Career and Technical Education
Program of Study Application
(Perkins Eligible)2012 Version

Directions—please enter information into ALL the fields in this application. (If you have technical problems with this application, contact Ron Dodge—503-947-5653, ron.dodge@ode.state.or.us.)

*(For detailed information on how to complete this application consult the **Guide to Using the Oregon CTE Program of Study Application 2012**, available at http://www.ode.state.or.us/search/results/?id=225.)*

CTE POS—Title:	Computer Technology
Career Area:	Industrial and Engineering Systems
Cluster Area:	Information and Communications Technology
Focus Area (if applicable):	
Secondary CIP Code: (Link to CIP website)	15.12
Community College CIP Code: (Link to CIP website)	15.1204
Strand Code (Link to Strand code list)	521

Secondary School Name:	Glencoe High School
Secondary School District:	Hillsboro School District
Secondary School ID Number:	1200
Secondary teacher:	Peter Schmurr
Teacher CTE Endorsement:	Computer Technology

Secondary/Post-secondary CTE POS **Visual/Pathway Map Hyperlink:** (or include a file copy of visual in Addendum B)	https://docs.google.com/spreadsheet/ccc?key=0Ai61ZEn3SbtzdEg1Tk5Rd2JmU09OMl9yX3dPS3NDZ0E&hl=en_US#gid=0	No link, but secondary/post-secondary visual included in Addendum B

Community College Name:	Portland Community College
College Point of Contact:	Kendra Cawley
Community College CTE Program Title:	Computer Informations Systems
Community College Award:	Associate of Applied Science

Community College CTE POS **Visual/Pathway Map Hyperlink**: (if different than visual link in secondary section above)	http://www.pcc.edu/about/catalog/cis.pdf	No link, but secondary/post-secondary visual included in Addendum B

Regional Coordinator/Contact:	Lynn Wilson-Dean

CTE Teacher: Submit <u>complete</u> electronic application materials to your CTE Regional Coordinator.

Regional Coordinator: Email application and addenda to this mailbox-- POS.Application@state.or.us) , or follow an alternative process described in Step 8 of the *Submission Process* on the last page of this application*.*

CTE POS Course Lists—Secondary

Directions—Please list below the CTE Program of Study Secondary Courses in which the instructor will:

- Teach with intent and purpose the CTE POS knowledge and skills identified in the CTE POS Skill Set

- Assess and record student achievement of those standards

Note: Additional CTE courses may be listed (and supported with Perkins funds) if they support the identified skill set; but do not mark those as "TSA" Required"

Secondary Core CTE Courses (Please be complete; this information will be entered into the CTE Program Update database and all fields are required)

TSA* Required	School Course #	Secondary Course Name	# of Credits	5-digit NCES Code	Course Description (brief) (boxes below will expand)	Articulating College (if applicable)	College Course #	College Course Name
Yes	1015701	AP Computer Science/ Programming 2	0.5	10157	Advanced Placement Computer Science is an introduction to object-oriented program design. Students will learn to solve problems by learning to process standard data structures with standard algorithms in Java.			
Yes	1015702	AP Computer Science/ Programming 2	0.5	10157	Advanced Placement Computer Science is an introduction to object-oriented program design. Students will learn to solve problems by learning to process standard data structures with standard algorithms in Java.			
Yes	1015211	Programming 1	0.5	10152	Computer Programming is taught in a way that develops critical reading, analytical thinking and attention to detail. Students will develop data structures and algorithms using a version of Scheme developed for beginning learners. Students can further their education by taking AP Computer Science			
Yes	1015212	Programming 1	0.5	10152	Computer Programming is taught in a way that develops critical reading, analytical thinking and attention to detail. Students will develop data structures and algorithms using a version of Scheme developed for beginning learners. Students can further their education by taking AP Computer Science			

TSA required—Technical Skill Assessment required course—required courses that, when completed, trigger TSA assessment eligibility for the student

CTE POS Course Lists—Post-Secondary

Post-secondary Core CTE Courses: *List all courses that complete the delivery of the identified Skill Set—these courses should be included in the Course/Skill Set crosswalk matrix*

Name of Certificate or Degree Program:	Computer Information Systems	Degree or Certificate:	Associate of Applied Science
College Course #	Post-Secondary Course Name	Number of Credits	*College Now?
CIS 120	Computer Concepts I	4	
CIS 121	Computer Concepts Ii	4	
CIS 122	Software Design	4	
CIS 244	Systems Analysis	4	
CIS 275	Data Modeling and SQL Introduction	4	
WR 121	English Composition	4	
CIS 140U	Introduction to UNIX	4	
WR 227	Technical and Professional Writiing	4	
CIS 179	Data Communication Concepts I	4	
BA 203	Introduction to International Business	3	
BA 206	Management Fundamentals	3	

CIS 125D	Database Application Development I (Elective example)	4	
CIS 133B	Introduction to Visual Basic NET Programming (Elective example)	4	
CIS 133J	Java Programming I (Elective example)	4	
CIS 135T	XML and HL7 (Elective example)	4	

* CN = College Now—course identification as College Now (or articulated courses)

Course-to-Skill Set Crosswalk/Matrix

Please use the Excel spreadsheet posted online at (http://www.ode.state.or.us/search/results/?id=225) (**or** use one you've created locally) to crosswalk the identified skill set to the listed secondary and post-secondary courses.
- You may use the same matrix for both secondary and post-secondary courses.
- It is only required to map courses to the standards (Knowledge and Skill Statements); it is not necessary to map the performance indicators, duties, or tasks.
- Be sure to identify the selected skill set in your matrix.
- If your selected skill set is not from the Oregon Skill Sets website, please identify its origin and how it was industry validated.

Secondary: *(check this box to indicate secondary course-to-skills crosswalk is complete and attached)*
Post-secondary: *(check this box to indicate post-secondary course-to-skills crosswalk is complete and attached)*

Alignment and Articulation are key to getting Program of Study partners working together to build career pathways for CTE students

Element 2: Alignment and Articulation

The alignment of this POS includes:

x A. A unified, cohesive sequence of content among secondary and post-secondary partners contained in a non-duplicative sequence of courses or learning experiences.

x B. Alignment of content between secondary and post-secondary education partners may include course articulation or other ways to acquire post-secondary education credits (e.g. Oregon's Credit for Proficiency, Dual Credit, Oregon Transfer credit, etc.).

☐ C. Articulation agreements are developed, implemented and supported at the institutional level to ensure long-term sustainability and cross-sector cooperation.

x E. Based on the program design and instructional plan, each student will:

> x Continually progress in knowledge and skills when ready;
> x Earn high school or college credit based on performance; and
> x Make the connection between educational preparation and entry into a care**e**r.

Directions for using the Comment box—Expandable space is provided for comments. This Box is intended for explanations for missing checks above, or notes regarding program strengths worth consideration during POS review. If you already have documents or files that do this more quickly, simply attach those documents or files to this application in the appropriate Addendum folder. (Consult the ***Guide to Using the Oregon CTE Program of Study Application 2012***, for more details.)

Please address these questions through your comments in **Element 2 Comment Box** below (or attach documentation in an appropriately identified file/folder)**:**
- Address any unchecked box above
- Briefly describe the level of alignment and/or articulation that exists for this POS (you may also identify non-Perkins eligible alignments that exist with private schools, universities, etc.)
- Briefly describe the alignment and/or articulation activities that have occurred, and who participated from HS and CC levels

Element 2 Comment Box: Click here to enter information ...

At this time I have no articulation agreement with any college, but I am aligned with Portland Community College's Computer Information Systems One-year Certificate program and AAS degree.

Students completing this program have a solid foundation in disciplined programming skills enabling them to embark on a computer science major at any college or university. This is further reinforced by my advisory committees review of my coursework.

I give AP credit for my computer science class.

Additionally my advisory committee reviewed my roadmap.

Tom Talbott, Software Engineer
Eric Schmurr , Software Engineer, Efficient Workflow Solutions
John Goucher, Network Administrator, Hillsboro School District
Mathias Fellesien , Computer Science Professor, NEU

Accountability and Evaluation are core elements for Perkins eligibility—they provide data illustrating the value of CTE to students' future plans

Element 3: Accountability & Assessment

<u>In this POS design:</u>

x A. Business, community and education partners (specifically, an Advisory Committee) participate in CTE Program of Study design and development, including:
    x Assistance in evaluating program vision, goals and priorities
    x Validation of industry skill standards for curriculum content and technical skill assessment, where appropriate
    x Participation in the CTE teacher recruitment, instructor appraisal process, and ongoing faculty professional development
x B. Performance will be measured against the Perkins-required performance measures as described in Perkins IV Measurement Definitions identified in Oregon's State Plan
x C. Perkins performance data is used for data-driven, CTE program of study design and improvement decisions
x D. Students have the opportunity to learn in a contextual career related environment that allows them to:
    x Monitor their own progress through their demonstration of attaining technical and academic skill standards
    x Demonstrate their technical and academic proficiency in meaningful ways
    x Adapt their program to meet personal goals based on industry requirements and performance outcomes

<u>Directions for using the Comment box</u>—Expandable space is provided for comments. This Box is intended for explanations for missing checks above, or notes regarding program strengths worth consideration during POS review. <u>If you already have documents or files that do this more quickly,</u> simply attach those documents or files to this application in the appropriate Addendum folder. (Consult the ***Guide to Using the Oregon CTE Program of Study Application 2012***, for more details.)

Please address these questions through your comments in **Element 3 Comment Box** below (or attach documentation in an appropriately identified file/folder)**:**
- Address any unchecked box above
- Identify the data used in designing this POS, and the effect that the data had on the design
- Identify the members of the Business Advisory Committee
- How will the POS be evaluated, and by whom?
- How will you know if the POS is successful?
- What process will you use to decide any changes that need to occur because of the POS evaluation?
- List the TSA(s) used for this POS

Element 3 Comment Box: Click here to enter information ...

I am implementing the Program By Design curriculum which was created by university-level computer science professors who have based their methods on years of work with first-year programming students. I use this curriculum because it provides the thinking skills necessary for beginner-level programming skills, which can than be applied to any programming language.

My goal is to provide my students with skills that are **transferable** to any other programming language. The curriculum I use was developed at Brown, Cal Poly, and Northwestern, et al. and supported by the National Science Foundation, US Dept of Ed, Microsoft, and Google, et al.

This program has been reviewed by my Business Advisory Committee which consists of:

Tom Talbott, Software Engineer
Eric Schmurr , Software Engineer, Efficient Workflow Solutions
Mathew Flatt , Associate Professor of Computer Science, University of Utah
Mathias Fellesien , Computer Science Professor, NEU

For my Technical Skills Assessment, I am using the Advanced Placement (AP) Computer Science A Exam

http://www.collegeboard.com/student/testing/ap/sub_compscia.html

I will adjust my instruction and program based on a categorical analysis of student exam performance on their Technical Skills Assessment (AP exam). This has been my practice for a number of years, and my students are currently passing the TSA (AP exam) at an 80% success rate.

Additionally, my Perkins contact in the Hillsboro School District provides me with data submitted by our district to the ODE. Each year we review our data related to reading, writing, math, non-traditional participation, and completion. After we have analyzed the data, all of our CTE Programs of Study adjust our lessons within our courses to address any substantial needs that arose in the analysis of the data.

Professional Development for POS teachers should be designed on the needs identified by data, and should focus on continuous improvement of student opportunities within this POS.

Element 5: Professional Development

The planned professional development for this POS will:

x A.   Help teachers and administrators develop and improve standards-based curriculum and learning experiences that promote the integration of coherent and challenging academic content and industry-based technical standards, including opportunities for the appropriate academic and CTE instructors to jointly develop and implement classroom-based curriculum and instructional strategies.

x B.   Include professional development that is high quality, sustained, intensive, and focused on instruction designed to increase the academic knowledge and understanding of industry standards

x C.   Encourage applied learning methodology that contributes to the academic and CTE knowledge of the student

x D.   Provide research and training opportunities that help teachers develop appropriate and useful assessment tools and strategies.

x E.   Provide training and guidance geared to help improve instructional delivery methodology that helps improve student performance and skill acquisition, particularly skills needed to work with and improve instruction for special populations.

x F.   Assist teachers in accessing and utilizing CTE accountability data, student achievement data, and data from assessments

Directions for using the Comment box—Expandable space is provided for comments. This Box is intended for explanations for missing checks above, or notes regarding program strengths worth consideration during POS review. If you already have documents or files that do this more quickly, simply attach those documents or files to this application in the appropriate Addendum folder. (Consult the ***Guide to Using the Oregon CTE Program of Study Application 2012***, for more details.)

Please address these questions through your comments in **Element 5 Comment Box** below (or attach documentation in an appropriately identified file/folder)**:**
   ● Address any unchecked box above
   ● Briefly describe how PD will be planned and implemented, based on the needs of the POS
   ● Briefly describe any planned joint PD ventures for HS and CC teachers, as well as regional trainings

Element 5 Comment Box: Click here to enter information ...

I attended a Scratch workshop at the 2012 Computer Science Teacher Association meeting at Willamette University.

I am deeply committed to my curriculum because I have seen the benefits it has had for my students as they have pursued programming post-secondary. I have had the benefit of talking with these students and hearing them share their successes, and this has only reinforced my commitment to Program by Design.

With that preface: I will keep abreast of AP Computer Science training institute opportunities in this region. I use the AP test as my TSA, and it is important to maintain my understanding of any changes they make in focus so I can reflect that in my own curriculum.

I will be an active participant in Program By Design list-serve conversations among teachers. This is a tremendous source of on-going PD in my opinion. I have found that these conversations have improved my delivery and my students' achievement!

Additionally, I will meet with the Oregon chapter of the Computer Science Teacher's Association at one or more regularly scheduled meetings.

Finally, looking ahead to the future, I would like to create online courses that would allow students to join the course remotely and work at their own pace. My plan is as follows:

Year One: Convert my lessons from paper to PowerPoint presentations

Year Two: Begin working with instructional video tools such as Camtasia

Year Three: Look at ways to put the curriculum online to facilitate students access from home

Year Four: Integrate the curriculum into the district's already existing online school program

Through this four-year plan I can provide instruction to a broader base of students and introduce them to the best programming curriculum available.