Memorandum of Understanding

Proposal to Extend an Existing OSU Program
From OSU.Main (Corvallis) to OSU-Cascades (Bend)

*Submit proposals to: Office of Academic Programs, Assessment, and Accreditation,
500 Kerr Administration Building – Oregon State University*

For Instructions, see http://oregonstate.edu/admin/aa/apaa/academic-programs/curriculum/mou-process
Please attach Executive Summary Proposal, Library Evaluation (performed by the library), Letters of
Support (if any), Liaison Correspondence, Faculty Curriculum Vitae, and
Budget Sheets, as appropriate.

Title of Program (include if it is a major, minor, option or certificate)   Effective Term/Year

Computer Science major with (a pre-approved) applied option in web and mobile   fall 2013
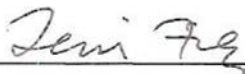web software development

School/Department/Program: College:
School of Electrical and Computer Science   *College of Engineering*

I have reviewed and approve this proposal:

Corvallis-Based Faculty and Administration   Cascades-Based Faculty and Administration

_____   10/24/12   _____
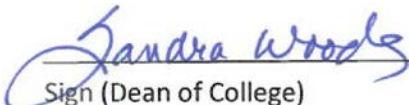Sign (Dept. Chair/Head; Director)   Date   Sign (Dept. Chair/Head; Director)

Terr i S Eiez

_____   None
Print   Print

_____   1o/3o/12   _____   12.14.12
Sign (Dean of College)   Date   Sign (Dean of OSU-Cascades)   Date

Sandra L. Wood   Marla E. Hacker
Print   Print

                                                   _____   12.14.12
_____   _____   Sign (VP, OSU-Cascades)   Date
Sign   Date
                                                   Becky L. Johnson
_____   _____   _____
Print   Print

New MOU Proposal
BS in Computer Science with an Applied Option

Status: Pending Review - Academic Programs (Previous Version)

Hide All Reviews ▼

1. Review - College Approver - Engineering

Approved by Robert Paasch Associate Professor / Sch of Mech/Ind/Mfg Engr, *January 16, 2013 12:46pm*

2. Review - Curriculum Coordinator

Approved by Gary Beach Coord-Curriculum / Acad Prgms/Assess/Accred, *January 16, 2013 1:50pm*

Comments

Gary Beach (Curriculum Coordinator) January 16, 2013 1:50pm

The College of Engineering Curriculum Committee has approved the MOU proposal to "Extend" the BS in Computer Science degree program from OSU-Main to OSU-Cascades.

Proposal Review Steps

Academic Programs Committee: November 12, 2012
College of Engineering Curriculum Committee: January 16, 2013
Budgets and Fiscal Planning Committee:

3. Review - Budgets and Fiscal Planning Committee

Approved by Walter Loveland, *January 31, 2013 3:38pm*

Comments

Walter Loveland (Budgets and Fiscal Planning Committee) January 31, 2013 3:38pm
We are approving this proposal but we would like to note two possible corrections to the budget that the proposers may wish to investigate further. The first is that of the projected RAM revenue. Dr. Bloomer, the Director of the OSU Office of Budgets does not think you will see an increase in RAM monies that is proportional to the increased number of students in the program. The program has sufficient revenue from tuition to be sustainable, so this is not an issue. The second matter concerns a budget note about hiring a Coordinator at 0.30 FTE, $106,120.80. It appears this person has already been hired and thus properly, is not included in the incremental budget. It might be clearer to drop this budget note.

4. Review - Graduate Council Chair

Approved by Sarah Williams Coord-Curriculum / Acad Prgms/Assess/Accred, *February 1, 2013 11:16am*

Comments

Sarah Williams (Graduate Council Chair) February 1, 2013 11:16am
This proposal is an undergraduate only proposal. It is being moved along to the Curriculum Council Chair. SW

5. Review - Curriculum Council Chair

Sent Back by Michael Bailey Professor / Sch Elect Engr/Comp Sci, *February 12, 2013 3:18pm*

Comments

Michael Bailey (Curriculum Council Chair) February 12, 2013 3:18pm
Sent back to revise course list and budget

6. Originator Response

Marla Hacker Associate Dean / Acad Prog / Student Aff, *February 15, 2013 12:10pm*

7. Review - Curriculum Council Chair

Approved by <u>Michael Bailey</u> Professor / Sch Elect Engr/Comp Sci, *February 25, 2013 4:07pm*

8. Review - Academic Programs

Pending Review

More Queued Reviews (1)

Catalog Coordinator

Proposal

Proposal ID:85405
Type:New MOU
Submission Date:February 15, 2013 12:10pm
Effective Term:Fall 2013
Justification:
This MOU extends the BS in CS with an existing pre-approved applied option in web and mobile to OSU-Cascades. The COE dean and the OSU-Cascades vice president support the MOU.
Comments:*None*

History

Active Version - Submitted February 15, 2013 12:10pm
<u>Version 1</u> - Submitted January 1, 2013 12:57pm

Originators

NAME	TITLE	DEPARTMENT/SCHOOL
<u>Bella Bose</u>	Assoc Dir-Academic Affairs	Sch Elect Engr/Comp Sci
<u>Marla Hacker</u>	Associate Dean	Acad Prog / Student Aff

Contacts

No contacts

MOU Information

College/Department or College/School:College of Engineering / School of Electrical Engineering and Computer Science

Description:
Extending the CS major with a pre-approved applied option in web and mobile web software development to OSU-Cascades in Bend, Oregon.

Review Process
Academic Programs Committee: November 12, 2012
College of Engineering -- APPROVED: January 16, 2013
Budgets and Fiscal Planning Committee --APPROVED January 31, 2013
Curriculum Council -- APPROVED (by eMail vote) February 25, 2013
Executive Committee: APPROVED March 7, 2013
Faculty Senate --
OSU Provost --
OUS Provosts' Council --

Supporting Documents

EXECUTIVE SUMMERY FOR COMPUTER SCIENCE MOU

This MOU extends the existing OSU-Corvallis computer science major with the existing pre-approved applied option in web and mobile web software development to the OSU-Cascades campus. OSU-Cascades will use COCC courses to meet lower division requirements, except where and when COCC is unable to offer the required lower division course work. Additionally, eCampus courses can be used for this degree. The applied options in computer science at OSU-Corvallis are not accredited. The applied option in web and mobile web software development will also not be accredited.

The only related program in Central Oregon is the COCC Associate of Applied Science degree in Computer Information Systems. The program is focused on certificates and entry level computer support. Software Engineering Technology at OIT prepares students to design, develop, integrate, and implement computer software. Graduates of the Software Engineering Technology program understand the key general principles and practices of applied software engineering. This program is not offered online. Computer Science at EOU offers depth in the structural, analytical, creative, and artistic masteries that comprise the discipline. The program builds upon a traditional stand-alone Computer Science program, as it offers a common core in the theoretical components of the discipline but then allows students to choose one of three tracks: computer science, statistical/scientific computing or multimedia studies. This program is not offered online. The OSU-Cascades, OIT, and EOU programs have programming in common. The differences are in their focus areas and their availability in Central Oregon. The students at OSU-Cascades in the Applied Option will focus on entrepreneurship and software development for technology based companies, where customer interaction is primarily via web-enabled devices. This is the focus that is requested by the local Central Oregon tech industry (supported is described below and provided in uploaded letters of support). Additionally, the OUS ViewBook 2013/14, pages 11-12, lists all OUS institutions as having computer science. At the UO, the degree is listed as a computer info technology degree.
http://www.ous.edu/media/viewbook/1314/index.html#/12/

Local Central Oregon industry are aggressively advocating for this major in Central Oregon. A process over the last year solicited input regarding offering a computer science major at OSU-Cascades. Input was received from 22 individuals, representing 19 different organizations including: G5Solutions, Navis, Sony, MEDISISS, TriQuint Semiconductor, Bend Broadband, facebook, Mazama, Altrec, Advanced Energy, and Ruff Wear. The industry input indicated a desire for an applied option that focuses on web and mobile web software development.

The goal is to achieve a class size of 25 in the junior level courses by the second year of startup. Since OSU-Cascades offers only the upper division courses, this would mean that there are 25 junior level and 25 senior level students by year three working towards their computer science degree. By year four, OSU-Cascades forecasts to be graduating on average 25 computer science students each year.

OSU-Cascades currently does not have CS faculty. In year one, OSU-Cascades will hire three adjuncts to begin offering some CS course. In year two, a full-time instructor will be hired. In year three, OSU-

Cascades will hire one full-time tenure-track assistant professor and be able to offer the required junior and senior level coursework.

Memorandum of Understanding (MOU)
Extend: BS in Computer Science; Applied Computer Science Option
From OSU-Corvallis to OSU-Cascades
CPS Tracking # 85405

1. Program Description

   a. Program title, level
   - B.S., Computer Science, with a pre-approved applied option in web and mobile web software development

   b. OSU main campus department and school/college under which the program is offered
   - School of Electrical Engineering and Computer Science in the College of Engineering

   c. Who will be the administrator(s) of the OSU-Cascades program?
   - Marla Hacker, Dean of Academic Programs, OSU-Cascades.
   - Bella Bose, Associate School Head, Electrical Engineering and Computer Science.

   d. Briefly describe the academic program, and provide a program degree audit sheet that lists all courses (including number of credits) and indicates how each course will be offered at OSU-Cascades or via distance education.

Degree Program Title: **General Science**

Degree Type: **Bachelor of Science (BS)**
CIP Number: **110701**
SIS Major Number:
   Pre-Professional - 335
   Professional - 307
CPS Tracking Number: **85405**
College Code: **16**
Program Type: **Undergraduate**
Option: **Applied Computer Science**
Undergraduate Minor: **None**
Course Designator: **CS (Existing)**
New Courses: **CS 311 (4); CS 325 (4); CS 352 (4); CS 381 (4); CS 411 (4); CS 419 (4); CS 434 (4); CS 440 (4); CS 450 (4); CS 461 (3); CS 462 (2); CS 463 (2); CS 466 (4); CS 476 (4)**
Delivery Mode and Location: **OSU-Cascades; Bend, Oregon**
Enrollment Limitations: **None**
Unique to OSU-Cascades: **No**
Unique to OUS: **No**
Accreditation: **None**
Academic Home: **Joint – School of Electrical Engineering and Computer Science, College of Engineering OSU-Main and OSU-Cascades**
Contacts: **Bella Bose, OSU-Corvallis; and Marla Hacker, OSU-Cascades**
Proposed Effective Term: **Fall Term 2013**

This MOU extends the existing OSU-Corvallis computer science major with the existing pre-approved applied option in web and mobile web software development to the OSU-Cascades campus.

CS Major Requirements and Degree Audit Sheet

Baccalaureate Core Course Requirements

HHS Lecture	2	COCC
HHS Lab or PAC	1	COCC
Mathematics (MTH 251)*	4	COCC
Perspective (Biological Science + Lab)	4	COCC
Perspective (Physical Science)	4	COCC
Perspective (Physical Science or Biological Science + Lab)	4	COCC
Perspective (Western Culture)	3	COCC
Perspective (Cultural Diversity)	3	COCC
Perspective (Literature and the Arts)	3	COCC
Perspective (Social Processes and Institutions)	4	COCC
Difference, Power, and Discrimination	3	COCC
Speech (COMM 111 or COMM 114)*	3	COCC
Synthesis (Contemporary Global Issues)	3	OSU-Cascades
Synthesis (Science, Technology, and Society)(CS 391)*	3	OSU-Cascades
Writing I, II (WR 214 or WR 222)*	6	COCC
Writing Intensive Course (CS 361)*	3	OSU-Cascades

*courses shown are also in pre-professional or pro-school requirements

Pre-Professional Program Course Requirements (42)

CS 160	Computer Science Orientation	4	COCC
CS 161	Introduction to Computer Science I	4	COCC or Ecampus
CS 162	Introduction to Computer Science II	4	COCC or Ecampus
CS 261	Data Structures	4	COCC or Ecampus
CS 271	Computer Architecture and Assembly Language	4	COCC or Ecampus
CS 275	Introduction to Databases	4	COCC or Ecampus
MTH 231	Elements of Discrete Mathematics	4	COCC or Ecampus
MTH 111	(background)		
MTH 112	(background)		
MTH 251	Differential Calculus	4	COCC
MTH 252	Integral Calculus	4	COCC
COMM 111 or COMM 114 Public Speaking or Discourse		3	COCC
WR 121	English Composition	3	COCC

Professional Program Courses

WR 214 or WR 222 Business Writing or English Composition		3	COCC
ST 314	Statistics for Engineers	3	Existing OSU-Cascades
WR 327	Technical Writing	3	Existing OSU-Cascades
CS 311	Operating Systems I	4	OSU-Cascades or Ecampus
CS 325	Analysis of Algorithms	4	OSU-Cascades or Ecampus
MTH 232	Elements of Discreet Mathematics	4	COCC or Ecampus
CS 352	Introduction to Usability Engineering	4	OSU-Cascades or Ecampus
CS 361	Software Engineering I WIC	4	Ecampus or OSU-Cascades
CS 362	Software Engineering II	4	Ecampus or OSU-Cascades
CS 372	Introduction to Computer Networks	4	Ecampus or OSU-Cascades
CS 381	Programming Language Fundamentals	4	OSU-Cascades
CS 391	Social and Ethical Issues in Computing STS	3	Ecampus or OSU-Cascades
CS 411	Operating Systems II	4	OSU-Cascades
CS 461	Senior Software Engineering Project	3	OSU-Cascades
CS 462	Senior Software Engineering Project	3	OSU-Cascades
CS 463	Senior Software Engineering Project	2	OSU-Cascades
CS	Restricted Electives	8	OSU-Cascades or Ecampus

Pre-approved Applied Option (min 32 credits)- web and mobile web software development

Required: 20 credits

BA 260	Introduction to Entrepreneurship or		
	CS 419/ECE 499 Selected Topics	4	COCC (BA) or OSU-Corvallis (CS/ECE)
CS 466	Web Start-Up Project Lab	4	OSU-Cascades
CS 494	Web Development	4	Ecampus or OSU-Cascades
CS 496	Mobile and Cloud Computing	4	Ecampus or OSU-Cascades
ECE 478	Network Security	4	OSU-Cascades

Choose: 12 Credits

BA 215	Fundamentals of Accounting	4	COCC
BA 351	Managing Organizations	4	Ecampus
BA 352	Individual and Team Performance	4	Existing OSU-Cascades
BA 360	Intro to Financial Management	4	Existing OSU-Cascades or Ecampus
BA 364	Project Management	4	Existing OSU-Cascades or Ecampus
CS 419	Special Topics in Computer Science	4	OSU-Cascades
CS 434	Machine Learning and Data Mining	4	OSU-Cascades
CS 440	Database Management Systems	4	OSU-Cascades or Ecampus
CS 450	Introduction to Computer Graphics	4	OSU-Cascades
CS 476	Advanced Computer Networking	4	OSU-Cascades

Unrestricted Electives (8)

Total:180

e. Indicate in what ways the proposed program at OSU-Cascades will differ from the OSU main campus program.
   - OSU-Cascades will use COCC courses to meet lower division requirements, except where and when COCC is unable to offer the required lower division course work. Additionally, eCampus courses can be used for this degree.

f. List any special requirements or prerequisites for admission to the program at OSU-Cascades
   - Students will apply to pro-school at the end of their sophomore year to be eligible to begin upper division course work, as is done in Corvallis.

g. Is there an accrediting agency or professional society that has established standards for this program? If so, is the program currently accredited? If accredited, what steps would be needed to ensure that accreditation is maintained vis-à-vis the OSU-Cascades offering? Does the accrediting body require notification of the program offering at a new location?
   - The applied options in computer science at OSU-Corvallis are not accredited. The applied option in web and mobile web software development will also not be accredited.

2. Demand

a. List any similar programs offered at the proposed or nearby location(s).

   - The only related program in Central Oregon is the COCC Associate of Applied Science degree in Computer Information Systems. The program is focused on certificates and entry level computer support.
   - Software Engineering Technology at OIT prepares students to design, develop, integrate, and implement computer software. Graduates of the Software Engineering Technology program understand the key <u>general principles and practices of applied software engineering</u>. This program is not offered online.
   - Computer Science at EOU offers depth in the structural, analytical, creative, and artistic masteries that comprise the discipline. The program builds upon a traditional stand-alone Computer Science program in that it offers a common core in the theoretical components of the discipline but then allows students to <u>choose one of three tracks: computer science, statistical/scientific computing or multimedia studies</u>. This program is not offered online.

     The OSU-Cascades, OIT, and EOU programs have programming in common. The differences are in their focus areas and their availability in Central Oregon.   The students at OSU-Cascades in the Applied Option will focus on entrepreneurship and software development for technology based companies, where customer interaction is primarily via web-enabled devices. This is the focus that is requested by the local Central Oregon tech industry (supported is described below and provided in uploaded letters of support).

   - Additionally, the OUS ViewBook 2013/14, pages 11-12, lists all OUS institutions as having computer science. At the UO, the degree is listed as a computer info technology degree.

http://www.ous.edu/media/viewbook/1314/index.html#/12/

b. Provide evidence of need for the program at the new location(s).
- Local Central Oregon industry are aggressively advocating for this major in Central Oregon. A process over the last year solicited input regarding offering a computer science major at OSU-Cascades. Input was received from 22 individuals, representing 19 different organizations including: G5Solutions, Navis, Sony, MEDISISS, TriQuint Semiconductor, Bend Broadband, facebook, Mazama, Altrec, Advanced Energy, and Ruff Wear. The industry input indicated a desire for an applied option that focuses on web and mobile web software development.
- Local industry provided letters of support, which have been uploaded.
- On the national level, Georgetown University Center on Education and the Workforce (November, 2011) reports that Information and Communication Technology (ICT) is an umbrella term used to encompass all rapidly emerging, evolving and converging computer, software, networking, telecommunications, Internet, programming and information systems technologies. The ICT Sector stands out as one of the top opportunities for students. With jobs projected to increase by 27%, the ICT Sector will be the fastest growing career cluster through 2018. The ICT Sector meets national criteria for high demand, high wages, and high skills and is reported to be the driving force of innovation behind the efficiency initiatives of all career clusters.
- From the approved online proposal #83620 to add CS capacity at OSU-Corvallis: The demand for computer scientists is extensive, but there is a major shortage of graduates. The Oregon University System is graduating only 270 such students per year. Currently there are many CS jobs left unfilled due to the shortage of CS graduates. Not only are there many job opportunities for CS graduates, but current CS graduates are securing salaries from $60-90K directly after graduation.

c. Estimate enrollment and number of graduates over the next five years. Will any enrollment limitation be imposed? If so, how will prospective students be enrolled be selected?

- Our goal is to achieve a class size of 25 in the junior level courses by the second year of startup.

- Since OSU-Cascades offers only the upper division courses, this would mean that there are 25 junior level and 25 senior level students by year three working towards their computer science degree. By year four, OSU-Cascades forecasts to be graduating on average 25 computer science students each year.

- No enrollment limitations will be imposed.

3. Personnel

a. List the names and qualifications of faculty (regular and adjunct) who will be involved in delivering the program at OSU-Cascades, and their tentative teaching assignments. Will new faculty be needed?

- COCC will provide the lower division course work.
- OSU-Cascades currently does not have CS faculty. CS faculty will need to be hired.

- Cascades hired a part-time program coordinator beginning in fall 2012 to support the startup effort including: student recruitment, marketing, and working with the local tech community in how they can support this program with projects employment, projects, and internships. This position is a 0.30FTE coordinator role that will be recurring within this program and may also teach a course in year three or four.
- In year one, OSU-Cascades will hire three adjuncts to begin offering some CS courses.
- In year two, OSU-Cascades will hire one full-time instructor and three additional adjuncts (for a total of six adjuncts) to begin offering junior level CS courses.
- In year three, OSU-Cascades will hire one full-time tenure-track assistant professor.
- In year three the program has staffing to provide the upper division with one assistant professor, one full-time instructor, six adjuncts, and one 0.30FTE coordinator.

4. Other Resources

a. Describe facilities (e.g., buildings, labs, equipment) necessary to offer the program at the new location(s).
- Facilities needed to offer the current program are available at OSU-Cascades or COCC. No new facilities are needed. Use of any COCC facilities for OSU-Cascades' classes are covered under the MOU between COCC and OSU-Cascades.

b. Indicate how library needs will be met.
- See uploaded Library Assessment, which requests one-time funding of $800 of materials.

c. Indicate how students at the new location(s) will receive student services (e.g., academic advising, etc.).
- All OSU-Cascades students receive advising from professional advisors located in Cascades Hall. The same advising guidelines as the main campus of 300 students per professional advisor will be maintained, and will hire additional advisors to maintain that guideline. In addition, Computer Science advisors in Corvallis will provide mentorship to the advisors at OSU-Cascades, especially at the beginning of the program. All other student services will be provided for CS students just like they are for all OSU-Cascades students.

5. Budgetary Impact

a. Indicate the estimated cost of the program for the first four years of its operation. (Use the "Budget Outline" and "Budget Outline Instructions" forms on the Forms and Guidelines Web site.)

- The budget forms are an uploaded document.

b. If the program will be financed from existing resources:

1. Describe what the budgetary unit will be doing that is not currently done in terms of additional activities.

- OSU-Cascades programs are enrollment driven, so fund balance or foundation resources are used for start-up costs, and then tuition and RAM revenue support the program as it grows. OSU-Cascades will use fund balance resources until the program is self-supporting.

2. State what these new activities will cost and whether financed or staffed by shifting of assignments within the budgetary unit or reallocation of resources within the institution. State which resources will be moved and how this will affect those programs losing resources.

- See above. There is no moving of existing resources.

6. Draft of the MOU – the following template is required.

    a. The program title and limitations (if any).
       B.S., Computer Science major with an applied option.

    b. What are the responsibilities of the OSU-Cascade campus administration, faculty and staff in order to deliver the program?
- Dr. Marla Hacker, Dean of Academic Programs will oversee the program at OSU-Cascades. The Enrollment Services and Student Affairs unit at OSU-Cascades will serve CS students just as they do for all other programs located at OSU-Cascades.

    c. What are the responsibilities of the OSU-Main campus administration, faculty and staff in order for the program to be delivered at OSU-Cascades?
- The School of Electrical Engineering and Computer Science leads the computer science program assessment process and the program at OSU-Cascades will be included in the assessment. The School of EECS will lead these processes and the OSU-Cascades campus will comply in every way requested.
- The School of Electrical Engineering and Computer Science will be the academic home for tenure-track faculty hired for this program. This school will therefore be involved in faculty evaluation, in collaboration with the OSU-Cascades supervisor.
- Any adjunct faculty hired to teach in the CS program at OSU-Cascades will be vetted by the school, unless delegated to another person located at the OSU-Cascades campus.
- The Corvallis and the Cascades campuses will work closely together, similar to the Energy Systems Engineering, program to find synergy in recruitment, advising, admission to pro-school, etc. This will be the same for the new computer science degree with an option in web and mobile web software development.

    d. Provide documentation of discussion of the proposal for the new program with the faculty of the sponsoring department on the Corvallis campus.

- Mr. Paul Paulson, chair of the undergraduate curriculum committee in Electrical Engineering and Computer Science last year, and Dr. Mike Bailey, undergraduate curriculum committee member, worked with the undergraduate curriculum committee on this proposal. Dr. Bella Bose, from the school of electrical engineering and computer science, has provided a statement verifying this effort, which has been uploaded as other documents.

- Dr. Bob Paasch is the chair of the College of Engineering undergraduate curriculum council and will be an official liaison in the university approval process.

e. Signatories to the MOU.
   See uploaded signature page

OSU Libraries Support for Computer Science Program at OSU-Cascades

Local Stakeholder Input About the Need for the Program

LOCAL INDUSTRY INPUT TO THE CS APPLIED OPTION- FOCUS ON WEB AND MOBILE WEB SOFTWARE DEVELOPMENT DEGREE AT OSU-CASCADES

From: Dino Vendetti [mailto:dino@formative.com]
Sent: Friday, November 25, 2011 2:26 PM
To: Hacker, Marla E
Subject: Re: INPUT REQUESTED: Web and Mobile Web Software Development Computer Science Degree at OSU-Cascades

Marla

I wanted to check in to see what kind of response you got from this? I think the structure below is a great starting point. I would love to spend some time with you in december when I'm back up in bend to talk about how to make this a reality. I hope the response front the local tech community was supportive of this strategy.

BTW, check out the below links on the role that accelerators are providing in the economy. Look at the age of the typical entrepreneur in these video's, young eh? In fact, I was at the Angel Pad accelerator pitch event in the video and ended up investing in a company called Vungle that provides a mobile video ad delivery platform. The founders of Vungle are in their early to mid 20's and super smart and aggressive. The point is, the program at OSU Cascades will be producing a bunch of great engineers, some who will hopefully turn into terrific entrepreneurs. If we are successful, they have a start up eco-system that will help them pursue their dreams. I look forward to continuing our conversation…

`KQED - This week in California:`
http://angelpad.org/b/angelpad-on-npr-pbs/

`PBS NewsHour:`
http://youtu.be/J6OQ53tf6cc?t=8s

`More clips;`
http://www.pbs.org/newshour/rundown/2011/11/startup-accelerators.html

Best,

Dino

Dino Vendetti
Managing Director
Formative Ventures
dino@formative.com
650-465-8005

Marla,

Here is a response from our Chief Technology Officer on your request for feedback. Pls do feel free to contact him if you have any other specific questions. We are happy to help…

Wow, I wish I had those offerings when I was a student. You have a very impressive list of courses laid out. Web development is a very dynamic field, ever changing in technology and implementation. We all benefit from open source technologies and open source thinking.

Your courses are right on point and inclusive of what students can expect to see in the real world. Several Items that should be mentioned that I didn't see on your list are. NoSQL Databases: MongoDB and couchDB also offer a key value storage database solutions such as Redis and Riak then for more complex and structured data, Hadoop. In other areas: Unit testing in testing. In Security: SQL Injection attacks and DDOS attacks. In Operations systems Unix. API section Json should be discussed.
Search wasn't represented on your list, I would recommend a course in Solr and or Sphinx both are open source search platforms and play an intricate rolls in todays businesses applications.

I am impressed you are offering courses in version control (Git, SVN) along with your Node.js offering in server programming all are wonderful technologies that are becoming staples in every business today, we use (GitHub and Node.js) here at Manzama.

Opportunities for this type of graduate are plentiful. My team was recently at DjangoCon 2011 in Portland, which is a Python / Django conference, the only one hosted in the Untied States. Lots recruiters were in attendance from all over the USA looking/begging for qualified applicants. There was a saying at the conference, "the most popular people at the entire conference were those who where un-employed". Anyone with the skills you listed in our course outline above would have no trouble finding work in this field. Web Programmers are in extremely high demand all over the nation. Manzama is going to be hiring a programmer in the next few months, I would be elated if I saw an application come across my desk with the skill set you have outlined.

Best,

Randall

Randall Smith, CTO

manzama)
LISTEN > ANALYZE > ACT

Hi Marla.

My responses are listed below. If you have questions, feel free to contact me.

1) **the skills and knowledge outlined below for this type of degree**
- I am not a computer science expert but looking at the outline for this degree below, it looks to be comprehensive.
- This is a very fast changing field, I would see the curriculum needing to be updated every 2-3 years.

2) **your perspective about employment opportunities for this type of graduate**
- I see the demand increasing over time for graduates with this kind of training.
- Businesses that have intensive web-based IT support needs, businesses that have the web as their primary or major avenue for marketing to the general public or businesses that develop web-based applications for consumers or business/industry would all have need of this type of graduate.
- At some point, my business (TriQuint Semiconductor in Bend) will need to hire a full-time IT engineer. Right now we get by with an on-site technician with some IT expertise and support from our headquarters located in Hillsboro, OR. I would normally be looking at someone with a Computer Science degree and I would not exclude an individual from this program from consideration for the Bend

TriQuint position. The major part of the job would be supporting and continuing to improve our IT capabilities on the Bend site. A portion of the responsibilities would be dealing with Web software development and this training would have direct application.

- I don't see any business or public agency not having a need for this type of individual with this background. Some businesses will just need it more than others. As long as the graduate has a solid IT background, having the special focus on web software development, would still make the person marketable even if the specific job is not completely web software development focused.

Thanks…. John

John Smallwood | **Site Manager** | **TriQuint Semiconductor**
63140 Britta St. Bldg C | Bend, OR 97701 | ☎: 541-382-6706 ext. 253318 | ✉: john.smallwood@tqs.com

From: Tom McCullough [mailto:tom@instantmobilesolutions.com]
Sent: Monday, November 07, 2011 10:40 AM
To: Hacker, Marla E
Subject: FW: INPUT REQUESTED: Web and Mobile Web Software Development Computer Science Degree at OSU-Cascades

Marla

I run a small startup in the mobile space. Eric Strobel asked that I respond to your request for input.

First, the degree is spot-on. Without question the need for mobile developers is increasing not decreasing. I would suggest putting together an advisory board of CTO's from local tech companies that can advise you on the trends in the industry and the most relevant content. They could also be guest lecturers.

Second, the technical requirements seem to cover all of the key technologies and methodologies. But again, a CTO is better able to speak to this than me.

Third, the business aspect I would suggest that you focus more on product management and product marketing. Finance and marketing are really best addressed as components of how to manage a product. That would also incorporate some of the development processes since product management is tightly linked to product development.

I am not sure how you would incorporate "venture management" into the program. This is a topic that is more relevant for an entrepreneurial program as opposed to a technical "how to" program.

I am not technical enough to know what Microsoft is doing with Windows 7 for mobile but with Nokia behind them that is another platform to consider incorporating. Also, there are a number of cross-platform development environments that may be of use as well. As you know, this field changes so rapidly it is difficult to put a program in place with any sort of lead time!

If you are seeking adjunct professors for this program, I can help with the business/product management area. I do have a Masters in Technology Management from Pepperdine and a BS in Econ from USC. You can find my bio on LinkedIn at www.linkedin.com/in/tommccullough

Hope this input is helpful.

TM

Tom McCullough

InstantMobile Solutions, Inc.
Office: (541) 632-3011

From: Mark Hinkle [mailto:mark@manzama.com]
Sent: Friday, November 04, 2011 3:56 PM
To: Hacker, Marla E
Cc: peter@manzama.com; dino@formative.com
Subject: RE: INPUT REQUESTED: Web and Mobile Web Software Development Computer Science Degree at OSU-Cascades

Hi Marla,

I am ecstatic to have received this email from you. Being the President of a software company in town, I realize how important the need is for a steady pipeline of qualified and technologically adept candidates for businesses to be able to prosper here in the future. My CTO, Randy Smith, will also be replying with a more technologically specific answer to your question. For me, I see the following as important:

1) Basic programing skills. Rapid development, basic understanding of different programming language (PHP/Python/Ruby etc.). These are the obvious things that align with any Computer Science Degree.
2) Mobile development foundation. More and more of the applications in the future will be based and/or accessed by mobile devices.
3) Understanding of systems architecture, system security, cloud dynamics, etc.
4) Basic website development and design
5) Basic SEO/SEM understanding and skills
6) Communication and writing skills. This is a big one as many developers/technologically savvy people are not good communicators or writers which is very important to the success of an organization. The ability to speak up when it requires it, or concisely convey a problem or opportunity to others within the organization, and not be the quiet techy guy in the corner with headphones on.
7) Entrepreneurial 101 class. Many of these "programmers" will go on to become C-level executives in companies. Give them the tools they need to succeed. This includes the communication and writing skills above, but also a basic understanding of fundraising, P/L statements, how to start and grow a company, corporate structures and related tax benefits/consequences, typical pitfalls and mistakes, etc.
8) A basic understanding of good UI (user interface) and design. All developers need a basic understanding of a good UI vs. a bad one etc. and many times, they will be called upon to be designers in their roles as well (backend or frontend)

I cannot express enough how important I think this is to the long term prosperity of Bend. The jobs of tomorrow will all be technologically related in some way, shape, or form with the exception of a very few. Companies will not be able to prosper here without a good crop of talent to draw from locally and eventually will leave due to resource constraints (think G5 if it continues to grow) if they cannot find the talent here.

Thank you for all of your hard work and efforts to make this a reality….

Thanks,

Mark Hinkle
President/COO

From: Michael Taus [mailto:mike@codebenders.com]
Sent: Friday, November 04, 2011 3:06 PM
To: Hacker, Marla E
Subject: Re: INPUT REQUESTED: Web and Mobile Web Software Development Computer Science Degree at OSU-Cascades

Marla,

Thanks for including me on the list. I'm also on the Tech Alliance board and was involved in crafting the original outline, which appears similar to the list you have below.

Regarding employment, Code Benders would certainly be interested in hiring developers that graduated from a program with this curricula and we'd be delighted to provide internship opportunities to students, as well.

Please let me know if I can be of any assistance to you.

Regards,
Mike

Operations & Design
    Able to use and understand Unix OS
    Understand what operating systems do, how they work
    Understand how to automate procedures using scripts: perl, PHP, python
    Ability to use and understand Ethernet (layer 2) networking
            IPV6
            Routing & switching
    Use, design & analysis of algorithms

Security
    Social Engineering (human factors) of security design
    Network systems
    Software

Reliability
    Back up and replication strategies & techniques
    Redundant systems design
    Business continuity & disaster recovery

Systems Performance
    Root cause analysis, debugging
    Trouble shooting methods and techniques
    Performance tuning, layout of files systems, I/O performance, disk drive performance

Lifecycle Management
    Understanding the need to plan for technological change
    Lifecycle planning
    Development cycle
    Software project management
    Staging upgrades

Engineering Economy

Database Administration
    Know the difference between and ability to use Oracle, MS-SQL, SAP
    Able to design databases for efficient storage and reporting
    Know how to extract ad-hoc reports and construct regular reports with data accuracy

1. From what we can tell, a bachelors degree in Computer Science looks like a good match for us.
2. Best Regards,
3. **Leonard Weitman**
4. VP Technical Operations

5.
6. 63090 Sherman Road
7. Bend, OR 97701
8. T 541-312-6459
9. C 503-319-9825
10. F 541-317-8740
11. LWeitman@bendbroadband.net

From: Gregg Burman [mailto:ghburman@brainsquall.com]
Sent: Wednesday, July 27, 2011 12:47 AM
To: Hacker, Marla E
Subject: Re: INPUT REQUESTED: OSU-Cascades is seeking your input about a new IT degree

Hi, Marla.

My apologies for taking so long to get back to you...

First, let me state that the opinions in this email are my own and not necessarily those of my employer, Sony Computer Entertainment America. :-)

The local Sony studio focuses on development of what the video game industry refers to as "AAA console titles". Games in this category strive to push the limits of the hardware on which they run. As such, we look to hire highly-technical programmers, those with a strong understanding of what goes on "under the hood". Our current staff is predominantly composed of senior developers, but in order for a more junior programmer to contribute, he would have a very strong C++ background. In addition, it would be highly valuable to have knowledge/experience in the following areas (in no particular order):

- Additional programming languages, especially Python, Lua and C#
- Algorithm efficiency and optimization
- Operating system concepts and interfacing with system-level APIs
- Assembly code/processor architecture
- 3D math (matrix manipulation, etc.)
- 3D graphics hardware and rendering pipeline
- Multi-threaded programming
- Physics

Our environment is not the sort where junior programmers are trained to do their job. It's more or less a requirement that you hit the ground running. Given that, there's a strong appreciation for:

- Project-oriented backgrounds: We like to see projects of significant size in a programmer's experience. We're much more impressed by completion of a semester project than we are by completion of weekly programming assignments.
- Self-starters: Programmers that can implement a system from a loose (often very loose) specification with little to no hand-holding.

I think that's a reasonable Reader's Digest version of what console game studios look for in programmers.
I hope this is the type of information for which you are searching. Please let me know if you want further input.

-Gregg

Marla,

Some input below, from the perspective of Advanced Energy. I have about 10 firmware/software developers on my team, and I collected some inputs from them. We do a lot of embedded firmware and electronic systems work, but also some major database/data warehouse work, and web-based front end development. All of the developers need to be connected to the end product, in a hands-on way, and they also need to be up on the latest product development paradigms (like Agile, Scrum, etc).

We believe that CS and SE degrees are more beneficial to the graduates. Although IT degrees can be useful and have their place, CS and SE degrees offer broader and more prestigious job offerings. CS is typically more theory oriented where SE is practice oriented. Overall, it is our experience that SE degree holders have a better understanding of product development which is useful in today's job market. Years ago a lot of companies would hire just for research, but that isn't so common today. This isn't to say that a CS degree can't provide similar knowledge to an SE, but either one should provide the implementation skills necessary to be successful in product development. Both CS and SE programs should provide a mix of hardware and software courses. Digital Logic, Computer Architecture, OOP, etc., are all important to understand how code instruction produces action in the end product, and ultimately, value to the customer. All students will need a basic understanding of system architecture to provide a solid foundation. We find high value in students who have focused on specifics like embedded systems design, software design patterns, databases, networking, etc. . A broad toolbox is important in today's job market, but also, to create a versatile contributor. Our employees do many jobs, and a candidate that just adds value behind the computer monitor is not all that valuable in our company culture and work environment. Accordingly, demonstrated hands-on skills, internships, complete systems involvement and similar experiences are important for student to differentiate themselves.

I hope you find this useful. Good luck with the program!

Cheers,
Steve

Steven Hummel, Ph.D.
VP RD&E
Renewables

Robert, thanks for sharing this.

Hi, Marla. Thanks for your willingness to solicit feedback. For context, you might like to know that I am one of the co-founders of Code Benders, an agile software development shop based in Bend that focuses predominantly on startups. I am not a developer. My background is in operations, project management and design. I have been working with and in startups for more than 15 years. So my perspective on these questions is more targeted at entrepreneurial ventures rather than large enterprises.

First, let me being by echoing Robert's sentiments below. I concur completely with his statements, especially with respect to placing little value in a computer sciences degree. Having agreed with his statements, let me add the following:

- **Language Specialization** - Software standards and practices change quite rapidly. While there was once a time when a student could learn a language or two in college and get a job, today's market shift quite rapidly. Two good examples of that are the dramatic rise in popularity of the Ruby programming language and JavaScript (which was once seen as a user-facing technology and today is being used to improve scalability and performance on the server side. So today's educational system should focus on laying a basic foundation of software and systems, but provide good opportunity to learn many languages.
- **Layer/System Specialization** - Similarly, in the past specialization was common place. One developer would focus on server-side, another might develop for the desktop, while yet another on embedded systems. Today's best developers understand the ecosystem of connected devices and understand how those pieces cooperate. As with language choice, this calls for a broad, or horizontal, approach to education rather a deep, or vertical, approach.
- **Design** - Equally important is a good understanding of design and product usability. Understanding mathematical/algorithmic constraints is key for many jobs (like Roberts perhaps). But in some ways this is another form specialization. Almost all web developers these days could benefit significantly from basic understanding of the design principles that drive product usability.
- **Development Styles** - In the past, software development followed other traditional engineering approaches to design and project management. Today, the prevailing trend is towards "agile" development, which encourages iteration, flexibility and change, rather than rigid product plans with long timelines. These ideals and the related tools are worth learning about before hitting the job market.
- **Entrepreneurship** - Lastly (and this is a bit out of context), today's developers are finding more and better opportunities in startup and entrepreneurial environments. Sure there are still plenty of enterprise jobs for Java developers. But the best candidates are taking higher paying jobs plus equity in early stage growth companies. Moreover, some of the fastest growing companies today were started by developers with product ideas. For this reason, I think it is advisable to offer courses in business and entrepreneurship, so that they can better assess opportunities and pursue their own independent ideas.

That's my two cents. Again thank you for your interest.

As an aside, I should let you know that my company has recently begun Ruby on Rails training through our partnership with Engine Yard (the community leader in this space). We will begin offering 3-4 day "Zero to Rails 3" courses in the near future and would welcome the opportunity to provide training through the OSU campuses in Bend and elsewhere. If this is of interest to you, please don't hesitate to contact me.

Regards,
Mike

Marla,

Eric Strobel asked me to send this out to a few companies with IT staff. Below you will find a response from Chief Operations Manager, Jason McKibbin from MEDISISS. They are a single use medical device re-processor – the only one in Oregon and one of only three nationwide…JS

Jon Stark
Manager
Redmond Economic Development, Inc.
(541) 923-5223   www.rediinfo.com
446 SW 7th Street
Redmond, OR 97756

"Guiding Business Forward"

From: Jason McKibbin [mailto:jmckibbin@medisiss.com]
Sent: Saturday, May 21, 2011 9:47 AM
To: Jon Stark
Subject: RE: INPUT REQUESTED: OSU-Cascades is seeking your input about a new IT degree

Yes, yes and yes.

Without question we need to have degrees offered in this area for IT.   I would include all of the ones below but if had to pick one, CS would be the degree. Of course would need clearer definitions on the degrees as every university is different with its definitions.

If we are to grow our strengths in high tech, advanced manufacturing, UAV, aerospace, bioscience, and software then it's a must.   There isn't a pool for qualified CS/IT/IS/SE in central Oregon.   We had to hire from out of the area and see the same for our future expansions.

What a great opportunity for OSU!!!

Jason

Hi Marla,

Thanks for soliciting feedback on this program from the community. I sincerely believe that one of Central Oregon's biggest challenges in growing our hi-tech based economy is having a good pool of talented, enthusiastic, young tech professionals to draw upon.

I've been writing software professionally for 20+ years, for both startups and Fortune 500 companies, so my views are heavily slanted toward what it takes to be a successful developer in the business world. Thus, at the high level I believe OSU should be producing students that can be competitive in the global, commercial marketplace. That is OSU should have companies locally and outside the area fighting to hire their graduates.

That may be stating the obvious, but when it comes to software, success in academia often has little correlation to success in the business world. In fact, the best engineers I've worked with rarely have CS degrees. More often they have non-CS degrees. Many have an engineering degree of some sort, but some have had English, Philosophy, or even Art History degrees. And some never graduated. Thus, I think it's important the OSU curriculum be pragmatic about the value of classroom education and temper it by also providing a job

training/intern program that places candidates with local businesses to insure they receive a real-world perspective on education they're getting in the classroom.

As for specific skills, let me answer your question by describing what I look for when interviewing someone. I don't know to what extent OSU will be able to teach some of this, but hopefully this will help provide a picture of what the end result should be ...

Personality

- What kinds of projects has a person worked on. Homework assignments aren't very interesting here; what I'm looking at are examples of real-world problems they've solved. What's the code look like? How well is it documented? Did they use opensource software for it? Why? What critieria informed their decisions?
- Do they participate in opensource projects? Ideally they've actually open-sourced some of their own code.
- Do they code in their spare time? Why? (i.e. what do they like to do when completely unfettered by other requirements?)
- How well do they communicate? (Software development is a surprisingly social process.)
- Do they have strong opinions about what "good" and "bad" software looks like?
- ... and are they willing to revise those opinions?
- Can they produce??? (i.e. when given a task, do they get it done in a timely manner, or are they easily distracted?)

Design and Architecture

- Can the person break a problem down into it's component parts and handwave a solution that makes sense? Do they understand where the big-picture issues and risks are? Such as ...
- Can they talk/think intelligently about code and system performance? (E.g. Are they familiar with Big-O notation and why it's important?)
- Can they talk/think intelligently about scalability?
- Do they understand the principles behind modular design and why it's important?
- Are they familiar with data storage, caching? Network topology and latency?

Languages & Technologies

- Languages: **JavaScript** is a must-have for doing anything in the web. It also happens to be a great first language for new programmers. **Ruby** and **Python** are popular. **C and C++** are staples that pretty much everyone should have (but I don't, actually :)).
- Operating Systems: **Linux** is a must-have. I generally view all Windows specific training and certifications with a great deal of distrust. It's worth that "certifications" are often pretty meaningless in my world. In fact, they can often be a bad thing, indicating a person is too set in their ways or takes a too-formal approach to their work.
- Source Code Control: Experience with **Git & Github** are huge pluses! Git is pretty much the industry standard system for source control, and Github is where most opensource projects and communities take place.

- Databases: Students should know **SQL** and have experience with at least one SQL database. Preferably **MySQL**. Familiarity with a NoSQL system is a nice-to-have. Mongo/Couch/Riak/Redis are some examples.
- Web Technologies: **JavaScript, HTML, CSS**
- Mobile Technologies: **Android, iOS**, and **HTML5** application development.

Thanks again for taking our input. I look forward to continuing this discussion.

- Robert Kieffer

Marla,

My name is Ryan Stevens and I am the eCommerce Software Development Manager for Altrec.com in Redmond Oregon. One of my biggest challenges when building and managing a team of software engineers is without a doubt finding the resources locally. Simply put, Central Oregon does not have the necessary talent pool to draw from in order to be confidant in selecting a qualified candidate. Ideally, our recruiter should be able to present 3-5 top level engineers and thus place the burden of choosing the best fit upon the hiring manager. This is simply not reality. I am lucky to find just one candidate that meets requirements and is a good culture fit for us.

Case in point, of the last two positions I hired for- one of them I had relocated from Boston. The other resource was a profession acquaintance who was ready move on from another company, and if the timing were any different I would be still searching. Both positions took a considerable amount of time and effort, but that was not because we had to interview a large group of candidates. My days were mostly filled with phone screen which lead to nowhere.

So now that I have shared the problem it is exciting there could be programs / degrees to help bring a larger diversity of talent to the region. On a positive note, I am a believer education and training can be proper vehicles to achieve this goal. I do not completely feel introducing a traditional Computer Science program to the region is the answer. In this respect I agree with Robert, a degree in Computer Science would not necessarily bring a solution to the lack of talent.

I have came to this point of view through my own experiences with graduating from OSU (Corvallis) with a degree in Computer Science from the College of Engineering. Although I highly value my experiences and the core fundamentals I learned at OSU, the vast majority of the skills I have learned to be successful in my career did not come from the Computer Science curriculum, rather from working with teams and peers in real world business oriented situations. So to clarify my point in a more specific manner, the college experience certainly gave me refined problem solving skills. Learning to deliver solutions that actually work while maintaining the most appropriate balance between functionality and creativity came from job experiences after I graduated. Furthermore, working also taught me how to do my actual job and what it means to be an effective software engineer.

So my path sounds like a success for an academic program, right? I was able to cross the bridge between school and a job very well. I have found, however, the majority of graduates from CS programs do not have the job skills to be successful in the business application development world. Where college has done well in teaching the theory of computation, private industry has done better in developing programmers who can actually... well, program. From my experiences, I would much rather onboard a resource that has been working for the last four years as opposed to a new graduate. By doing so my team would gain instant productivity, better accuracy and

a high maturity in product deliverables.   Perhaps investing in a new graduate would produce a better long term resource who eventually delivers very robust, maintainable code bases. But to me, this seems like a very high risk when the average technology resource is only at a company 2-4 years and the rate of software development far outpaces the time required to bring someone to their full potential. And that is the gap in my opinion. Not that a CS program can't produce a great work force, but that the software industry does not want to wait for them to catch up after college.

How can this gap be closed? Not sure.... I have seem very few examples of it being consistently solved. Perhaps the best evidence where I have seen graduates achieve success is when they participate in the MECOP program, a College of Engineering internship program that partners students in their Junior and Senior year with private companies. One could argue though it is not the University System itself producing a better work force, but companies who allow students to be a part of a working team of developers. These same job skills can be obtained simply by getting an entry level job, which then begs he question what is the value add of College?

I am not writing this to be anti-higher education. By all means, I am a big proponent of OSU and its CS program where I will always encourage people to follow that path if they are dedicated to becoming more educated. Computer Science, however, has not kept in pace with the actual industry.

I would love to continue this dialog and provide further thoughts. Please feel free to inquire more about by views on this matter if you feel so inclined.

Ryan Stevens

Hi Marla, I would suggest graduates in this field come away with a few key skills:

- Lean startup methodology, which focuses on building products based on routine market feedback. This is similar to agile development. See Steve Blank's class at Berkeley from this year here: http://steveblank.files.wordpress.com/2009/02/spring-2009-mba-295f-syllabus1.pdf and also see this technology entrepreneurship / lean startup class at Stanford from this year here: http://e245.stanford.edu/

A heavy focus on the topics above would make any graduate a very attractive hire for any startup or software development organization.

In addition, if there were specific technologies I would focus on, they would be:

- HTML5 and CSS (a must!)
- Ruby on Rails for SaaS (Software as a Service)
- Mobile Applications, both for Apple (iOS) and Android
- PHP and Python scripting
- Java or other server-side langauges (C++, etc)

Thanks, I think this is a great idea.

-James

James Gentes
Founder & CEO
the**social**business

Hi Marla

Here are some things I would consider important to a CS degree

Systems Analysis / Database Design (Normalization, ER Diagrams etc)
SQL Query development
Methodologies (Object Oriented programming, 3 tier)
Lifecycle Methodologies (agile, etc)
Programming language concepts (common features in all languages)
User Interface design
Algorithms (famous ones, design & optimization, Computability theory)
Logic

Colin Blackett
Software Developer

NAVIS

40 NW Greenwood Avenue, Bend Oregon 97701
Phone: 541-617-2939 / 541-385-5255x1248 / 800-777-1864x1248
www.navistechnologies.com

Hi Marla. Hope all is well with you and Stephen.

GLS hires a wide range of IT skills. Here's a sample:

- Web development – IIS, AJAX, JavaScript, etc
- MS SQL Server – design, administration, TSQL, etc
- XML, XPath, Web Services
- C#, VB, .NET
- Business analysis
- Software testing
- Project management, MS Project, risk analysis, change management, etc
- Human-computer interface design a/k/a software GUI usability
- Network and systems administration – security, routing, Active Directory, backups, SAN, virtualization, etc

Hope this helps.

Bill Moseley
CEO

From: Jason Sele [mailto:JasonS@brightwood.com]
Sent: Thursday, May 19, 2011 8:54 AM
To: Hacker, Marla E
Subject: FW: INPUT REQUESTED: OSU-Cascades is seeking your input about a new IT degree

I could see two different programs. One for hardware/networking and one for software development. We primarily look for people with certifications so providing a MCSE, CCNA, A+ or other certification as part of the education would be a big plus. Most programming we do is c# and/or .net. Doing a practicum with hands-on experience for a local business would be beneficial as well.

Jason Sele
IT Director
Bright Wood Corporation

Library Support for the Computer Science Program on Cascades Campus

This report is an analysis of the capacity of the OSU Cascades local library collection and services, in combination with access to the resources of the whole of OSU Libraries and Summit, to support the proposed Computer Science applied option in web and mobile web software development on the Cascades campus. The option is different from the options currently offered at the main campus in Corvallis.

While this option will not be accredited, the 2002 library assessment for ABET accreditation for computer science is attached for reference (see Appendix A).

Journals

OSU Libraries has a strong collection in computer science journals, primarily through subscriptions to the IEEE Electronic Library, which contains IEEE and IET journals, magazines, conference proceedings and standards, and the ACM Digital Library, a collection of ACM journals, newsletters and conference proceedings.

In addition, OSU Libraries offers the "Scan and Deliver" service for journals we hold in print and Interlibrary Loan for titles not held at OSU.

Monographs

The monographs collection for computer science at the Valley Library is adequate to support the program in Corvallis, and Cascades students can request titles as needed. In addition, the library has over 28,000 electronic books in computer science, including a Safari Tech Books collection, the Morgan & Claypool Synthesis Digital Collection (which includes a series on Mobile and Pervasive Computing), and several Springer Computer Science collections. Since this is a new option for computer science at OSU, I recommend additional one-time funding of $800 to build the Cascades collection in mobile and web software development topics. These titles should be primarily in electronic format due to the number of hybrid and e-campus courses required for the program.

OSU students, faculty and staff have access to the monograph collections of 37 academic libraries through the Orbis Cascades Alliance and its union catalog, Summit. Authorized OSU users can easily request books from Pacific Northwest libraries, including Portland State University, University of Oregon, University of Washington, and Washington State University. Items are delivered to OSU Cascades in 3-5 business days.

Databases

The library subscribes to several databases that provide access to computer science literature. These are available to Cascades students and include the following:

- CiteSeer (Computer and Information Science Papers) – digital library and search engine for the literature in computer and information science.
- Compendex (Engineering Literature) – indexes all areas of engineering

Library staff and expertise

Librarian support for this program includes the OSU Cascades Librarian, Sara Thompson, as well as the OSU Libraries Engineering Subject Librarian, Margaret Mellinger.

Summary

While OSU Libraries collections are adequate to support the proposed Computer Science degree at Cascades campus, we recommend some funds to purchase materials specifically on mobile and web computing topics.

Books & Videos: $ 800 (one-time funding)

Journals: $0

Databases: $0

Total funding: $800

Respectfully submitted,

Laurel Kristick

October 11, 2012

Appendix A. 2002 ABET Accreditation Library Evaluation for Computer Science

A. Library

Standard VII-1. The library that serves the computer science program must be adequately staffed with professional librarians and support personal.

1) Assess the staffing of the library (or libraries) that serve the computer science program. Are there adequate professional librarians and support personnel? Supply documentation if possible.

In order to assess staffing, a useful benchmark is the level of staffing at comparable peer libraries that provide service to accredited computer science programs. The following peer universities have accredited programs:

Peer Institution	URL	Accredited Program?	Professional Staff	Non Prof
Colorado State University	http://www.colostate.edu/			
Iowa State University	http://www.iastate.edu/	Yes	44	111
Kansas State University	http://www.ksu.edu/	Yes	41	55
North Carolina State University	http://www.ncsu.edu/	Yes	91	135
Oklahoma State University	http://pio.okstate.edu/			
University of Arizona	http://www.arizona.edu/			
University of California, Davis	http://www.ucdavis.edu/	Yes	52	158
University of Oregon	http://www.uoregon.edu/			
Utah State University	http://www.usu.edu/	Yes	44	28
Washington State University	http://www.wsu.edu/	Yes	49	104
Oregon State University	**http://oregonstate.edu/**		**47**	**47**

Table information derived from The American Library Directory 1999 ISBN 0-8352-4116-5

The median number of professional staff for the accredited program libraries is 46.5. Valley library is above this median at 47.

Currently there are four subject librarian positions that specialize in the physical sciences - Engineering/Computer Science, Physics/Mathematics, Chemistry and Geography/Geology that provide expertise in serving the computer science department.

Standard VII-2 The library's technical collection must include up-to-date textbooks, reference works, and publications of professional and research organizations such as ACM and the IEEE Computer Society.

2) Assess the adequacy of the library's technical collection and of the budget for subscriptions as well as new acquisitions. The library must contain up-to-date textbooks, reference works, and publications of professional and research organizations such as the ACM and IEEE Computer Society. It should also contain representative trade journals. Supply documentation, if possible. Assess the process by which faculty may request the library to order books and or subscriptions.

Monographs. A search on 25 call number ranges with unique subject headings in these research areas uncovers 8452 titles. The following summary of this analysis indicates the state of the collection

Call Number	Subjects	Total Count	Median Age	Currency (10 yr)	Comment
HF 5548	Office Automation	799	1979	12%	Obsolete SH
Q 327	Pattern Recognition	58	1981	48%	Aging classification
Q 334 - Q 342	Artificial Intelligence	429	1988	40%	
Q 350-390	Information Theory	94	1981	32%	
QA 267 – QA 268.5	Machine Theory	250	1981	30%	

QA 75.5 - QA 76.9	Software, Systems Applications, etc	7003	1991	57.4%	Core Collection
TA 1630 -1650	Image Processing	315	1988	43%	
TK 5105.5	Computer networks	233	1989	47%	
Z 52.5	Word processing	58	1990	12%	Aging Class

Serials. The Science Citation Journal Report (attached) provides the following OSU's holdings compared to the total serial subscriptions possible in the subject area.

Research Area	Current Valley Subscriptions	Total Possible	Percentage Held
Computer Science	103	300	34 %

Relevant article databases currently subscribed to include: <u>Academic Search Elite, Applied Science and Technology Abstracts, ArticleFirst, Compendex</u>, <u>Inspec</u>, <u>Dissertation Abstracts,</u> <u>The Monthly Catalog</u>, <u>NTIS</u> and <u>Science Citation Index</u>. This is adequate indexing coverage to identify most computer science research.

Periodicals, continuations and monographic series acquisitions for computer science in 1996/97 were $27,886, $552 and $10,258 respectively. The Valley Library subscribes to 34% of the total possible subscriptions available. QA periodical average subscription costs (*U.S. Periodical Prices*, American Libraries, May 1999, V30, No.5 pg 84) was $466. This places serial collection at western library network standard **Level 3c; adequate to support graduate level research.** The library does subscribe to the IEEE POP subscription package for professional conferences, and IEEE journals under a separate subscription package and various ACM periodicals.

Book requests are accepted by the Engineering Librarian and by the reference desk staff, by print request form, web form, phone, and email. Most requests are filled if the request does not violate the engineering and computer science collection policy. Serial requests are accepted and compiled by the engineering and computer science librarian. These are forwarded to the Collection Development Department with the Science Librarians group which assesses the cost/benefit of subscribing based on potential use, price and weighing of competing needs. The committee meets every summer before the annual subscriptions ordering cycle

Standard VII-3 Systems for locating and obtaining electronic information must be available.

3) Assess the library's system for locating and obtaining information.

The Valley Library has a web online catalog, OASIS, licensed by Innovative Interfaces Inc. system vendor. The system catalogs all holdings purchased or licensed to the Valley Library. It provides either physical pointers (call numbers) or network links (web addresses) to help users retrieve information in print or electronic format. The platform is also a vehicle for various other services that includes: Interlibrary loan services, circulation services (reserving books, checking availability), links to ORBIS (the regional online catalog and borrowing system), and many subject specific article databases and aggregator databases. Many of these databases give access to full text articles from journals and newspapers. The library is expanding its collection of electronic reference resources and e-journal subscriptions as budgets permit. This system is on par with many other comparable academic libraries, especially the Oregon consortium, ORBIS. A regional cooperative of libraries sharing network standards. Three peer libraries, University of California, Davis, University of Oregon and Washington State University all use the Innovative Interfaces System.

Standard VI-8 Resources must be provided to support library and related information retrieval facilities that meet the needs of the program.

H. Library Resources. Briefly describe the resources available for the support of the library and related information retrieval facilities. Include information on how the institution determines the adequacy of the resources.

From: Karin Hilgersom [mailto:khilgersom@cocc.edu]
Sent: Friday, December 14, 2012 12:29 PM
To: Hacker, Marla E; Lew Cousineau; Jennifer Newby
Subject: RE: COCC support for OSU-Cascades to offer a computer science degree in Bend

Marla,
COCC is very supportive of the new OSU-Cascades computer science major with an option in web and mobile software development. You have done an excellent job keeping COCC in the information loop as the program moves forward and we look forward to leveraging our partnership in ways that enhance and streamline transfer options into the program.

Regards,
Karin Hilgersom
COCC, VPInstruction

From: Hacker, Marla E [mailto:Marla.Hacker@oregonstate.edu]
Sent: Friday, December 14, 2012 10:29 AM
To: Lew Cousineau; Jennifer Newby
Cc: Karin Hilgersom
Subject: COCC support for OSU-Cascades to offer a computer science degree in Bend
Importance: High

Lew, Jenni, or Karin,

Can I get from one of you a simple reply to this email that states your support for OSU-Cascades to offer the computer science major with an option in web and mobile web software development at the campus in Bend?

This is a new request that we are being asked to provide. It is a check that you/COCC are aware of the proposed degree offering.

It can be a brief response to this email.

Thank you. marla

To whom it may concern,

Mr. Paul Paulson and Prof. Alan Fern, chairs of the undergraduate curriculum committee last year, and Dr. Mike Bailey, undergraduate curriculum committee member, worked with the undergraduate curriculum committee in the School of Electrical Engineering and Computer Science on this proposal. If you need any other information please let me know.

-Bella Bose