

HUMBOLDT STATE UNIVERSITY  
Academic Senate

**Resolution on the Revised Computer Science Program**  
#17-10/11-ICC – November 30, 2010

**Resolved:** That the Academic Senate of Humboldt State University recommends to the Provost that the Revised Computer Science program (as described in curriculum proposals listed below) be approved; and be it further

**Resolved:** That the Department, Dean, and Provost shall negotiate benchmarks demonstrating program viability; and be it further

**Resolved:** That if the program does not satisfactorily meet the negotiated benchmarks within four years of the implementation of this change, the University Senate will automatically direct the ICC to HSU's formal Program Elimination process for the CS program; and be it further

**Resolved:** That the University shall reopen admissions to the Computer Science program; and be it further

**Resolved:** That the Academic Senate commends the CS program for its thoughtful and comprehensive revision of the program.

**For summary of and background on the program changes see:**

**A Revised Proposal for a Restructured Degree Program in Computer Science** – pp. 11-12 summarizes the program requirements clearly ; See 10-218 for summary of program changes and new catalog text.

**Computer Science Prerequisite Chart by Academic Years**

**Responses to ICC Degree Questions** – answers to questions raised by the AMP

**10-198: CIS 110 – Introduction to Computers** delete course as part of eliminating CIS program

**10-199: CIS 130 – Introduction to Programming** - delete course, will be replaced by new CS 111

**10-200: CIS 170 – Essentials of Procedural Programming I** – delete course as part of eliminating CIS program

**10-201: CIS 171 – Word Processing I** - delete course as part of eliminating CIS program

**10-202: CIS 172: Spreadsheets I** - delete course as part of eliminating CIS program

**10-203: CIS 173: Micro Databases I** - delete course as part of eliminating CIS program

**10-204: CIS 174: Microbased Graphics I** - delete course as part of eliminating CIS program

**10-205: CIS 176: Introduction to Internet** delete course as part of eliminating CIS program

**10-206: CIS 178: Creating Web Homepages** - delete course as part of eliminating CIS program

**10-207: CIS 230: C++ Programming** - delete course, will be replaced by new CS 112

**10-208: CS 328: Web Apps Using Databases** – new course “Building applications atop databases, N-tiered architecture, database tier, stored procedures/functions; presentation tier,

web GUIs; application tier: controlling web-to-database interactions.” 4 units, 3 hours lecture, 2 hours lab.

**10-209: CS 325: Database Design** – new course. “Introduction to database design and implementation. Relational model, entity-relationship model and diagrams, converting a model to a schema, elementary Structured Query Language (SQL), normalization.” 4 units, 3 hours lecture, 2 hours lab.

**10-210: CS 237: Bioinformatics Programming** – new course, “An introductory course on using software tools to solve biological problems. Students collaboratively model genomic and/or proteomic data with scripting and statistical languages.” Elective for major/minor, required for Bioinformatics Certificate, offered only when enrollments permit, 3 units, 2 hours lecture, 2 lab.

**10-211: CS 243: Architecture** – new course. “An introduction to computer architecture including assembly language, computer arithmetic, performance measure, datapath, control, pipelining, and memory/storage design.” 4 units, 3 hours lecture, 2 hours lab.

**10-212: CS 274: Operating Systems** – new course. “An introduction to operating systems with an emphasis on process synchronization and control. Synchronization, kernel structure, scheduling, deadlock, virtual and physical memory, file, and I/O.” 4 units, 3 hours lecture, 2 hours lab.

**10-213: CS 279: Introduction to Linux** – new course. “This course introduces the UNIX/Linux family of operating systems. Basic commands, utilities, system structures, scripting and tools are explored. Elements of system administration are presented.” 4 units, 3 hours lecture, 2 hours lab.

**10-214: CS 232: Python Programming** – new course. “An introduction to the Python language. Idiomatic language features such as lists, dictionaries, tuples, and sets. Use of Python classes and modules to accomplish complex tasks.” Elective for major and minor. *3 units, 2 hours lecture, 2 hours lab*

**10-215: CIS 310: Database for Non-Majors** change course number to CS 310 because CIS program is being suspended

**10-216: CIS 309: Computers and Social Change** – course number change to CS 309 because CIS program is being suspended

**10-217: suspend the CIS Major and Minor** to create only one Computer program. Students in the currently in the program have been advised on ways to complete their degrees in a timely fashion.

**10-218: Revised Computer Science Program** – the catalog copy shows the new degree requirements. The new major requires 62 units, where the old CS major required 73. The proposals also include a new computer science minor to replace the old CIS minor. In addition, the existing Bioinformatics certificate is included in the CS catalog information.

**10-220: CS 475: Geographic Information Systems: Spatial Analysis & Modeling** – change course number from CS/CIS 475 to CS 475, shorten course title to “Geographic Information Systems,” change C-classification from 2 units C-4 and 1 unit C-13, to 2 units C-2 and one C-13 in order to permit larger class sizes.

**10-221: CS 280: Selected Topics in Computing** – new course, “Special topics in computer science. Courses with the number have only freshman/sophomore prerequisites excluding CS 212 or CS 243.”

**10-222: CS 480: Advanced Topics in Computing** – new course, “advanced topics in computer science. Courses with the number must have as a prerequisite at least CS 211.”

**10-223: 100: Critical Thinking with Computers** – Change course number from CIS 100 to CS 100.

**10-224: CS 111: Computer Science Foundations 1** – new course, “Introductory programming covering problem decomposition, control structures, simple data structures, testing, and documentation. Students design and implement a number of programs.” 4 units, 3 hours lecture, 2 hours lab.

**10-225: CS 112: Computer Science Foundations 2** – new course, “Object-oriented programming, focusing on classes, instances, methods, encapsulation, inheritance, overloading, multiple inheritance, and exception handling,” 4 units, 3 hours lecture, 2 hours lab.

**10-226: CS 211: Data Structures** – new course, “Introduction to classic data structures and algorithms. Performance comparisons, big-O notation, trade-offs, arrays, linked lists, recursion, sorting, stacks, queues, trees, graphs, and hash tables.” 4 units, 3 hours lecture, 2 hours lab.

**10-227: CS 212: Algorithms** – new course, “An introduction to algorithmic thinking. Recurrences and solution techniques, fundamental algorithms including graph algorithms, algorithm design techniques, balanced trees, performance trade-offs.” 4 units lecture (no lab).

**10-228: CS 346: Telecommunications and Networks** – new course “Students are introduced to the fundamentals of telecommunication and to the structure, implementation, and theoretical underpinnings of computer networking.” 4 units, 3 hours lecture, 2 hours lab.

**10-229: CS 444: Robotics** – new course, “A project-based introduction to robotic systems and software that controls them, including gearing, mechanics, AI control systems, and problem solving with robots.” 4 units, 3 hours lecture, 2 hours lab.

**10-230: CS 449: Computer Security** – new course, “Introduces students to central concepts of computer security on networked systems. Topics include threats, cryptography, authentication, operating systems in security, legal and privacy issues.” 4 units, 3 hours lecture, 2 hours lab.

**10-231: CS 458: Software Engineering** – new course, “This course introduces students to software engineering principles and methodologies in the context of a semester-long software team project.” 4 units, 3 hours lecture, 2 hours lab.

**10-232: CS 232: Computational Models** – new course, “An introduction to the Chomsky hierarchy, automata, Church-Turing Thesis, computability, NP-Completeness, and information theory.” 4 units lecture (no lab),

**10-233: CS/CIS 240: Visual Basic Programming** – delete course, course has not been taught for many years, and will not be the part of the new CS Program

**10-234: CIS 246: Multimedia I** – delete course, course has not been taught for many years, and will not be the part of the new CS Program

**10-235: CIS 250; Introduction to Operating Systems** – delete course because CIS degree is being suspended. (Students finishing the CIS degree will be able to take this course in Spring 2010 – the last time it will be offered.)

**10-236: CIS 271: Word Processing II** – delete course, course has not been taught for many years, and will not be the part of the new CS Program

**10-237: CIS 272: Spreadsheets II** - delete course, course has not been taught for many years, and will not be the part of the new CS Program

**10-238: CIS 446; Multimedia II** - delete course, course has not been taught for many years, and will not be the part of the new CS Program

**10-239: CIS 464; Electronic Commerce (e-commerce)** - delete course, course has not been taught for many years, and will not be the part of the new CS Program

**10-240: CS 131: Introduction to Computer Science** – delete course - this course will be replaced by CS 111 and 112 in the new curriculum

**10-241: CS 132: Introduction to Computer Science** – delete course – this course will be replaced by CS 211 in the new curriculum.

**10-242: CS 434: Systems Software** – delete course – course has never been taught

**10-243: CS 240: Visual Basic Programming** – delete course – course has not been taught for many years

**10-244: CIS 475: Geographic Information Systems: Spatial Analysis and Modeling** – delete CIS version of this course (see 10-220)

**10-004: CS 499: Directed Study** – allow the course to be repeated for a total of 12 units. (The course is 1-4 variable units.)

**10-005: CIS 499: Directed Study** – allow the course to be repeated for a total of 12 units. (The course is 1-4 variable units.) (This course will remain on the books for the next few years as the final cohort of CIS majors complete their degrees.)

**10-270: Economics Program Change** – Pathway 1: Analytical tools and Methods - students presently take a minor in either CIS or Applied Math. With the elimination of the CIS degree, the requirement will become a minor in CS or Applied Math. (Note: Economics is working on a program change that will alter this requirement.)

**10-271: Elementary Education Program Change** – demonstration of entry level competence – remove “complete the CIS minor” as one of the ways to demonstrate competence. (Students still have three other ways to demonstrate competence.)

**RATIONALE:** *As a result of the Prioritization Process, the Provost recommended that the HSU Computer Information Systems and Computer Science degrees be revised so that HSU offered on one Computer Science major. This new proposal eliminates the Computer Information Systems major while thoroughly revising the Computer Science into a program that is highly efficient, yet compares favorably with benchmarked program and exceeds the standards of the accrediting body for Computer Science programs. While the program does include a six-semester series of courses (due to extensive pre-requisites), students who complete community college computer science work should be able to complete their degrees at HSU in two years.*

*Enrollments in CS classes need to be high enough for the program to be viable. The program has projected enrollment numbers that will make the program as cost-effective as is possible. If sufficient numbers of students do not enroll in the program, then HSU cannot afford to offer it, and it should be eliminated.*