide KPIs
	(Measured by Noel-Levitz Student Satisfaction Inventory) on the

4 - Student Satisfaction   following indicators: Instructional Effectiveness Registration
Effectiveness Concern for Individual Academic Advising/Counseling
Safety and Security

8.2.1 Actions/Resources Required

By the end of AY15
- Department receives training on assessment strategies and techniques.
- Department selects at least one course in which to integrate assessment.
- Course facilitator(s) develop common assessments with input from department.

By the end of AY16
- Provide assessment training to all faculty who teach sections of the course.
- Pilot common assessments across all sections of the course.
- Select a second course in which to integrate assessment. Course facilitator(s) develop common assessments with input from department.

By the end of of AY17
- Refine assessment for initial course as needed.
- Pilot common assessments across all sections of second course.
- Plan for future assessments.

8.2.2 Updates on Long-Term Goals

8.3 Long-term Goals Facilitation of Programming Language Transition

By the end of AY18, increase program flexibility by creating self-guiding modules to facilitate student transition among programming languages.

General Outcomes Links

Key Performance Indicators	Campus-wide KPIs
Full-time Graduate and Transfer	Full-time Graduate and Transfer (3-year cohort)
2 - Part-time Graduation and Transfer	Part-time and Graduation and Transfer (6-year cohort)
4 - Student Satisfaction	(Measured by Noel-Levitz Student Satisfaction Inventory) on the following indicators: Instructional Effectiveness Registration Effectiveness Concern for Individual Academic Advising/Counseling Safety and Security

8.3.1 Actions/Resources Required

By the end of AY2016 (but aim for fall 2015)
- Create transition modules among C#, Java, and C++ for concepts learned at the CS1 level (CS200, CS201, CS205)

By the end of AY2017
- Refine modules as needed and introduce assessment.
- Pilot the modules.
- Introduce a Python transition module if such a need exists.

By the end of AY2018
- Finalize assessment and content.
- Ensure that modules are properly integrated.

8.3.2 Updates on Long-Term Goals

8.4 Short-Term Goals Cooperative Learning Integration

By the end of AY17, each faculty member creates, integrates, and modifies (as needed) cooperative learning activities to accommodate varied learning styles.

General Outcomes Links

Key Performance Indicators	Campus-wide KPIs	
4 - Student Satisfaction	(Measured by Noel-Levitz Student Satisfaction Inventory) on the following indicators: Instructional Effectiveness Registration Effectiveness Concern for Individual Academic Advising/Counseling Safety and Security	

8.4.1 Actions/Resources Required

By the end of fall 2015
- Department receives professional development on cooperative learning
- Each faculty member chooses one activity to pilot in one section of one course.
- Each faculty member reports back to department for feedback.

By the end of fall 2016
- Modify the activity as needed and roll out to additional sections pending feasibility.

By the end of spring 2017
- Select and integrate a second cooperative learning technique.

8.4.2 Updates on Short-Term Goals

8.5 Short-Term Goals Real-world Relevance

By the end of fall 2016, each faculty member will integrate at least one real-world component (e.g. industry-specific tool, skill, project, or related) into coursework to enhance program relevance and increase student employability.

General Outcomes Links

Key Performance Indicators	Campus-wide KPIs	
4 - Student Satisfaction	(Measured by Noel-Levitz Student Satisfaction Inventory) on the following indicators: Instructional Effectiveness Registration Effectiveness Concern for Individual Academic Advising/Counseling Safety and Security	

8.5.1 Actions/Resources Required

By the end of fall 2015
- Each faculty member brings ideas to the department for vetting.
- Each faculty member chooses at least one idea and pilots in at least one section of a course.

By the end of fall 2016
- Each faculty member assesses how the pilot went and discusses with the department.
- Each faculty member moves forward with rolling out to all sections (as needed) and/or selects and pilots a second real-world component.

8.5.2 Updates on Short-Term Goals

8.6 Short-Term Goals Department Standardization

By the end of AY2016, standardize (as much as possible) department expectations so that consistency of student experiences are improved.

General Outcomes Links

Key Performance Indicators	Campus-wide KPIs	
	4 - Student Satisfaction	(Measured by Noel-Levitz Student Satisfaction Inventory) on the following indicators: Instructional Effectiveness Registration Effectiveness Concern for Individual Academic Advising/Counseling Safety and Security

8.6.1 Actions/Resources Required

By the end of spring 2015
- Define department expectations for quizzes, projects, labs, examinations, grades, coding standards, and other related means of evaluation.
- Communicate expectations to adjuncts.

By the end of fall 2015
- Modify coursework as needed to meet department expectations.
- Examine course outlines for any methods of evaluation that need adjustment.

By the end of spring 2016
- Submit to Ed Affairs any course outlines that need adjusted methods of evaluation.

8.6.2 Updates on Short-Term Goals

9 Accreditation Standards AQIP Category One: Helping Students Learn

AQIP Category One: Helping Students Learn
- The department has created videos to implement flipped classroom models and improve the instructional effectiveness of online courses.
- The capstone course (Application Development and Programming) was modified so that students work on team projects with campus and business representatives. Communication and work with current technologies is essential for student success.
- The department continues to explore a variety of hybrid delivery models to create convenient course offerings for students.

External Outcomes Links

9.1 Specialized Accreditation

N/A

10 Accreditation Standards AQIP Category Three: Understanding Stakeholders

AQIP Category Three: Understanding Students' and Other Stakeholders' Needs.
- The department holds semiannual advisory board meetings with stakeholders from the KC Metro area. Board members include software development representatives from large and small technology firms, the public and private sectors, and recruiting agencies.
- The department visits local businesses that might employee its students.
- The department recently created the 2+2 AS with an Emphasis in Information Systems Technology with KU Edwards and revised the AAS degree based upon advisory board input.

- Students in the capstone course (Application Development and Programming) work on team projects for campus and business groups. Business representatives also conduct guest lectures and mock interviews.
- Department visits and other communication has and continues to occur with KU, UMKC, KSU-Salina, and ESU.
- Members of the department attend advisory meetings at local secondary schools and communicate with secondary teachers about College Now courses.
- Department members reflect on feedback from course evaluations.

10.1 Specialized Accreditation

N/A

11 Accreditation Standards AQIP Category Nine: Building Collaborative Relationships.

AQIP Category Nine: Building Collaborative Relationships.
Several short and long term relationships have been built. These include
- the "Degree in 3" initiative with Blue Valley CAPS and KU-Edwards;
- the BS in IT with KU-Edwards;
- College Now and meeting with teachers regarding secondary school articulation agreements;
- continued visits to businesses (career), high schools (College Now, advisory boards), and universities (transfer);
- the conducting of multiple computer programming workshops for secondary teachers;
- project work in the capstone course with campus and business partners.

11.1 Specialized Accreditation

N/A

12 Resource Request/Adjustment

12.1 Long-range Adjustment to Resources

The department has requested an additional full-time regular faculty member to help meet current needs. The rationale and needs are specified in the request sent to Dean Bill Brown. In addition to that document, it was recently discovered that 4 additional computer science faculty are being hired at KU, and multiple positions are being advertised at KSU. It is believed these are due to growth and new positions rather than replacement faculty.
The budget numbers reflect fall/spring.

CS-CIS-Budget [XLSX 1,582 KB 11/20/14]

12.2 Educational Technology Support

- The department uses dual screen monitors (in 3 of 4 lab rooms), projection capability to white board and screen, NetOp, and other related software that has been communicated to IT. There already has been an ongoing discussion with IT about potential future/changing needs such as virtualization, Crestrons, projection, and related.

End of report