UNIVERSITY of WASHINGTON

Michael K. Young
President

January 6, 2014

Vice Chancellor J.W. Harrington
University of Washington, Tacoma
Box 358430

Dear J.W.:

Based upon the recommendations of the Faculty Council on Academic Policy, the Faculty Assembly has recommended approval of the revised admission and program requirements for both the Bachelor of Arts degree in Computer Science and Systems and the Bachelor of Science degree in Computer Science and Systems. A copy of the changes is attached.

I am writing to inform you that the Office of Academic Affairs is authorized to specify these requirements beginning autumn quarter 2014.

The new requirements should be incorporated in printed statements and in individual department websites as soon as possible. The *General Catalog* website will be updated accordingly by the Registrar's Office.

Sincerely yours,

Michael K. Young
President

Enclosure

cc: Ms. Zaide Chavez (with enclosure)
Mr. Robert Corbett (with enclosure)
Ms. Virjean Edwards (with enclosure)

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JAN 02 2014

UNIVERSITY OF WASHINGTON

CREATING AND CHANGING UNDERGRADUATE ACADEMIC PROGRAMS

OFFICE USE ONLY
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After college/school/campus review, send a signed original and 1 copy to the Curriculum Office/FCAS, Box 355850

For information about when and how to use this form: http://depts.washington.edu/uwcr/1503instructions.pdf

College/Campus: UW Tacoma	**Department/Unit:** Institute of Technology	**Date:** 10/28/2013

New Programs

- ☐ Leading to a Bachelor of _____ in _____ degree.
- ☐ Leading to a Bachelor of _____degree with a major in _____.
- ☐ Leading to a _____ Option within the existing major in _____.
- ☐ Leading to a minor in _____

Changes to Existing Programs

- ☐ New Admission Requirements for the Major in _____ within the Bachelor of _____.
- ☒ Revised Admission Requirements for the Major in **Computer Science and Systems** within the **Bachelor of Science and Bachelor of Arts**.
- ☒ Revised Program Requirements for the Major in **Computer Science and Systems** within the **Bachelor of Science and Bachelor of Arts**.
- ☐ Revised Requirements for the Option in _____within the major in _____.
- ☐ Revised Requirements for the Minor in _____.

Other Changes

- ☐ Change name of program from _____ to _____.
- ☐ Change delivery method or location of program.
- ☐ New or Revised Continuation Policy for _____.
- ☐ New Honors Requirements for _____.
- ☒ ~~Eliminate program in **Minor in Computer Science and Systems**~~. (Must do RCEP, not FCAS)

Proposed Effective Date: **Quarter:** ☒ Autumn ☐ Winter ☐ Spring ☐ Summer **Year: 20 14**

Contact Person:	Phone:	Email:	Box:

EXPLANATION OF AND RATIONALE FOR PROPOSED CHANGE

For new program, please include any relevant supporting documentation such as student learning outcomes, projected enrollments, letters of support and departmental handouts. (*Use additional pages if necessary*).

The current CSS undergraduate curriculum has a large number (10) of courses in the core, leaving little room for students to tailor their education to how they intend to apply their knowledge and skills after graduation. We want students to have a broad education, but we also want them to go into depth in areas of interest to them. We want expose our students to core computer science principles while simultaneously giving them the opportunity to acquire knowledge and skills that will be instrumental in finding and excelling in jobs in the computer technology industry.

The proposed CSS curriculum reduces the number of required courses to 6 (the "inner core") and also requires students to choose one of two courses in each of three content areas (the "outer core"). The remainder of upper division credits in the major can be satisfied by any upper division CSS classes, including courses in the outer core.

The proposed CSS curriculum also has a strengthened systems/hardware sequence, including a new course, TCSS 333, that teaches students Systems Programming in C. This classes exposes students to systems programming as a precursor to the rest of the systems/hardware sequence, and it also exposes them to programming in C, whereas most of the rest of the CSS curriculum uses Java as the primary programming language.

In addition, the proposed changes to the admissions requirements to the program provide a more coherent set of knowledge and skills needed for success in the CSS program.

The graduation and admissions requirements for the B.A. degree have been appropriately adjusted to align with the requirements for the B.S. degree.

It is unclear what the minor in CSS offers students that is distinct from the B.A. in CSS, and so we propose to eliminate it.

OTHER DEPARTMENTS AFFECTED

List all departments/units/ or co-accredited programs affected by your new program or changes to your existing program and acquire the signature of the chair/director of each department/unit listed. Attach additional page(s) if necessary. *See online instructions.

Department/Unit:	**Chair/Program Director:**	**Date:**
Institute of Technology		11/04/2013
Department/Unit:	Chair/Program Director	Date:

CATALOG COPY

Catalog Copy as currently written. Include only sections/paragraphs that would be changed if your request is approved. Please cross out or otherwise highlight any deletions.

Admission Requirements

To qualify for admission to the Computer Science and Systems program, applicants must meet the following standards:

- Completion of a minimum of 40 college-level credits.
- Cumulative GPA of at least a 2.0 in all college course work
- ~~GPA of at least a 2.5 in all college math, science, computer science* (footnote: *Applicants who fall below the GPA requirements will still be considered for conditional admission. Please contact an academic advisor for further information.)~~

How to Apply

Current Students
Please contact an Institute advisor at tacoma.uw.edu/academic-advising-center

Transfer Students
To apply to the Computer Science and Systems program, students must complete the online UW Tacoma transfer application (tacoma.uw.edu/apply).

Minors

~~Minors in Applied Computing and Computer Science and Systems are~~ available to undergraduate students in other degree programs. Please see the "Minors and Certificates" section of the catalog.

Bachelor of Science

The bachelor of science in Computer Science and Systems emphasizes the theoretical foundation and practical experience necessary for a career in the challenging and rewarding profession of software specification, development, design, implementation, maintenance and re-engineering. The curriculum emphasizes the latest paradigms, languages and techniques of today's practitioners while building a strong Computer Science and Systems base to support lifelong learning in the field. It also prepares students to pursue graduate studies and provides continuing education to current professionals. Industrial partnerships provide opportunities for a wide variety of practical experiences that complement classroom teaching and research projects.

Curriculum
Lower Division Course work
Required for both BA and BS in CSS students.

- 15 credits of science and mathematics
- 5 credits each of calculus, statistics, and lab-based science (physics recommended)
- 15 credits of Visual, Literary and Performing Arts course work.
- 15 credits of Social Science course work.
- 10 credits of Object-Oriented Programming (Java I & II)

Students with previous baccalaureate degrees or extensive work experience should meet with an advisor to discuss options. Please see university policy on transfer credit on page 22.

Required courses

- TCSS 305: Programming Practicum
- TCSS 321: Discrete Structures I
- ~~TCSS 322: Discrete Structures II~~
- TCSS 325: Computers, Ethics and Society
- TCSS 342: Data Structures
- ~~TCSS 343: Design and Analysis of Algorithms~~
- ~~TCSS 360: Software Development and Quality Assurance Techniques~~
- TCSS 371: Machine Organization

- ~~TCSS 372: Computer Architecture~~
- ~~TCSS 422: Computer Operating Systems~~

CSS ~~senior~~ electives
Students must complete ~~25~~ credits of 400-level courses chosen from the Computer Science and Systems program; see course descriptions for listing. Students may also take up to 5 credits of a 400-level ~~TINST, TINFO, TCES~~ or 500-level ~~T~~CSS course to count towards the ~~total 25 credits of CSS electives~~.

General electives
Students must complete 15 credits of upper-division (300 or 400 level) general electives. The electives are expected to consist solely of courses outside the ~~CSS~~ program.

Research and Internship Opportunities
Research, directed reading and internship opportunities allow senior-level students to explore their unique areas of interest complemented by the expertise of the faculty and industry. Industry partner internships at software development design and implementation companies are dedicated to the students of the Institute and provide work experience, which complements the curriculum and can serve as on-ramps to the high tech workforce. While applying the theoretical and conceptual classroom knowledge to the practical work environment, the student is creates relationships and gains a greater depth of understanding of his or her course work.

Bachelor of Arts

The bachelor of arts degree provides the student with an opportunity to experience more breadth in the academic experience, and to apply the fundamental concepts and technologies of computer science to another academic discipline. The main goal of this program is to provide an educational
option for students who want a thorough and rigorous grounding in the principles of computing and technology, but will be "informed consumers" rather than "aggressive primary builders" of the technology.

Curriculum
Required courses
- TCSS 305 Programming Practicum
- TCSS 321 Discrete Structures I
- TCSS 325 Computers, Ethics and Society
- TCSS 342 Data Structures
- ~~TCSS 360 Software Development and Quality Assurance~~
- TCSS 371 Machine Organization

CSS ~~senior~~ electives
Students must complete 20 credits of 400-level courses chosen from the Computer Science and Systems program; see course descriptions for listing. Students may also take up to 5 credits of a 400-level ~~TINST, TINFO, TCES~~ or 500-level ~~T~~CSS course to count towards the ~~total 20 credits of CSS electives~~.

BA required minor
Students pursuing a bachelor of arts degree in CSS are required to choose a minor from one of UW Tacoma's other academic programs unless the student has earned a previous bachelor's degree. Minors consist of 20-30 credits in a focused area of study. Students will need to work closely with an academic advisor to map out a feasible schedule. See the "Minors and Certificates" section starting on page 144.

Academic Standards

The following standards apply to all students in the Computer Science and Systems program. These standards apply to all major curricula and exist in addition to other academic standards at the University of Washington Tacoma.
- All required prerequisite and major courses (including TCSS 142 and 143) must be completed with a minimum grade of 2.0 before advancing to the next academic level. If a lower grade is received, the student must repeat the

course. Course credit will be awarded only once but both grades are averaged together to compute the cumulative grade point average.
To substitute a course in the major, Computer Science and Systems courses completed at other accredited four-year institutions may not be more than seven years old. If a student wishes to substitute a course, he or she must submit a Petition to Substitute a Course form (tacoma.uw.edu/institute-technology/undergraduate-resources) and supporting documents to the ~~CSCI~~ faculty. If a course is more than seven years old, the student will be required to repeat the course at UW Tacoma. Credit will not be awarded twice for the same course. The petition does not guarantee that credit will be awarded for a course; the petitioning student may be required to complete additional course work in place of the waived requirement.
- If after repeating a required CSS course a student does not achieve the required grade of 2.0, the student must request permission to take the course a third time. The Petition to Repeat a Course form and instructions are located on the Institute of Technology website at: tacoma.uw.edu/institute-technology/undergraduate-resources.
- Students must complete all non-prerequisite general education courses outside the CSS major with a minimum grade of 1.7. If a grade below 1.7 is received in a non-prerequisite elective course, the course will not count towards graduation but the student is not required to repeat the same course.
- Courses in the Computer Science and Systems program may not be taken by correspondence (distance learning) without prior faculty approval.
- Courses in the Computer Science and Systems program may not be taken S/NS (satisfactory/not satisfactory).
- Upper-division Computer Science and Systems courses completed at other accredited four-year institutions may be substituted for required major courses but may not be more than seven years old. If a course is more than seven years old, the student will be required to repeat the course at UW Tacoma. Credit will not be awarded twice for the same course.
- Upper-division courses used for transfer credit are held to the 2.0 grade standard required for all courses in the Computer Science and Systems major.
- Students changing to a Computer Science and Systems major from another major will be required to meet program and academic performance requirements in effect at the time the major is changed.

Low Scholarship
An undergraduate Computer Science and Systems major who is dismissed from the university for low scholarship is removed from the Computer Science and Systems major.
After being removed from the Computer Science and Systems major, a student must re-apply for admission to continue as a ~~CSCI~~ student in any status.

Computing Labs
The Institute of Technology has dedicated laboratories containing specialized equipment to support its programs. These laboratories are accessible to admitted Institute of Technology students via assigned key card 24 hours a day, seven days a week. Access to facilities is also available through Internet connections.

Graduation Requirements
To qualify for graduation with a baccalaureate degree in Computer Science and Systems from the University of Washington Tacoma, a student must:
- Be a matriculated Computer Science and Systems student in good academic standing with the University of Washington Tacoma.
- Complete all Computer Science and Systems prerequisite and required course work with a minimum cumulative grade point average of 2.5 in those courses.
- Complete 180 credits. At least 85 credits must be upper-division (300-400 level) course work.
- Complete a minimum of 30 credits of ~~CSCI~~ required courses in residence at the University of Washington Tacoma.
- Complete 75 percent of ~~CSCI~~ elective courses in residence at the University of Washington Tacoma.
- Complete the final 45 credits in residence at the University of Washington Tacoma.
- Satisfy all of the general university graduation requirements, including five credits of English composition with a minimum grade of 2.0 (see page 20).
- Have a minimum cumulative grade point average of 2.5 in all Computer Science classes.
- Apply for graduation with an advisor by the application deadline posted by the Graduation and Academic

Records Office for the expected date of graduation.
In addition to the general requirements for graduation, students earning the bachelor of science degree must also:
- Complete the required courses in the Computer Science and Systems major.
- Complete ~~25~~ credits of 400-level Computer Science and Systems ~~senior~~ electives.
- Complete 15 credits of upper division (300 or 400 level) general electives. The electives are expected to consist solely of courses outside the CSS program.

In addition to the general requirements for graduation, students earning the bachelor of arts degree must also:
- Complete the specified 30 credits of required courses in the Computer Science and Systems bachelor of arts major.
- Complete 20 credits of 400-level Computer Science and Systems ~~senior~~ electives.
- Satisfy the requirements for a declared UW Tacoma minor or have earned a previous bachelor's degree.

Post-baccalaureate students who are admitted to the Computer Science and Systems program are required to complete the required core and senior elective courses with a minimum cumulative grade point average of 2.5. Elective credit requirements are waived.

PROPOSED CATALOG COPY

Reflecting requested changes (Include exact wording as you wish it to be shown in the printed catalog. Please underline or otherwise highlight any additions. If needed, attach a separate, expanded version of the changes that might appear in department publications).
Please note: all copy will be edited to reflect uniform style in the General Catalog.

Admission Requirements

To qualify for admission to the Computer Science and Systems program, applicants must meet the following standards:
- Derivative calculus (TMATH 124 or equivalent).
- Statistics (TMATH 110 or equivalent).
- Any lab-based science, such as physics (TESC 121), chemistry (TESC 141), or biology (TESC 120).
- Object-oriented programming (TCSS 143 or equivalent).
- Completion of a minimum of 40 college-level credits.
- Cumulative GPA of at least a 2.0 in all college course work
- Cumulative GPA of at least a 2.5 in TCSS 142, TCSS 143, TMATH 124, TMATH 110, and the lab-based science course (not weighted by credits).

Any student that meets these requirements will be admitted to the CSS major. Students who do not meet these requirements will be considered for admission on a space available basis.

How to Apply

To apply for admission into the CSS major, a student must fill out a CSS major application form and supply the above information.

Current Students
Please contact an Institute advisor at tacoma.uw.edu/academic-advising-center

Transfer Students
To apply to the Computer Science and Systems program, students must complete the online UW Tacoma transfer application (tacoma.uw.edu/apply).

Minors

A minor in Applied Computing is available to undergraduate students in other degree programs. Please see the "Minors and Certificates" section of the catalog.

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- 5 credits each of calculus, statistics, and lab-based science (physics recommended)
- 15 credits of Visual, Literary and Performing Arts course work.
- 15 credits of Social Science course work.
- 10 credits of Object-Oriented Programming (Java I & II)

Students with previous baccalaureate degrees or extensive work experience should meet with an advisor to discuss options. Please see university policy on transfer credit on page 22.

Required courses (inner core)
- TCSS 305: Programming Practicum
- TCSS 321: Discrete Structures I
- TCSS 325: Computers, Ethics and Society
- TCSS 333: C for System Programming
- TCSS 342: Data Structures
- TCSS 371: Machine Organization

Additional courses (outer core)
Students must take one of the following theory courses:
- TCSS 343: Design and Analysis of Algorithms
- TCSS 440: Formal Methods in Computer Science

Students must take one of the following software courses:
- TCSS 360: Software Development and Quality Assurance Techniques
- TCSS 445: Database Systems Design

Students must take one of the following hardware/systems courses:
- TCSS 372: Computer Architecture
- TCSS 422: Computer Operating Systems

CSS electives
Students must complete 30 additional credits of 300-level or 400-level courses chosen from the Computer Science and Systems program (excluding TCSS 390); see course descriptions for listing. Students must take at least 10 credits of 400-level CSS lecture courses (not TCSS 497, TCSS 498, or TCSS 499). At most 10 credits of TCSS 497, TCSS 498, and TCSS 499 may be used to satisfy the elective requirement. Students may also take up to 5 credits of a 400-level non-CSS Institute (CES, ITS, TINST) or a 500-level CSS lecture course to count towards the elective requirement.

General electives
Students must complete 15 credits of upper-division (300 or 400 level) general electives. The electives are expected to consist solely of courses outside the Institute programs.

Research and Internship Opportunities
Research, directed reading and internship opportunities allow senior-level students to explore their unique areas of interest complemented by the expertise of the faculty and industry. Industry partner internships at software development design and implementation companies are dedicated to the students of the Institute and provide work experience, which complements the curriculum and can serve as on-ramps to the high tech workforce. While

applying the theoretical and conceptual classroom knowledge to the practical work environment, the student is creates relationships and gains a greater depth of understanding of his or her course work.

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The bachelor of arts degree provides the student with an opportunity to experience more breadth in the academic experience, and to apply the fundamental concepts and technologies of computer science to another academic discipline. The main goal of this program is to provide an educational option for students who want a thorough and rigorous grounding in the principles of computing and technology, but will be "informed consumers" rather than "aggressive primary builders" of the technology.

Curriculum
Required courses
- TCSS 305: Programming Practicum
- TCSS 321: Discrete Structures I
- TCSS 325: Computers, Ethics and Society
- TCSS 333: C for System Programming
- TCSS 342: Data Structures
- TCSS 371: Machine Organization

CSS electives
Students must complete 20 additional credits of 300-level or 400-level courses chosen from the Computer Science and Systems program (excluding TCSS 390); see course descriptions for listing. Students must take at least 10 credits of 400-level CSS lecture courses (not TCSS 497, TCSS 498, or TCSS 499). Students may also take up to 5 credits of a 400-level non-CSS Institute (CES, ITS, TINST) or a 500-level CSS lecture course to count towards the elective requirement.

BA required minor
Students pursuing a bachelor of arts degree in CSS are required to choose a minor from one of UW Tacoma's other academic programs unless the student has earned a previous bachelor's degree. Minors consist of 20-30 credits in a focused area of study. Students will need to work closely with an academic advisor to map out a feasible schedule. See the "Minors and Certificates" section starting on page 144.

General electives
Students must complete at least 40 combined credits of minor courses and upper-division (300 or 400 level) general electives, typically 20-30 minor credits and 10-20 elective credits. The electives are expected to consist solely of courses outside the Institute programs.

Academic Standards

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To substitute a course in the major, Computer Science and Systems courses completed at other accredited four-year institutions may not be more than seven years old. If a student wishes to substitute a course, he or she must submit a Petition to Substitute a Course form (tacoma.uw.edu/institute-technology/undergraduate-resources) and supporting documents to the CSS faculty. If a course is more than seven years old, the student will be required to repeat the course at UW Tacoma. Credit will not be awarded twice for the same course. The petition does not guarantee that credit will be awarded for a course; the petitioning student may be required to complete additional course work in place of the waived requirement.
- If after repeating a required CSS course a student does not achieve the required grade of 2.0, the student must

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■ Courses in the Computer Science and Systems program may not be taken S/NS (satisfactory/not satisfactory).
■ Upper-division Computer Science and Systems courses completed at other accredited four-year institutions may be substituted for required major courses but may not be more than seven years old. If a course is more than seven years old, the student will be required to repeat the course at UW Tacoma. Credit will not be awarded twice for the same course.
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Graduation Requirements
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■ Be a matriculated Computer Science and Systems student in good academic standing with the University of Washington Tacoma.
■ Complete all Computer Science and Systems prerequisite and required course work with a minimum cumulative grade point average of 2.5 in those courses.
■ Complete 180 credits. At least 85 credits must be upper-division (300-400 level) course work.
■ Complete a minimum of 30 credits of CSS required courses in residence at the University of Washington Tacoma.
■ Complete 75 percent of CSS elective courses in residence at the University of Washington Tacoma.
■ Complete the final 45 credits in residence at the University of Washington Tacoma.
■ Satisfy all of the general university graduation requirements, including five credits of English composition with a minimum grade of 2.0 (see page 20).
■ Have a minimum cumulative grade point average of 2.5 in all Computer Science classes.
■ Apply for graduation with an advisor by the application deadline posted by the Graduation and Academic Records Office for the expected date of graduation.
In addition to the general requirements for graduation, students earning the bachelor of science degree must also:
■ Complete the required courses in the Computer Science and Systems major.
■ Complete 30 credits of 300-level or 400-level Computer Science and Systems electives.
■ Complete 15 credits of upper division (300 or 400 level) general electives. The electives are expected to consist solely of courses outside the CSS program.
In addition to the general requirements for graduation, students earning the bachelor of arts degree must also:
■ Complete the specified 30 credits of required courses in the Computer Science and Systems bachelor of arts major.
■ Complete 20 credits of 300-level or 400-level Computer Science and Systems electives.

■ Satisfy the requirements for a declared UW Tacoma minor or have earned a previous bachelor's degree. Post-baccalaureate students who are admitted to the Computer Science and Systems program are required to complete the required core and senior elective courses with a minimum cumulative grade point average of 2.5. Elective credit requirements are waived.

APPROVALS	
Chair/Program Director:	**Date:** 11/04/2013
College/School/Campus Curriculum Committee: Douglas Wills	Date: 12/16/2013
Dean/Vice Chancellor: Ginger MacDonald	Date: 12/16/2013
Faculty Council on Academic Standards/ General Faculty Organization/Faculty Assembly Chair: Douglas Wills	Date: 12/16/2013
POST TRI-CAMPUS APPROVAL (when needed)	
Faculty Council on Academic Standards/ General Faculty Organization/Faculty Assembly Chair:	Date: