Supplemental Information
Course and Curriculum items
FS Academic Affairs Committee Review
February 7, 2017 Meeting

College of Engineering (11-3-16)

Pages 2-5

Department of Computer Science

BS in Computer Science

New: Pre-professional program in Computer Science.

Admission: New students, including transfer students, should submit the standard application form directly to the Office of Admissions. The admission criteria are the same as those for the university and the College of Engineering.

Any student who has completed more than 15 credit hours at Kansas State University in any major outside the College of Engineering may change majors into the pre-professional program provided that the student meets the admission requirements for the College of Engineering. A resident cumulative GPA of 2.3 or better is required for a change of major from any Engineering program to the pre-professional program Computer Science.

Course Requirements: The course requirements and semester-by-semester curriculum for a BS in Computer Science are not affected by this proposal. However, certain courses from the first three semesters of the curriculum must be completed with a C or better for advancement beyond the pre-professional program. These courses are:

- MATH 220 Analytic Geometry and Calculus I (4 credits)
- MATH 221 Analytic Geometry and Calculus II (4 credits)
- CIS 115 Introduction to Computing Science (3 credits)
- CIS 200 Programming Fundamentals (4 credits)
- CIS 300 Data and Program Structures (3 credits)
- CIS 301 Logical Foundations of Programming (3 credits)
- ECE 241 Introduction to Computer Engineering (3 credits)

Total credits: 24

Rationale: Undergraduate enrollment in the Computer Science Department has more than doubled over the past four years. Meanwhile, our faculty size has remained essentially unchanged. In order to provide a quality education for as many students as possible, we need a mechanism to control the number of students in our courses, particularly the more advanced courses. This pre-professional program enables this control by giving us a set of fundamental courses that we can use to assess student readiness for our more advanced courses. Thus, we can restrict enrollment in our advanced courses to a number of students that our resources can accommodate, while ensuring that the best-prepared students receive the quality education that they desire.

Impact: None (we already require a C or better in MATH 220, MATH 221, and ECE 241, both in our degree requirements and as prerequisites/corequisites to CIS 200 and CIS 300).

Effective: Fall 2017

New: Professional program in Computer Science

Admission: Students must complete the pre-professional program and be accepted to the professional program prior to taking any of the following courses, which we will refer to as Professional Program Courses:

- CIS 308 C/C + + Language Laboratory
- CIS 415 Ethics and Computing Technology
- CIS 450 Computer Architecture and Organization
- CIS 501 Software Architecture and Design
- CIS 505 Introduction to Programming Languages
- CIS 520 Operating Systems I
- CIS 560 Database System Concepts
- CIS 575 Introduction to Algorithm Analysis
- CIS 598 Computer Science Project
- CIS 625 Concurrent Software Systems
- CIS 640 Software Testing Techniques
- CIS 642 Software Engineering Project I

The only other students who will be allowed to enroll in any of the above courses are non-CS majors who need these specific courses to satisfy the degree requirements of their majors. Non-CS majors wishing to use any of these courses to satisfy elective requirements for their majors will also be considered on a case-by-case basis.

In order to be considered for admission to the professional program, a student must have:

1. Passed all pre-professional program courses with a C or better.
2. Achieved at least a 2.3 GPA on all pre-professional courses (including transfer courses).

Additionally, an application to the professional program must be submitted to the Department of Computer Science by the end of the eighth week of either the Spring or Fall semester. This submission will be immediately prior to the student's pre-enrollment into any of the Professional Program courses.

All courses in the Pre-Professional Program must be completed and all grade criteria must be met by the end of the semester that the application is submitted. An exception to this rule is the student who expects to complete these criteria during the summer term. Those students should also make application in the Spring semester prior to pre-enrollment. All eligible applicants will be allowed to pre-enroll into Professional Program courses with the understanding that they will be dropped if they are not accepted for admission to the professional program prior to the beginning of the subsequent semester.

Applications will be reviewed by the Curriculum Committee of the Department and accepted or rejected as soon as possible after semester grades are issued. The number of students admitted in any given semester will be limited by the number of seats available. If the number of applicants who meet the grade requirements listed above exceeds the number of seats available, then in addition to the minimum grade requirements listed above, admission will be determined by resident overall GPA. Students who have completed the pre-professional program with the required grades, but are denied admission, may re-apply in a later semester.

Academic Standards: After admission to the Professional Program, students will be subject to the following academic standards that are more stringent than those for the University.

1. **Warning of unsatisfactory progress**
   Regardless of the overall GPA, a student with any "D" or "F" grade in any professional program course will receive a "**Warning of Unsatisfactory Progress**." This warning will remain in effect for the remainder of their stay in the professional program.

2. **Dismissal from the Program**
   If a student has received a warning of unsatisfactory progress, then subsequently receives a "D" or "F" grade in any professional program course, that student will be dismissed from the professional program, and will be ineligible to enroll in any professional program courses (though students who transfer to either Computer Engineering or Biomedical Engineering will be allowed to enroll in certain courses, as outlined above). During this period, the student cannot enroll in any courses offered by the department.

3. **Readmission**
   A student who has been dismissed from the professional program may petition to be readmitted to the program, provided at least one year has elapsed from the conclusion of the last semester that the student was in the program to the beginning of the semester for which the student is seeking admission. The petition must include a justification of the student's preparedness to complete the program. This petition must be submitted to the Computer Science Department by the eighth week of the Fall or Spring semester preceding the semester for which the student seeks readmission. The student will be interviewed by the Curriculum Committee, who will then make a decision in time for the student to pre-enroll. All readmitted students will remain on warning of unsatisfactory progress for the remainder of their stay in the professional program.

   **The warning, probation, and dismissal actions referenced above are departmental actions that are separate and distinct from Academic Warning and Academic Dismissal as defined by the University Catalog. Grades earned during an intersession will not be considered by the Department in the determination of unsatisfactory academic progress by the department.

Rationale: Undergraduate enrollment in the Computer Science Department has more than doubled over the past four years. Meanwhile, our faculty size has remained essentially unchanged. In order to provide a quality education for as many students as possible, we need a mechanism to control the number of students in our courses, particularly the more advanced courses. This professional program enables this control by allowing us to restrict enrollment in our advanced courses to a number of students that our resources can accommodate, while ensuring that the best-prepared students receive the quality education that they desire. The number of seats available for the professional program will be the number of students we can reasonably accommodate in CIS 501. The Office of General Council has reviewed our proposed admission criterion and has no legal concerns with it.

Impact: We are using two MATH courses (8 credits) and one ECE course (3 credits) for our pre-professional program courses. While we already require a C or better in each of these courses for our BS degree, as well as to be used for prerequisites/corequisites to CIS 200 and CIS 300, we are now using the grades in these courses to determine eligibility to apply for the professional program. Specifically, we require a 2.3 GPA for the 24 credits of the pre-professional program. Prof. Bennet (Mathematics) and Prof. Gruenbacher (Electrical and

Computer Engineering) were both notified on Oct. 6, 2016. Prof. Bennett responded on Oct. 10, 2016, with no concerns. Prof. Gruenbacher responded on Oct. 11, 2016, with concerns that we were able to resolve.

Effective: Fall 2017. All students who have entered the Computer Science BS program under an earlier curriculum will be grandfathered into the professional program.

Department of Computer Science

FROM:	TO:
~~Computing and Information Sciences~~ Minor	Computer Science Minor
A minors program has been created to enable students to take 15 credit hours or more in an area of special interest outside their major field. Minors may be earned in a variety of areas including chemistry, leadership, business, computer science, and engineering management. Contact the College of Engineering Student Services Office for further information.	A minors program has been created to enable students to take 15 credit hours or more in an area of special interest outside their major field. Minors may be earned in a variety of areas including chemistry, leadership, business, computer science, and engineering management. Contact the College of Engineering Student Services Office for further information.
Upon completion of the requirements established by the faculty responsible for the minor field, an appropriate entry will be made on the student's transcript.	Upon completion of the requirements established by the faculty responsible for the minor field, an appropriate entry will be made on the student's transcript.
Program requirements (~~20~~ credit hours)	Program requirements (<u>16</u> credit hours)
Required courses	<u>Prerequisites (in addition to any prerequisites for the required courses):</u>
- CIS 200 - Programming Fundamentals Credits: 4 - CIS 300 - Data and Program Structures Credits: 3 - CIS 301 - Logical Foundations of Programming Credits: 3 ~~CIS 308 - C/C++ Language Laboratory Credits: 1~~ ~~CIS 450 - Computer Architecture and Operations Credits: 3~~ ~~CIS 501 - Software Architecture and Design Credits: 3~~ - ECE 241 - Introduction to Computer Engineering Credits: 3	- <u>MATH 220 – Analytic Geometry and Calculus I Credits: 4</u> Required courses - <u>CIS 115 – Introduction to Computing Science Credits: 3</u> - CIS 200 - Programming Fundamentals Credits: 4 - CIS 300 - Data and Program Structures Credits: 3 - CIS 301 - Logical Foundations of Programming Credits: 3 ECE 241 - Introduction to Computer Engineering Credits: 3

Rationale: Because the Information Systems degree has been discontinued, and the name of our department is now the Department of Computer Science, the proposed name, "Computer Science Minor", provides more consistency. Because we are proposing a professional program whose classes will be restricted to those accepted into the program, we need to remove these classes from the minor. Adding CIS 115 will provide some breadth to replace the depth lost by the removal of these classes. While MATH 205 is currently an alternative to MATH 220 as a prerequisite to CIS 300, nearly all students completing this minor complete MATH 220. Requiring MATH 220 as a prerequisite adds rigor to the minor.

Impact: There may be occasional students who must take now MATH 220, but who would have instead taken MATH 205 if MATH 220 were not required. Prof. Bennett was notified on Oct. 6, 2016. He responded on Oct. 10, 2016, with no concerns. Most students who get this minor are Computer Engineering majors. Prof. Gruenbacher was notified on Oct. 6, 2016. He responded on Oct. 11, 2016, with no concerns.

Effective: Fall 2017