

Curriculum Committee

Meeting Agenda

April 12, 2016

3:30pm-5:00pm

Moody Room

Debbie Hill
Roger Kennedy
Elizabeth Bastian

Martha Joyce
Georgann Willis
Tamra Loosli

David Farrington

Karen Carroll
Kristi Hurt (Sec)

Business to be reviewed by Curriculum Committee:

Minutes Approved from Meeting March 8th, 2016

New Courses:

To Be Presented by: John Blackwood

- CIS 145

New Program

To Be Presented by: John Blackwood

- AAS Computer Information Systems: Cybersecurity

To Be Presented By: Penny Groth

- Fabricator

Course Revisions:

To Be Presented By: Clay Baumgartner and Ken Carloni

- Cross Listing of courses for Natural Resources and Forestry Programs

To Be Presented By: Ken Carloni

- NR 243

Program Revisions:

To Be Presented By: Alysha Barraza

- Viticulture Certificate

To Be Presented By: Clay Baumgartner

- Add GIS courses under AAOT

To Be Presented By: John Blackwood

- Computer Information Systems, AAS

Informational Only:

- Information on Anthropology Prerequisites

Next Curriculum Committee Scheduled for May 10th, 2016

Curriculum Committee

Minutes

March 08, 2016

3:30pm-5:00pm

Moody Room

X Debbie Hill

XRoger Kennedy

X Elizabeth Bastian

Martha Joyce

Georgann Willis

Tamra Loosli

XDavid Farrington

Amy Fair

Paula Ursey

XKaren Carroll

Kristi Hurt (Sec)

Business to be reviewed by Curriculum Committee:

Minutes from February 9, 2016

17th.

Minutes Approved for February 9th and November

New Courses:

New Program

Course Revisions:

To Be Presented By: Paula Usrey

- PSY 202
- PSY 203

Approved to move forward to IC

Approved to move forward to IC

Need correction to load factor on each

Program Revisions:

To Be Presented By:

Next Curriculum Committee Scheduled for April 12, 2016

NEW COURSE APPROVAL FORM - Page 1 of

Course title: Computer Forensics for Ethical Hackers

X _____

Supervisor Signature:

Division CTE Department CIS Program AAS-CIS Cybersecurity

Course No CIS 145 Title Computer Forensics for Ethical Hackers Terms Offered Spring

Credits 4 Lecture hrs/wk 3 Lec/Lab hrs/wk 2 Lab hrs/wk 0 Practicum hrs/wk

Banner Pre-req. CIS 111 and (CIS 140M or 140L) Instructor Pre-req. Co-requisites
.Length (wks) 11

Proposed implementation date Term Fall Year 2017 Grading Option Load Factor 4.40

Catalog Course Description

This course introduces students to the technologies and theory of computer forensics.

This course is designed for system administrators, system engineers, operators responsible for cybersecurity. Students will learn the application of computer investigation and analysis techniques to gather potential legal evidence, which is often available due to computer crime or misuse, theft of trade secrets, theft of or destruction of intellectual property, and fraud.

Students will learn the basic principles and skills required to identify an intruder's footprints, properly gather applicable evidence, and safeguard it for law enforcement.

Technologies covered may vary by term, depending on industry trends.

Approved by Advisory Committee (Minutes Attached): Entire new CIS degree with emphasis in cybersecurity was approved during Spring 2015 Advisory Committee Meeting and again in Fall 2015 when I emailed the degree to all members of the advisory committee as a refresher.

Is this course on the "LDC Course List" of the State Department

To be Yes No

If no, this course has been approved for transfer to: (college or university) (attached syllabus, course description, and outcomes): N/A

Occupational Preparatory (organized degree/cert program)

Occupational Supplementary

NEW COURSE APPROVAL FORM - Page2 of

Support Course: Indicate all programs for which this course will be required.

PROGRAM	DEPARTMENT	DATE
AAS-CIS Cybersecurity	CIS	Fall 2017

Overlap Indicate departments and courses

None

COURSE DEVELOPED BY: John Blackwood DATE: **Spring 2016**

ATTACH the documents below:

- COMPLETE COURSE OUTLINE
- **COMPLETE NEW COURSE JUSTIFICATION FORM**

COURSE OUTLINE – Page 1 of

Course No:	CIS 145
Course Credit:	4
Lecture Hrs/wk:	3
Lab Hrs/Wk:	0
Lecture/Lab Hrs/Wk:	2
Practicum Hrs/Wk:	0
Clock Hours:	55
Length of Course	11 weeks
Banner enforced Prerequisite:	CIS 111 and (CIS 140M or 140L), or instructor approval
Instructor enforced Prerequisite:	
Co-Requisite:	
Load Factor:	4.4
Activity Code:	210
CIPS:	52.2101

Course Title: Computer Forensics for Ethical Hackers

Developed By: John Blackwood

Development Date: Spring 2017

Revision Date: N/A

COURSE DESCRIPTION:

This course introduces students to the technologies and theory of computer forensics.

This course is designed for system administrators, system engineers, operators responsible for cybersecurity. Students will learn the application of computer investigation and analysis techniques to gather potential legal evidence, which is often available due to computer crime or misuse, theft of trade secrets, theft of or destruction of intellectual property, and fraud.

Students will learn the basic principles and skills required to identify an intruder's footprints, properly gather applicable evidence, and safeguard it for law enforcement.

Technologies covered may vary by term, depending on industry trends.

COURSE OUTCOMES: Upon completion of this course the student should be able to:

- Explain the process of investigating cyber-crime, applicable law, and the how a search warrant is issued
- Explain the differences between digital evidence, rules of evidence, the digital evidence examination process, and electronic crime
- Identify the roles of the first responder and the first responder toolkit
- Secure and evaluate an electronic crime scene, conduct preliminary interviews, document an electronic crime scene, collect and preserve electronic evidence, package and transport electronic evidence, and report a crime scene
- Recover deleted files and deleted partitions in Windows, Mac OS X, and Linux
- Perform a forensic investigation using Access Data FTK and Encase Steganography and its techniques, Steganalysis, and image file forensics
- Use and explain password cracking concepts, tools, and types of password attacks
- Investigate and record password-protected file breaches and gather evidence to support your conclusion
- Use and configure different types of log capturing techniques, log management tools, time synchronization, log capturing tools
- Investigate and record logs, network traffic, wireless attacks, and web attacks

REQUIRED TEXT/MATERIALS: To be determined prior to when course is taught. Texts are constantly changing in this field and this course will not be offered to students until Spring 2018 at the earliest.

COURSE OUTLINE – Page 2 of 2

OUTLINE: [Topics taught by week 1-10.]

Note: this outline is subject to change and depends on current technologies & practice.

Week 1 Introduction to computer forensics & new student setup

Week 2 The Investigation Process

Week 3 Operating Systems, Disks, & Removable Devices

Week 4 Acquiring & Duplicating Data

Week 5 Windows & Linux Boot Processes & Forensics

Week 6 Steganography & Password Cracking

Week 7 Attacks & Crimes

Week 8 Router Weaknesses & Wireless Attacks

Week 9 Mobile Device Forensics

Week 10 Other Forensics Hardware & Software

NEW COURSE JUSTIFICATION – Page 1 of 1

New Course title: Computer Forensics for Ethical Hackers

X _____

Supervisor Signature:

CIS 145: Computer Forensics for Ethical Hackers

Student need for course: Skill in computer forensics is considered an essential skill in the emerging CIS security job market.

Course Information:

AA AS AAS Below 100 level Elective Certificate

AAOT (Area of distribution): _____

Cost of this course:

No additional instructional costs (staff, material, equipment, or facilities) are required.

Additional instructional costs (staff, materials, equipment or facilities) are needed to offer this course.

Course impact on:

- a. Student enrollment in other courses: None
- b. Current program: None

Replacement course for: Course Number: N/A Title: N/A

Disposition:	Signature	Date	Recommendation
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Curriculum Committee Chair

Vice President of Instruction

UCC New Program Approval

Basic Information

Name of Program: AAS - Computer Information Systems: Cybersecurity

Contact Name and Title: John Blackwood, CIS/CS faculty

Department: Computer Information Systems

Supervisor: Jesse Morrow

Program-Specific Information

Date, Year, and Term of Proposed Implementation:

Fall 2017

Program Award:

Less than 1 year certificate

1 year certificate

2 year certificate

Career Pathway certificate

Degree

Number of Credits: 106-108

New Program/Certificate Title: AAS - Computer Information Systems: Cybersecurity

Program Description (This is the description that will appear in the catalog, so make sure it is exactly what you want)

The Computer Information Systems: Cybersecurity program is a two-year sequence of classes designed to prepare you, via hands-on training, for employment in the computer area as an entry-level network administrator, computer support person, web designer, or computer programmer, while developing general problem-solving and troubleshooting skills that can be applied to networking, server, computer, web, and business programming environments.

Further, this degree adds hands-on cybersecurity training in ethical hacking, computer hardware, computer forensics, cloud services, virtualization, switches, routers, and Adaptive Security Appliance (ASA) devices.

At UCC, you will learn to program in a high-level programming language and to apply programming concepts in a variety of environments. You will become proficient as a user and manager of server and desktop operating systems, switches, routers and ASAs. You will also learn how to configure and modify the hardware components of server and desktop systems. In addition, the CIS program provides a strong foundation in basic business and project management principles and practices. Finally, the program develops verbal and written communication skills.

Labor Market Need (Brief description; you will also need to complete an LMI worksheet, EXCEPT for Career Pathways Certificates):

Network and Computer Administrators (151142)

Computer Programmers (151131)

Computer User Support Specialists (151151)

Information Security Analysts (151122)

UCC New Program Approval

Target Student Population:

Douglas County high school graduates, UCC students who have not declared a college major, and others seeking higher education who meet the criteria for entry into our program. Particular emphasis will be placed on students from underrepresented populations.

Program Outcomes: (please list numerically)

1. Train students in a variety of modern internet and business-oriented computer skills.
2. Develop software and hardware problem-solving skills using programming logic and hands-on lab situations.
3. Learn to efficiently use common office applications, receive practical experience with a variety of operating systems, and work with typical hardware configurations.
4. Demonstrate proficiency in information technology related to computer programming; device initiation, configuration, and management; project management; and webpage design.
5. Employ common cybersecurity practices to eliminate or mitigate threats that originate from inside and outside of the organization.

Program Impacts:

- Standard Instructional Costs (staff, materials, equipment or facilities) are required.
- Additional instructional costs ((staff, materials, equipment or facilities) are needed.
- Impact to other divisions in terms of scheduling or staffing.

Program Impact Description (for any of the program impacts listed above, please describe):

The AAS CIS: Cybersecurity degree is the same as the CIS degree except that it adds: Optional 2 credit increase for CWE (CIS 280), Computer Forensics for Ethical Hackers (CIS 145; 4 credits), Ethical Hacking (CIS 285A; 4 credits), Cloud Services Technologies (CIS 285C; 3 credits), and Virtualization Technologies (CIS 286; 3 credits) as new courses. Also, the Cybersecurity AAS degree does not add CIS 125D to its offerings.

The updated AAS-CIS degree removes BA 151/211, CIS 153C, 154C, 289M, and WR 122/227. The CIS degree adds CIS 111, 120, 125D, 125S, and 285B. All of these courses are already regularly offered except for CIS 111 and 285B. However, these two new courses are offset by the loss of CIS 153C and 154C from both degree programs.

Additional Instructor Requirements (FT/PT, number, qualification, ability to recruit):

We will work to teach the new courses using existing CIS/CS staff (John Blackwood, Vince Yip, and Wayne Hoffman). Lower level courses will be assigned to 1-3 existing or new adjunct, which require a lower skillset than the new courses.

UCC New Program Approval

Program Standards

Using new or parent program information, create a short description that provides the requested data. These descriptions will be entered exactly as they appear in the New Program Form into the official record with the State of Oregon. The maximum number of characters for each standard is 4,000.

Standard A – Need:

The community college provides clear evidence of the need for the program.

Network and computer administration employment in Oregon is expected to grow much larger than the statewide average for all occupations; the total number of job openings is expected to grow somewhat higher than the statewide average for all occupations; and its growth is expected to occur at a rate at about the statewide average growth rate for all occupations.

Adding cybersecurity training to the above base training prepares UCC students with cutting-edge skills that all network and computer administration employers seek in new employees.

Standard B – Collaboration:

The community college utilizes systemic methods for meaningful and ongoing involvement of the appropriate constituencies.

Our local advisory committee approved the creation of this degree last spring at our annual meeting and again this fall via an email query with the degree attached. We will continue to work with our advisory committee to keep the degree's offerings current and relevant to the job market.

During the 2015-2016 school year, UCC entered into a collaboration agreement with Mount Hood CC, the only other CC in the state to offer an AAS in cybersecurity. MHCC requested the partnership, which facilitated its obtaining the Center for Academic Excellence-2 Year Institution (CAE2Y), a designation granted by the NSA. UCC and MHCC will work together to share best practices and other resources because of this agreement.

In Spring 2015, the CC approved my request to bring this degree forward for approval.

In Winter Term 2016 all of the new courses were approved by CC and IC with the exception of CIS 145-Forensics, which was still in development. Also, in Spring 2016, John Blackwood completed an NIST application for \$75K in grant funding related to the AAS CIS: Cybersecurity degree.

Standard C – Alignment:

The program is aligned with the appropriate education, workforce development, and economic development activities.

This degree is designed to meet the needs of students who want to complete an AAS in Cybersecurity and gain employment in a field offering a family wage and continued job growth.

Standard D – Design:

The program leads to student achievement of academic and technical knowledge, skills, and related proficiencies.

Students completing the AAS are eligible to transfer to Oregon 4-year colleges offering the applied baccalaureate degree option. We expect that students will graduate from the UCC, enter the work force, and continue their education while employed in the field.

UCC New Program Approval

Standard E – Capacity:

The community college identifies and has the resources to develop, implement, and sustain the program.

UCC currently has the capacity and resources to adequately meet the needs of an additional 12-20 CIS students per year. No new equipment is needed for the implementation of this degree.

UCC New Program Approval

Proposed Courses – please attach course outlines

Course #	Course Title	Credits
CIS 120	Introduction to CIS	4
CIS 122	Orientation to Programming	4
CIS 140M or 140L	Intro to Windows OS or Intro to Linux OS	4
WR 121	English Comp*	4
CIS 133CS	Intro to Programming	4
CIS 240M	Install. & Configuring MS Windows Server	4
MTH	MTH 095 or higher	4
SP 111	Fundamentals of Public Speaking	4
CIS 151C	Networking Essentials (Cisco 1)	4
CIS 233CS	Intermediate Programming	4
CIS 275	Intro to DBMS I	4
CIS 279M	MS Windows Server Admin I	4
PSY 101	Psychology of Human Relations	3
CIS 152C	Intro to Basic Switching (Cisco 2)	4
CIS 195	Authoring for the WWW I	4
CIS 276	Intro to DBMS II	4
CIS 280	Cooperative Work Experience	2-4
CIS 111	Computer Systems Configuration	4
CIS 284	Network Security Fundamentals	4
CIS 285B	Advanced Network Device Security (CCNA Security)	4
CIS 295	Authoring for the Web II	4

UCC New Program Approval

CIS 145	Computer Forensics for Ethical Hackers	4
CIS 245	Project Management	4
CIS 125S	Computer Applications – Spreadsheet Software	3
CIS 288M	MS Windows Server Admin II	4
CIS 285A	Ethical Hacking	4
CIS 285C	Cloud Services Technologies	3
CIS 286A	Virtualization Technologies	3
	Total credits for Program	106-108

Additional Process Items

Please check all of the additional forms and documents you have completed and submitted to Curriculum Committee. Links to fill-able versions of these forms can be found at <http://umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces>.

- Required: Labor Market Information (LMI) Form (not needed for Career Pathway Certificate)**
- Required: Course Outlines for all courses**
- Specialized Form: Advisory Committee**
- Specialized Form: Start Up Budget**



April 06, 2016

Re: Rational behind introduction of new cybersecurity degree

To Whom It May Concern:

During the 2014-2015 school year, I asked for, and received permission from IC to research and bring forward a new AAS – CIS: Cybersecurity degree. At that time, we were approached by Mount Hood CC because they wanted an Oregon CC partner for their own, similar degree, which they already offered to students. MHCC needed a partner to obtain the coveted Center for Academic Excellence (CAE2Y), which is granted by the National Security Administration and Department of Homeland Security. MHCC obtained this recognition last year.

MHCC asked UCC to join them because in my previous role as the statewide chair for the “Oregon Council of Computer Chairs,” or OCCC, I recommended that we lobby the Oregon legislature for the funding to create a statewide AAS degree (which the group declined to move forward at the time). Further, I have focused many of my studies and certifications on cybersecurity and have worked with faculty at MHCC as we have pursued some of these trainings and certifications together.

After performing a good amount of research since then, primarily over last summer, but even up until now, adding the new degree seems an easy decision. Cybersecurity knowledge is required in today’s environment and all of the evidence indicates that this trend will continue and deepen.

My research included examining the offerings at MHCC, Anne Arundel CC, Moraine Valley CC, College of Lake County (IL), Red Rocks CC, Hagerstown CC, Northern Virginia CC, Cuyahoga CC, Bellevue College, Clark College, University of Maryland, Carnegie Mellon, NIST-NICE, ACM-CECC, US-CERT, and many other colleges, sources, and people.

Our new degree contains approximately 85% of the courses in the current CIS degree and adds courses in: 1) Ethical Hacking (4 cr); 2) Virtualization using VMware and/or Hyper-V (3 cr); Cloud Services using Amazon Web Services and/or Windows Azure (3 cr); 4) Advanced Network Device Security, Cisco Security (4 cr); and 5) Computer Forensics for Ethical Hackers (4 cr). We also allowed for two added hours of CWE to reach the state maximum of 108 credits permitted for an AAS degree.

Best regards,

John Blackwood, MS
Associate Professor
Computer Information Systems

Answers to LMI Worksheet

Program Name: Associate of Applied Science - Computer Information Systems:
Cybersecurity

CIP: 52.2101

What are common job titles:

Network and Computer Administrators (151142)

Computer Programmers (151131)

Computer User Support Specialists (151151)

Information Security Analysts (151122)

What occupational title most closely describes:

Network and Computer Administrators (151142)

National percentages:

Males: 86%

Females: 14%

Potential career ladder opps:

Design & implement software and hardware solutions (BS followed by MS); promotion to team leadership; promotion to division leadership (sometimes as a director); promotion to company leadership in VP or Chief Information Officer role.

Minimum educational requirements:

Breadth of knowledge in the field is required for entrance into the job market. However, promotional opportunities beyond those of an entry-level technician usually require an AAS, followed by a BS degree in the field. The MS and/or PhD is not usually required outside of research opportunities or institutions.

Is training available for related career ladder occupations?:

Yes, regional and national educational institutions offer BS, MS and PhD training. Vendors also offer advanced training and certification throughout the US via focused boot camps and conventions.

Please describe other labor market info that may be relevant:

Most analysts predict that the number of people trained for jobs in the computing industry, especially with training in cybersecurity will fall far short of the employment

demand. There exists a nationwide effort to produce more information systems professionals with training in cybersecurity.

One line of thought, to which I adhere, is that most degree programs emphasize topics within cybersecurity that are not of value to the job-seeking graduate. The idea is that many of these programs focus on the cybersecurity framework (theory, reports, reporting, etc.) and not on the underlying skills that are critical to building the foundation on which advanced topics in cybersecurity can be learned.

In our case, we build a solid information systems foundation in programming, webpage design, database management and programming, Windows desktops and servers, Cisco routers and switches, and virtualization before continuing on to the advanced training in cybersecurity. This ensures that the student learns how these technologies are employed in the real-world as we move to advanced training in these areas.

Lastly, our (three) Windows server, Cisco, and base security courses all lead to industry-recognized certifications, which are: 1) MCSA - Microsoft Certified Solutions Associate: Windows Server 2012; 2) CCENT – Cisco Certified Entry-Level Technician; 3) CCNA Security; and 4) CompTIA Security+. Possessing any or all of these certifications, along with our AAS degree, positions the student with a strong resume to present to potential employers.

<http://www.nist.gov/cyberframework/index.cfm>

<https://niccs.us-cert.gov/careers/cybersecurity-careers>

http://www.aawdc.org/cyber/html/job_seekers_01.html

<http://www.floridatechonline.com/resources/infographics/cyber-security-careers-outlook/>

<http://www.networkworld.com/article/2188252/access-control/how-to-land-a-cybersecurity-job.html>

http://www.oregonlive.com/portland/index.ssf/2013/04/mt_hood_community_college_resp.html

<http://www.techrepublic.com/blog/career-management/are-cybersecurity-bachelors-degrees-worth-the-time/>

AAS - Computer Information Systems: Cybersecurity

Prerequisites and Course Availability per Term

(For complete information, see 2017-2018 UCC catalog)

LAST REVISED 04/06/2016

	Course No. and Course Name	Term Offered				Credits	Prerequisites/Notes		
		F	W	S	S				
Fall Term 1	CIS 120	Introduction to CIS	X	X	X	X	4	Digital literacy score or instructor approval	
	CIS 122	Orientation to Programming	X				4	MTH 95, placement into WR 121, or instructor approval	
	CIS 140M or CIS 140L	Intro to Windows OS or Intro to Linux OS	X			X	4	Digital literacy score, concurrent enrollment, or completion of CIS 120; or instructor approval	
	MTH 095 or higher	Intermediate Algebra	X	X	X	X	4	WR 115* or placement	
								16	
Winter Term 2	CIS 111	Computer Systems Configuration		X			4	CIS 120 or instructor approval	
	CIS 133CS	Intro to Programming		X			4	CIS 122 or instructor approval	
	CIS 240M	Installing & Configuring Microsoft Windows Server (70-410)		X			4	Concurrent enrollment, or completion of CIS 120 or instructor approval; maps to MCSA exam 70-410	
	WR 121	English Comp*	X	X	X	X	4		
							16		
Spring Term 3	CIS 151C	Networking Essentials (Cisco 1)			X		4	CIS 120 or instructor approval	
	CIS 233CS	Intermediate Programming			X		4	CIS 133CS or instructor approval	
	CIS 275	Intro to Database Mgmt. Systems I			X		4	CIS133CS or instructor approval	
	CIS 279M	Microsoft Windows Server Administration I (70-411)			X		4	CIS240M or instructor approval; maps to MCSA exam 70-411	
	PSY 101	Psychology of Human Relations	X	X	X	X	3	Or SDP 112 or SP 218	
							19	47	(first year certificate)
Fall Term 4	CIS 152C	Intro to Basic Switching & Routers (Cisco 2)	X				4	CIS 151C or instructor approval	
	CIS 195	Authoring for the WWW I	X				4	CIS 120 or instructor approval	
	CIS 276	Intro to Database Mgmt. Systems II	X				4	CIS 275 or instructor approval	
	CIS 280	CWE: CIS	X	X	X	X	2	Instructor approval; 33 hours=1 credit. Minimum of 2 credits; maximum of 4 credits.	
	CIS 288M	Microsoft Windows Server Administration II (70-412)	X				4	CIS 279M or instructor approval; maps to MCSA exam #3	
							18		
Winter Term 5	CIS 125S	Computer Applications - Spreadsheet Software		X			3	CIS 120 or instructor approval	
	CIS 284	Network Security Fundamentals		X			4	CIS 152C or instructor approval	
	CIS 285A	Ethical Hacking		X			4	New course: concurrent enrollment, or completion of CIS 152C or instructor approval	
	CIS 285B	CCNA Security		X			4	New course: CIS 152C or instructor approval	
	CIS 295	Authoring for the WWW II		X			4	CIS 195, CIS 275, or instructor approval	
							19		
Spring Term 6	CIS 245	Project Management			X		4	Second year CIS major or instructor approval	
	CIS 286A	Virtualization Technologies			X		3	New course: CIS 288M or instructor approval	
	CIS 285C	Cloud Services Technologies			X		3	New course: CIS 288M or instructor approval	
	CIS 145	Computer Forensics for Ethical Hackers			X		4	New course: CIS 111 and, 140M or 140L, or instructor approval	
	SP 111	Fundamentals of Public Speaking	X	X	X		4	See current UCC catalog for course prerequisites	
							18		
TOTAL DEGREE CREDITS							106	(cannot exceed 108 credits)	

NOTE: Placement scores of MTH 65 or higher and WR 115 or higher are required for entry into the CIS program.

Faculty Advisor: John Blackwood 541-440-7686 john.blackwood@umpqua.edu

Faculty Advisor: Vincent Yip 541-440-7886 vincent.yip@umpqua.edu

*A grade of "C" or better is required in the indicated course.

**If students choose to vary from this suggested sequence, then prerequisites and term availability must be watched closely because class time conflicts may arise, and/or desired courses may not be available.



DOUGLAS COUNTY INFORMATION TECHNOLOGY

Kevin Potter, Director
1036 SE Douglas Room 123
Roseburg, OR 97470

Phone: (541) 440-4330 Fax: (541) 440-6129

Administration Microcomputers Project Mgmt Technical Support Telecommunications

April 1, 2016

John Blackwood
Umpqua Community College
1140 Umpqua College Road
Roseburg, OR 97470

Dear John,

I am writing this letter to express my support of the new cybersecurity program at Umpqua Community College and the grant proposal you developed to help fund this work.

I also appreciate the very detailed description of the course changes to support the program. I couldn't agree more with the changes you have made—and continue to make—and the direction you are going in. I think the coursework you have developed will both greatly help prepare students for the real world skills being asked for in the marketplace, as well as provide great options for students who want to transfer to four-year institutions. This is always a challenging task, as these two directions often compete with one another for valuable time and course work.

Great job, and let me know if you need further support from my end to support you in your cyber security project.

Best,



Kevin Potter

Director - Information Technology
Director - Building Facilities & Maintenance
Director - Radio Communications

Douglas County
1036 SE Douglas, Justice Building Rm 116 (Building Facilities)
1036 SE Douglas, Courthouse Building Rm 123 (I.T. & Radio Communications)
Roseburg, OR 97470
Building Facilities: (541) 440-6001
Information Technology: (541) 440-4330
Email: krpotter@co.douglas.or.us



Mt Hood Community College
C/O Dr. Wayne Machuca, PhD
BIS Division
26000 SE Stark Street
Gresham, OR 97030

November 20, 2014

Dr. Machuca,

I was pleased to learn that you have been collaborating with one of our CIS instructors, John Blackwood, to share curriculum, best practices, industry knowledge, and other items of interest in the cybersecurity field.

I understand that you may have a grant opportunity which will enable you to build and share a hardware pod in support of these cybersecurity courses. If you obtain the grant, we would be honored to use them in our cybersecurity, desktop, and server courses.

Please feel free to share the contents of this letter as my support for this collaboration. I appreciate your help very much.

Best regards,

Jesse Morrow, M.S. EFSL
Dean of Career and Technical Education
Umpqua Community College
PO Box 967
Roseburg, OR 97470
541-440-4713 (work)



Mt Hood Community College
C/O Dr. Wayne Machuca, PhD
BIS Division
26000 SE Stark Street
Gresham, OR 97030

November 7, 2014

Dear Wayne,

I was pleased to learn that you have been collaborating with one of our CIS instructors, John Blackwood, to share curriculum, best practices, industry knowledge, and other items of interest in the cybersecurity field.

The UCC has been discussing creating its own cybersecurity certificate, and your ideas and knowledge will be most helpful to us as we work this out internally.

Please feel free to share the contents of this letter as my support for this collaboration. I appreciate your help very much,

Best regards,

Jesse Morrow, MS
Dean of Career and Technical Education
Umpqua Community College
PO Box 967
Roseburg, OR 97470
541-440-4713 (work)



Serving Douglas County Since 1964

April 1, 2016

John Blackwood
Umpqua Community College
1140 Umpqua College Road
Roseburg, OR 97470

Dear John,

Thank you for taking the initiative to plan Cybersecurity: The Umpqua Project (*Cyber UP*) to advance Umpqua's Computer Science and Computer Information Systems programs. I believe *Cyber UP* holds considerable promise for our college and community, especially by providing entry and access to high-demand, high-wage jobs for our students and graduates.

As Vice President of Instruction, I write this letter to signify Umpqua Community College's full support of this project and program. To provide support and resources for *Cyber UP*, the college will provide the following in support of the project:

- \$4,000 in student wages to help you maintain the existing and new equipment
- \$7,500 to attend a professional certification training in support of the program
- Access to College facilities and equipment, including classrooms and servers

Again, I appreciate your efforts in working to secure funding to support this effort and wish you success in the review process.

Sincerely,

A handwritten signature in black ink that reads 'Roxanne Kelly'.

Dr. Roxanne Kelly
Vice President for Instruction

UCC New Program Approval

Basic Information

Name of Program: Industrial Mechanics and Maintenance Technology Apprenticeship-Fabricator/Welder

Contact Name and Title: Penny Groth, Apprenticeship Coordinator

Department: Apprenticeship

Supervisor: Jesse Morrow

Program-Specific Information

Date, Year, and Term of Proposed Implementation:

September 1, 2016; Fall 2016

Program Award:

Less than 1 year certificate

1 year certificate

2 year certificate

Career Pathway certificate

Degree

Number of Credits: 91

New Program/Certificate Title: Industrial Mechanics and Maintenance Technology Apprenticeship

Program Description (This is the description that will appear in the catalog, so make sure it is exactly what you want)

Use current description in catalog for Industrial Mechanics and Maintenance Technology Apprenticeship

Labor Market Need (Brief description; you will also need to complete an LMI worksheet, EXCEPT for Career Pathways Certificates):

Request to add this trade to the IMMT program, came from the Douglas Coos Curry Industrial TATC. Committee is comprised of people in the trades. Their businesses see a need of employees whose focus is on fabricating and welding specifically (as opposed to current trades within this program: millwright, machinist, pipe-fitter, saw filer). This addition also encourages other local businesses to become training agents for this committee. This apprenticeship program is closed enrollment. Students are employees of program training agents; students are recommended for the program by their employer.

Target Student Population:

Employees of training agents (employers) within the Douglas Coos Curry Industrial TATC focused on fabricating and welding.

Program Outcomes: (please list numerically)

Use outcomes listed for IMMT

Program Impacts:

Standard Instructional Costs (staff, materials, equipment or facilities) are required.

Additional instructional costs ((staff, materials, equipment or facilities) are needed.

Impact to other divisions in terms of scheduling or staffing.

UCC New Program Approval

Program Impact Description (for any of the program impacts listed above, please describe):

Students will be expected to complete: at least 7 credits of math (MTH52 or higher and MTH75, at least 12 credits of human relations, and at least 12 credits of human relations and writing (WR115 and higher).

Additional Instructor Requirements (FT/PT, number, qualification, ability to recruit):

Students will take same classes as other IMMT students (millwrights, machinist, pipe-fitter, and saw filer), therefore same instructors. This will increase population of current classes.

UCC New Program Approval

Program Standards

Using new or parent program information, create a short description that provides the requested data. These descriptions will be entered exactly as they appear in the New Program Form into the official record with the State of Oregon. The maximum number of characters for each standard is 4,000.

Standard A – Need:

The community college provides clear evidence of the need for the program.

UCC is under contract with three apprenticeship committees to provide the education portion of the apprenticeship model. Fabricator/Welder standard has been approved by BOLI. Education piece for this new standard falls within the 4007 Douglas Coos Curry Industrial TATC.

Standard B – Collaboration:

The community college utilizes systemic methods for meaningful and ongoing involvement of the appropriate constituencies.

As above. UCC is in contract with the MA 4007 Douglas Coos Curry Industrial TATC. As stated in this contract, UCC provides classes to meet the needs of the MA 4007.

Standard C – Alignment:

The program is aligned with the appropriate education, workforce development, and economic development activities.

Classes within the curriculum are designed to meet the need of current workforce trends in each of their participating trades. Class content focuses on keeping students up-to-date on knowledge of their trade.

Standard D – Design:

The program leads to student achievement of academic and technical knowledge, skills, and related proficiencies.

Classes are designed to provide learning in all topics within each trade of the Industrial Mechanics and Maintenance Technology Apprenticeship (IMMT) degree. Classes specific to this trade, are created to produce learning outcomes for the fabricator/welder.

Standard E – Capacity:

The community college identifies and has the resources to develop, implement, and sustain the program.

Classes for the Fabricator/Welder trade are classes currently offered at UCC. This will be a relatively small trade compared to others within the IMMT degree, therefore changing class size is minimal in increase of class size. Employers of the trade support and contribute to portions of this program, through supplemental service fees, tuition, UCC student fees, and consumable product class fees.

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Proposed Courses – please attach course outlines

Course #	Course Title	Credits
APR 120	Industrial Safety <u>OR</u>	3
APR 228	Rigging Fundamentals	3
WLD 140	Blueprint Reading and Sketching <u>OR</u>	3
DRF 112	Computer Aided Drafting	3
MTH 052	Introduction to Algebra for the Trades <u>OR</u>	4
MTH 075	Applied Geometry	3
WLD 131	Basic Metallurgy	3
APR 140	Beginning Welding for Apprentices	1
APR 141	Intermediate Welding for Apprentices	1
MFG 111	Machine Shop 1	3
MFG 112	Machine Shop 2	3
MFG 121	Hydraulics 1	3
MFG 122	Hydraulics 2	3
APR 229	Basic Pneumatics	3
APR 130	Mechanical Principles and Drive Design	3
	Optional::	
APR 142	Advanced Welding for Apprentices	1
APR 143	Pipe Welding	3
MFG 113	Machine Shop 3	3
MFG 123	Hydraulics 3	3
APR 239	Pumps and Pumping	3

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	Credit for state journeyman certification	22
	1 Human Relations class from approved list	3
WR 115 (or higher)	Introduction to Expository Writing	4
	6 Credits from:	
MTH 065	Elementary Algebra <u>AND/OR</u>	4
WR 121	English Composition: Intro to Argument <u>AND/OR</u>	4
	1 Human Relations class from approved list	3
	15 credits from approved list:	
APR 151	Basic Electronics & Electricity	4
APR 153	Electrical Applications & Techniques	3
APR 165	AC Electronics & Electricity	4
	Total credits for Program	91

Additional Process Items

Please check all of the additional forms and documents you have completed and submitted to Curriculum Committee. Links to fill-able versions of these forms can be found at <http://umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces>.

Required: Labor Market Information (LMI) Form (not needed for Career Pathway Certificate)

Required: Course Outlines for all courses

Specialized Form: Advisory Committee

Specialized Form: Start Up Budget

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Report Options	Occupation Profiles																				
<p>Search Occupations:</p> <p>Fabricator Welder</p> <p>Search</p> <p>Matching Occupations (5):</p> <p>Welders, Cutters, Sold... ▼</p> <p>Select Area:</p> <p>Oregon ▼</p> <p>Report Options:</p> <p><input type="radio"/> Full Report</p> <p><input checked="" type="radio"/> One-Page Summary Report</p> <p><input type="radio"/> Custom Report</p> <p>Customize Your Report:</p> <p><input checked="" type="checkbox"/> Description</p> <p><input checked="" type="checkbox"/> Job Openings listed with OED</p> <p><input type="checkbox"/> Job Openings from the Web</p> <p><input type="checkbox"/> Licenses & Certifications</p> <p><input checked="" type="checkbox"/> Wage Range</p> <p><input checked="" type="checkbox"/> Employment Outlook</p> <p><input checked="" type="checkbox"/> Employment Projections</p> <p><input checked="" type="checkbox"/> Industries of Employment</p> <p><input checked="" type="checkbox"/> Educational Requirements</p> <p><input type="checkbox"/> Skills</p> <p><input type="checkbox"/></p>	<p>Welders, Cutt... +</p> <h3>Occupation Profiles Report</h3> <h4>Welders, Cutters, Solderers, and Brazers (514121)</h4> <p>Oregon</p> <p>Description</p> <p>Use hand-welding, flame-cutting, hand soldering, or brazing equipment to weld or join metal components or to fill holes, indentations, or seams of fabricated metal products.</p> <table border="1"> <thead> <tr> <th>Area</th> <th>Oregon</th> </tr> </thead> <tbody> <tr> <td>2012 Employment</td> <td>4,402</td> </tr> <tr> <td>2022 Employment</td> <td>5,032</td> </tr> <tr> <td>Annual Growth Openings</td> <td>63</td> </tr> <tr> <td>Annual Replacement Openings</td> <td>108</td> </tr> <tr> <td>Total Annual Openings</td> <td>171</td> </tr> </tbody> </table> <p><u>Data Sources and Limitations</u></p> <table border="1"> <thead> <tr> <th>Area</th> <th>Oregon</th> </tr> </thead> <tbody> <tr> <td>Median Hourly</td> <td>\$19.21</td> </tr> <tr> <td>Avg Annual</td> <td>\$40,368</td> </tr> <tr> <td>Middle Range</td> <td>\$15.95 - \$22.41</td> </tr> </tbody> </table>	Area	Oregon	2012 Employment	4,402	2022 Employment	5,032	Annual Growth Openings	63	Annual Replacement Openings	108	Total Annual Openings	171	Area	Oregon	Median Hourly	\$19.21	Avg Annual	\$40,368	Middle Range	\$15.95 - \$22.41
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Schools & Training Providers

- Career Pathways
- Occupations w/Similar Skills

Get Report

Data Sources and Limitations

Job Title	<u>Welder / Fabricator</u>
Location	Junction City
Order Number	1546428
Wage Offered	\$15.00/hr
Job Title	<u>Welder/Fabricator</u>
Location	Grants Pass
Order Number	1546191
Wage Offered	\$15.00/hr to \$17.00/hr DOE
Job Title	<u>Steel Fabricator/Welder</u>
Location	Roseburg
Order Number	1546138
Wage Offered	\$16.00/hr
Job Title	<u>Welder/Fitter</u>
Location	Wilsonville
Order Number	1546114
Wage Offered	\$15.00/hr to \$19.00/hr DOE
Job Title	<u>Journeyman Structural Fabrication Welder</u>
Location	Portland
Order Number	1545516
Wage Offered	\$20.00/hr to \$25.00/hr DOE
Job Title	<u>Welder / Fabricator - Machine Shop</u>
Location	Harrisburg
Order Number	1545390

Wage Offered : \$14.00/hr to \$16.00/hr DOE

Job Title : Welder / Fabricator - Machine Shop

Location : Harrisburg

Order Number : 1545388

Wage Offered : \$14.00/hr to \$16.00/hr DOE

Job Title : Mig and Tig Welder

Location : Albany

Order Number : 1544315

Wage Offered : \$17.00/hr to \$28.00/hr

Job Title : Pipe Welder

Location : Albany

Order Number : 1544311

Wage Offered : \$16.00/hr to \$18.00/hr DOE

Job Title : Field Welder, #19386

Location : Portland

Order Number : 1544231

Wage Offered : DOE

Industry : Total All Industries

Employment : 4,366

Industry : Construction

Employment : 127

Industry : Manufacturing

Employment : 3,371

Industry : Wholesale Trade

Employment	241
Industry	Transportation and Warehousing
Employment	57
Industry	Administrative and Support and Waste Management and Remediation Services
Employment	165
Industry	Arts, Entertainment, and Recreation
Employment	34
Industry	Other Services (except Government)
Employment	245
Occupation	<u>Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders</u>
Skill Overlap	<u>66%</u>
Occupation	<u>Metal Workers and Plastic Workers, All Other</u>
Skill Overlap	<u>40%</u>
Occupation	<u>Layout Workers, Metal and Plastic</u>
Skill Overlap	<u>40%</u>
Occupation	<u>Structural Iron and Steel Workers</u>
Skill Overlap	<u>39%</u>
Occupation	<u>Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic</u>
Skill Overlap	<u>38%</u>

Statewide Employment Analysis

Employment in this occupation in 2012 was much larger than the statewide average for all occupations. The total number of job openings is projected to be much higher than the statewide average number of job openings for all

occupations through 2022. This occupation is expected to grow at about the statewide average growth rate for all occupations through 2022.

Reasonable employment opportunities exist.

Educational Requirements

The typical entry level education for this occupation is a high school diploma or equivalent. Those with a postsecondary non-degree award have a competitive advantage in the labor market. In addition, moderate-term on-the-job training is typically needed, once employed, to attain competency in the skills needed in this occupation.

Jobs & Careers

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[Career Explorer](#)

[Find Employers](#)

[Wage Conversion Calculator](#)

[Search Biz News](#)

Economic Data

[Unemployment Rates \(LAUS\)](#)

[Current Employment Estimates \(CES\)](#)

[Employment and Wages by Industry \(QCEW\)](#)

[State Unemployment Rankings](#)

[Inflation Calculator](#)

[Fast Facts Dashboard](#)

Business & Industry

[Industry Profiles](#)

[Find Employers](#)

[Search Biz News](#)

Training & Education

[Occupation & Training Information](#)

[Occupational Prioritization for Training](#)

Course No.: **APR120**
Credit Hours: 3
Lecture Hours: 3
Lecture/Lab Hours: 0
Clock Hours: 33
Length of Course: 11 weeks
Prerequisite: None

Course Title: **Industrial Safety**
Developed By: Steve Wagoner
Date: January 20, 2009
Revision/Review Date: April 2012

COURSE DESCRIPTION:

This course will present training in OR-OSHA standards and related general safety and health provisions. Oregon Safety Law and subjects listed in OAR 437, Division 3 and OAR 437, Division 2 training and accident prevention measures are included, as well as safety committee procedures.

LEARNER OUTCOMES:

Upon completion of this course, the student should be able to:

- Identify and interpret OR-OSHA Standards
- Identify general safety and health provisions
- State Safety Committee procedures

REQUIRED TEXT:

Keller's Official OSHA Construction Safety Handbook, J.J. Keller & Assoc.
ISBN: 1-57943-868-7

COURSE OUTLINE

Week 1	OR-OSHA Standard Confined Space Safety Electrical Safety
Week 2	Emergency Response Ergonomics and Back Safety Excavations
Week 3	Fall Protection Basic First Aid
Week 4	Hazard Communication Wellness and Health
Week 5	Job-site Exposure. Lockout / Tag-out
Week 6	Ladders and Stairways Materials Handling and Storage
Week 7	Motor Vehicles Personal Protective Equipment
Week 8	Scaffolds Site Safety and Security
Week 9	Slips, Trips and Falls Tool Safety
Week 10	Welding, Cutting and Brazing Work Zone Safety
Week 11	Final Exam

Course No.: **APR130**
Credit Hours: 3
Lecture Hours: 3
Lecture/Lab Hours: 0
Clock Hours: 33
Length of Course: 11 weeks
Prerequisite: None

Course Title: **Mechanical Principles and Drive Designs**
Developed By: Steve Wagoner
Date: January 2009
Revision/Review Date: April 2012

COURSE DESCRIPTION:

This course will familiarize the student with the proper identification, interchanging, application, failure analysis, and selection of all types of bearings. Drive designs will also be taught in relation to belts and roller chain.

LEARNER OUTCOMES:

Upon completion of this course, the student should be able to:

- Identify basic bearings
- Recognize the relationship and the use of formulas to determine drive applications
- Investigate failed bearing scenarios
- Use proper tools for installing bearings
- Define terms used in the units of measurement in relation to mechanical principles

REQUIRED TEXT:

Mechanical Principles and Systems for Industrial Maintenance, Knotec/Stenerson, Prentice Hall
ISBN 0-13-049410-0

Study Guide with Laboratory Activities, Mechanical Principles and Systems for Industrial Maintenance, Knotec/Stenerson, Prentice Hall
ISBN

COURSE OUTLINE

Week 1	Introduction Anti-friction Bearings (Ball Bearings) Proper sizing and lubrication
Week 2	Interchanging Bearings Find current interchange to all bearings
Week 3	Cylindrical and Needle Bearings Identify and proper sizing
Week 4	Seals Identify and proper sizing
Week 5	Spherical Bearings Identify and proper sizing
Week 6	Tapered Roller Bearings Identify and proper sizing
Week 7	Mounted Units Identify and proper sizing Interchange
Week 8	Failure Analysis Troubleshooting and identify causes
Week 9	Drive Design Proper sizing, ratios, and formulas
Week 10	Gearing types
Week 11	Final Exam

Course No.: **APR 140**
Credit Hours: 3
Lecture Hours: 1
Lecture/Lab Hours: 0
Lab Hours: 4
Clock Hours: 55
Length of Course: 11 weeks
Prerequisite: None

Course Title: **Beginning Welding for Apprentices**
Developed By: Ian Fisher
Date: September 2013
Revision Date: June 2014

COURSE DESCRIPTION:

This course covers welding processes, safety, equipment, and essential variables of operation. This is an outcome-based course utilizing a lab in which students demonstrate and build their skill level.

LEARNER OUTCOMES:

The student will be evaluated on his/her ability to demonstrate the development of course competencies.

- Students will demonstrate and be tested on machine, hazardous materials and electrical safety practices.
- Students will demonstrate fundamentals of operation for SMAW (Shielded Metal Arc Welding) in the flat and horizontal positions.
- Students will demonstrate fundamentals of operation for OFW & OFC (Oxygen Fuel Cutting).
- Student will also have the opportunity to work with GMAW (Gas Metal Arc Welding) and GTAW (Gas Tungsten Arc Welding) processes.

REQUIRED TEXT:

Textbook

1. Welding Principles and Practices (4th edition), Edward R. Bohnart, Mc Graw Hill (Required)
2. Workbook For Use With Welding Principles and Practices (4th edition), Edward R. Bohnart, Mc Graw Hill (Also Required)

MATERIALS AND SUPPLIES:

Students are required to purchase and bring safety goggles to all lab sessions; work will not be permitted without the proper safety equipment. A Lab coat and welding gloves should also be purchased for the new welding student; specific materials for these will be discussed the first class meeting. Other safety equipment, such as welding hood, chipping hammer, etc. will be supplied for student use. Lockers are also available for student use.

COURSE OUTLINE

- | | |
|---------|---|
| Week 1 | Introduction to Beginning Welding & Module 2: Safety and Health of Welders |
| Week 2 | Module 1: General Introduction to Welding; Occupational Orientation;
Assessment of welding skill levels and process related areas of industry discussions. Discussions and labs will be based upon employer/sponsor needs and welder ability; Labs will be designed to challenge the welding and strengthen abilities. |
| Week 3 | Module 4: Shielded metal Arc Welding (SMAW) Units and Key Indicators all class will include Drawing and Welding Symbol Interpretation |
| Week 4 | Performs safety inspections of SMAW equipment and accessories. |
| Week 5 | Sets up and operation of SMAW on carbon steel |
| Week 6 | Fillet welds all positions Shielded Metal Arc Welding (SMAW) |
| Week 7 | Groove welds all positions Shielded Metal Arc Welding (SMAW) |
| Week 8 | Intro to Gas Metal Arc Welding (GMAW-S, GMAW- Spray Transfer) |
| Week 9 | Manual Oxy-fuel Cutting (OFC) |
| Week 10 | Manual Plasma Arc Cutting (PAC) & |
| Week 11 | Final Exam |
- Will cover the chapter topics listed above, as well as, topics covered in the labs

Course No.:	APR141
Credit Hours:	3
Lecture Hours:	1
Lecture/Lab Hours:	0
Lab Hours:	4
Clock Hours:	55
Length of Course:	11 weeks
Prerequisite:	APR140

Course Title: **Intermediate Welding For Apprentices**
Developed By: Ian Fisher
Date: September 2013
Revision / Review Date: July 2014

COURSE DESCRIPTION:

This is an intermediate theory and practice course, which reinforces safe operations and applications of oxyacetylene welding, torch cutting, plasma cutting, brazing, and shielded metal arc welding. Practice will consist of methods of joining steel in the flat and horizontal positions using oxyacetylene, and shielded metal arc. Related information concerning the basic principles joint design and metallurgy will be integrated into the practice sessions. Destructive testing will be provided.

COURSE OUTCOMES:

- Safely operate in a welding shop.
- Recognize and set up oxyacetylene torch system welding and brazing to industry standards
- Recognize and set up oxyacetylene torch system for cutting operations
- Demonstrate the ability to light a torch system, adjust it to proper flame, and shut down procedures
- Weld a joint system without the use of filler rod (gage materials)
- Weld a joint system with filler rod (up to 1/8 inch)
- Braze a joint system (up to 1/8 inch)
- Make a perpendicular cut in steel plate using the cutting torch
- Identify common electrodes and describe their proper use in industry
- Weld single pass beads on a flat plate meeting size, and conformity for industry standards (1/4 inch to 3/8 inch fillet welds)

REQUIRED TEXT:

Textbook

1. Welding Principles and Practices (4th edition), Edward R. Bohnart, Mc Graw Hill (Required)
2. Workbook For Use With Welding Principles and Practices (4th edition), Edward R. Bohnart, Mc Graw Hill (Also Required)

REQUIRED MATERIALS:

- | | |
|--|--|
| 1. Safety Glasses Clear | 7. Welding Hood |
| 2. Safety Cutting Glasses (Dark) | 8. Welding Hammer |
| 3. Leather Gloves | 9. Wire Brush |
| 4. Leather Boots or Leather Shoes | 10. Soap Stone |
| 5. Long Sleeve tight cotton blend shirts | 11. Pliers or Needle Nose w/cutting edge |
| 6. Tight cotton blend pants, no-holes or fraying | |

COURSE OUTLINE

- | | |
|---------|---|
| Week 1 | Review Safety and Health of Welders all class will include Drawing and Welding Symbol Interpretation |
| Week 2 | Assessment of welding skill levels and process related areas of industry discussions. Discussions and labs will be based upon employer/sponsor needs and welder ability; Labs will be designed to challenge the welding and strengthen abilities. |
| Week 3 | Gas Metal Arc Welding (GMAW Short Circuit Transfer) |
| Week 4 | Fillet welds all positions GMAW (GMAW Short Circuit Transfer) |
| Week 5 | Groove welds all positions GMAW (GMAW Short Circuit Transfer) |
| Week 6 | Gas Metal Arc Welding (GMAW Spray Transfer) |
| Week 7 | Fillet welds all positions GMAW (GMAW Spray Transfer) |
| Week 8 | Groove welds all positions GMAW (GMAW Spray Transfer) |
| Week 9 | Manual Oxy-fuel Cutting (OFC) & Manual Air Carbon Arc Cutting (ACAC) |
| Week 10 | Manual Plasma Arc Cutting (PAC) & Manual Air Carbon Arc Cutting (ACAC) |
| Week 11 | Final Exam will cover the topics listed above, as well as, topics covered in the labs |

Course No.: APR142
Credit Hours: 3
Lecture Hours: 0
Lecture/Lab Hours: 3
Clock Hours: 33
Length of Course: 11 weeks
Prerequisite: APR141

Course Title: **Advanced Welding For Apprentices**
Developed By: Ian Fisher
Date: January 21, 2009
Revision / Review Date: July 2012

COURSE DESCRIPTION:

This is an intermediate theory and practice course, which reinforces safe operations and applications of oxyacetylene welding, torch cutting, plasma cutting, brazing, and shielded metal arc welding. Practice will consist of methods of joining steel in the flat and horizontal positions using oxyacetylene, and shielded metal arc. Related information concerning the basic principles joint design and metallurgy will be integrated into the practice sessions. Destructive testing will be provided.

COURSE OUTCOMES:

- Safely operate in a welding shop.
- Recognize and set up oxyacetylene torch system welding and brazing to industry standards
- Recognize and set up oxyacetylene torch system for cutting operations
- Demonstrate the ability to light a torch system, adjust it to proper flame, and shut down procedures
- Weld a joint system without the use of filler rod (gage materials)
- Weld a joint system with filler rod (up to 1/8 inch)
- Braze a joint system (up to 1/8 inch)
- Make a perpendicular cut in steel plate using the cutting torch
- Identify common electrodes and describe their proper use in industry
- Weld single pass beads on a flat plate meeting size, and conformity for industry standards (1/4 inch to 3/8 inch fillet welds)

REQUIRED TEXT:

Welding, Principles and Applications, 5th ed, Larry Jeffus, Thomson Learning

REQUIRED MATERIALS:

1. Safety Glasses Clear
2. Safety Cutting Glasses (Dark)
3. Leather Gloves
4. Leather Boots or Leather Shoes
5. Long Sleeve tight cotton blend shirts
6. Tight cotton blend pants, no-holes or fraying
7. Welding Hood
8. Welding Hammer
9. Wire Brush
10. Soap Stone
11. Pliers or Needle Nose w/cutting edge

COURSE OUTLINE

- Week 1 Review Safety and Health of Welders
- Week 2 Assessment of welding skill levels and process related areas of industry discussions
- Week 3 Discussions and labs will be based upon employer/sponsor needs and welder ability; Labs will be designed to challenge the welding and strengthen abilities.
- Week 4 Module Units and Key Indicators
- Week 5 Drawing and Welding Symbol Interpretation
- Week 6 Shielded Metal Arc Welding (SMAW)
- Week 7 Gas Metal Arc Welding (GMAW-S, GMAW Spray Transfer)
- Week 8 Gas Tungsten Arc Welding (GTAW)
- Week 9 Manual Oxy-fuel Cutting (OFC)
- Week 10 Manual Plasma Arc Cutting (PAC)
- Week 11 Final Exam will cover the topics listed above, as well as, topics covered in the labs

Course No.:	APR 143
Credit Hours:	1
Lecture Hours:	0
Lecture/Lab Hours:	0
Lab Hours:	3
Clock Hours:	33
Length of Course:	11 weeks
Prerequisite:	None

Course Title: **Pipe Welding**
Developed By: Ian Fisher
Date: January 2009
Revision Date: August 2012

COURSE DESCRIPTION:

This course covers multiple welding processes for pipe welding applications. Safety, equipment, and essential variables of operation with emphasizes of the fundamentals and mechanics of Pipe welding. This is an outcome-based course utilizing a lab in which students demonstrate and build their skill level. Registration Enforced Prerequisite: APR 141; 3 lab hrs/wk.

LEARNER OUTCOMES:

Upon completion of this course, the student should be able to:

- Students will demonstrate and be tested on machine, hazardous materials and electrical safety practices.
- Students will demonstrate fundamentals of operation for successful skill of joining pipe per ASME Section IX
- Students will demonstrate fundamentals of operation for joining pipe in the 2G position per ASME Section IX Welding Code using industry standards
- Student will also have the opportunity to work with GMAW (Gas Metal Arc Welding) and GTAW (Gas Tungsten Arc Welding) processes.
- The student will be assessed on their ability to demonstrate the development of course outcomes. The methods of assessment may include one or more of the following: oral or written examinations, quizzes, observations and visual inspection techniques, welding test, safe work habits and task performances related to industry standards

REQUIRED TEXT:

Welding, Principles and Applications, (Not required ~ Optional) 6th ed. Larry Jeffus, Thomson Learning

MATERIALS AND SUPPLIES:

Students are required to purchase and bring safety goggles to all lab sessions; no work is permitted without the proper safety equipment. An approved welding lab coat and welding gloves should also be purchased for the new welding student; specific materials for these will be discussed the first class meeting. Other safety equipment, such as welding hood, chipping hammer, etc. is the responsibility of the students as per industry standards.

COURSE OUTLINE

- Week 1 Introduction to Pipe Welding and ASME Section IX, industry standards
- Week 2 General Introduction to welding relationships in the field of pipe welding; occupational orientation; assessment of welding skill levels and process related areas of industry discussions
- Week 3 Discussions and labs will be based upon employer/sponsor needs and welder ability; Labs will be designed to challenge the welding and strengthen abilities.
- Week 4 Module, Units and Key Indicators
- Week 5 Drawing and Welding Symbol Interpretation
- Week 6 Shielded Metal Arc Welding (SMAW)
- Week 7 Gas Metal Arc Welding (GMAW-S, GMAW Spray Transfer)
- Week 8 Gas Tungsten Arc Welding (GTAW)
- Week 9 Manual Oxy-fuel Cutting (OFC)
- Week 10 Manual Plasma Arc Cutting (PAC)
- Week 11 Final Exam
Will cover the chapter topics listed above, as well as, topics covered in the labs

Course No.: **APR228**
Credit Hours: 3
Lecture Hours: 2
Lecture/Lab Hours: 2
Clock Hours: 44
Length of Course: 11 weeks
Prerequisite: MTH052-or MTH060

Course Title: **Rigging Fundamentals**
Developed By: Jesse A. Morrow
Date: January 28, 2009
Revision/Review Date: April 2012

COURSE DESCRIPTION:

This course introduces the uses of slings and common rigging hardware along with basic inspection techniques, hitch configurations, and load-handling safety practices. Components of wire rope, wire rope inspection, proper installation of wire rope, maintenance guidelines, and end terminations and preparations will also be taught.

LEARNER OUTCOMES:

Upon completion of this course, the student should be able to:

- Identify and describe uses of slings and common rigging hardware
- Describe basic inspection techniques and rejection criteria used for slings and hardware
- Describe basic hitch configurations and their proper connections
- Describe basic load-handling safety practices
- Demonstrate proper use of American National Standards Institute (ANSI) hand signals
- Describe how wire rope is constructed and secured and how its breaking strength is determined
- Perform wire rope inspection
- Identify wire rope replacement criteria and procedures for replacement.

REQUIRED TEXT:

Rigging Fundamentals (2005) National Center for construction Education and Research (NCCER) ISBN: 0-13-227682-8

Rigging (2005) (2005) National Center for construction Education and Research (NCCER). ISBN: 0-13-227297-0

COURSE OUTLINE

Week 1	Basic Rigging Introduction Rigging hardware Slings, Tag lines, Blocks and tackles
Week 2	Rigging Hardware Chain hoists, Ratchet-lever hoists and come-alongs Jacks and Tuggers
Week 3	Rigging Practices Methods and modes of communication General rigging safety
Week 4	General rigging safety Working around power lines Site safety Emergency response
Week 5	Using cranes to lift personnel Lift planning Crane load charts
Week 6	Wire Rope Wire rope construction Inspection and maintenance requirements Wire rope reeving Reeving a drum
Week 7	Personnel Lifts Fall Protection Platform requirements
Week 8	Crane and operational requirements Personnel platform inspection
Week 9	Trial lift Advanced operations techniques for hoisting personnel
Week 10	Course Review
Week 11	Final Exam

Course No.: **APR229**
Credit Hours: 3
Lecture Hours: 3
Lecture/Lab Hours: 0
Clock Hours: 33
Length of Course: 11 weeks
Prerequisite: MTH052 or MTH060

Course Title: **Basic Pneumatics**
Developed By: Dan Jones
Date: January 2009
Revision/Review Date: April 2012

COURSE DESCRIPTION:

This course is designed to help students understand the fundamental components of a pneumatic system. Students will learn to recognize and understand how pneumatic components interact with one another and how they should be properly sized to obtain the desired outcome.

LEARNER OUTCOMES:

Upon completion of this course, the student should be able to:

- Recognize all the components in a pneumatic circuit
- Distinguish how components function and interact
- Identify proper sizing of components
- Design simplistic pneumatic circuits

REQUIRED TEXT/MATERIALS:

- Parker Basic Pneumatic Technology (Bulletin 0248-B1)
- Basic calculator

COURSE OUTLINE

Week 1	Introduction to Basic Pneumatic Concepts Properties of Compressed Gas
Week 2	Symbols and Standards Drawing a Pneumatic Circuits
Week 3	Safety Procedures Compressed Air Production, Preparation, & Distribution
Week 4	Compressors Air Receivers Components
Week 5	Contaminants Filters, Regulators, & Lubricators (F.R.L.) Pneumatic Components
Week 6	Types of Control Valves Accessory Valves and Equipment
Week 7	Linear Actuators Rotary Actuators
Week 8	Pneumatic Circuit Designs Design Principles Quick Exhaust & Time Delay
Week 9	Maintenance and Fault Finding
Week 10	Trouble shooting Failure Diagnosis
Week 11	Final Exam

Course No.: **APR239**
Credit Hours: 3
Lecture Hours: 3
Lecture/Lab Hours: 0
Clock Hours: 33
Length of Course: 11 weeks
Prerequisite: MTH052 or MTH060

Course Title: **Pumps and Pumping**
Developed By: Kevin Bruton
Date: January 27, 2009
Revision/Review Date: April 2012

COURSE DESCRIPTION:

The course offers a unique opportunity to blend classroom material with real-life experience. A complete spectrum of pump-related information needed to operate, maintain, and repair pumps is taught. This includes pump theory, pump types, and pump components and their functions. Additional information covered are pump curves, pump hydraulics, and operating conditions, as well as packing methods and selections, mechanical seals, pump piping systems, and pump identification.

LEARNER OUTCOMES

Upon completion of this course, the student should be able to:

- Identify pump components and their use
- Repair centrifugal pump and troubleshoot problematic areas
- Replace packing and mechanical seals
- Identify hydraulics of pump systems along with the proper piping layout
- Identify special pump systems

REQUIRED TEXT:

Pumps and Pumping, (8th Edition) ACR Publications, Inc. Skeet, Arasmith.

COURSE OUTLINE

Week 1	Centrifugal Pump Operation Theory Pumps classifications and identification of pumping terms
Week 1	Centrifugal Pump Types Close coupled and frame mounted pumps Back pull out pump and non-back pull out pump Functions of major components and Bearings
Week 2	Centrifugal Pump Repair Impeller removal and shaft sleeve and wear rings
Week 3	Selection and Replacement of Packing Purpose of packing; Replacing packing and causes of packing failure
Week 4	Mechanical Seals Purpose & Selection Mechanical seals vs. packing Replacing mechanical seals and identify causes of seal failure
Week 5	Pump Piping System Proper suction pipe sizing Seal water and priming system Reducers
Week 6	Pump Hydraulics Pump curves Water brake and wire horsepower Positive and suction head
Week 7	Operating Conditions Pumping conditions; Cavitation and Lubrication
Week 8	Line Shaft Turbine Operating Conditions Reversing effects Adjustment methods and Upthrust conditions
Week 9	Special Pumping Units Identify and uses of pumping units Various pumping conditions of each pumping unit
Week 10	Abnormal Operating Conditions Vibrations; Suction and discharge problems Troubleshooting
Week 11	Final Exam

Course Outline

Course No.: CIV 112
Credit Hrs.: 3
Class Hours: 2
Lab Hours: 2
Clock Hours: 42
Length of Class: 11 wks
Prerequisites: Keyboarding or
drafting experience

Course Title: Computer Aided Drafting I - Engineering

Developed by: Tom Rogers

Date: September 1999

Course Description: This is a beginning level course which introduces computer-aided drafting (CAD). The AutoCAD program is used to set up drawings and perform basic drawing and editing commands. Emphasis is on two-dimensional drawings and engineering aspects of computer drafting.

Course Objectives:

1. Identify CAD hardware and understand basic computer operations.
2. Describe and use basic terms, concepts and techniques of CAD.
3. Set up drawings, use drawing aids and save drawings to disk files.
4. Perform basic drawing commands, including constructing shapes, editing drawings, entering text, and basic dimensioning.

Course Content Outline:

- I. Introduction to computers & AutoCAD
- II. Basic drawing commands
- III. Basic editing commands
- IV. Obtaining information from drawings
- V. Basic dimensioning

**Umpqua Community College
Roseburg, Oregon**

**Machine Shop Practices I
Course Syllabus**

Instructor: **Matthew Grigsby**

Hours Available for Assistance: Mon-Fri 3:00-8:00 PM

Phone: (541) 643-3836

E-mail: Matthew.Grigsby@umpqua.edu

Course Number:	MFG111
Prerequisite:	MTH052 or MTH060 Introduction to Algebra
Course registration #:	CRN #20746
Course Credit:	3 credits
Course Duration:	11 weeks
Total Class Hours:	66
Class Time:	6:00PM – 9:00PM Tues. & Wed.
Location:	South Umpqua High School - Machine Shop

Course Description

This course ranges from the most basic introduction of shop safety, manufacturing concepts, practices, & theory to the more advanced skills required to meet tasks needed to perform at the tradesman's level. Students will be required to have a keen sense of the safety hazards & situations they will enter into as well as project prep, layout, and a logical progression of the operations required. It will become clear as the class progresses the impact these tasks will have on the student, machinery, tooling, & their completed project. Aspects of economical operation, trade visions, possible career paths for the future, & related study topics will be discussed and encouraged.

Required Tools

- | | |
|-------------------------------|--|
| - Steel tape measure | - Scribe |
| - 6" scale (4R or equivalent) | - 12" adjustable wrench |
| - Center punch | - Safety glasses |
| - Ball-peen hammer | - <i>Additional tools you may have</i> |

Required Texts

Precision Machining Technology, Hoffman, Hopewell, Janes & Sharp; Delmar/Cengage Learning, Clifton, New York.

Workbook and Projects Manual: Precision Machining Technology, Lenzi and Hillwig; Delmar/Cengage Learning, Clifton, New York.

Evaluation:

Scores based on weekly quiz topics. A score of 75% or higher is required.

Upon completion of each project, the following lab performance will be assessed:

Follows drawing(s) (dimensions & tolerance):	25%
Machine Finishes:	25%
Satisfactory operation of machine or tool:	25%
General Workmanship:	<u>25%</u>
Total:	100%

Review of Shop Rules

1. **NO** smoking in classroom, lab, or shop area
2. **NO** horseplay
3. Appropriate clothing to be worn at all times in shop
 - **NO** loose sleeves, rings, ties, or unsecured long hair
4. **EYE PROTECTION MUST BE WORN AT ALL TIMES**
5. Start lab & class work at the scheduled time
6. Use only the materials designated for your project (ask instructor if in doubt)
7. Return shop tools to proper area after use
8. Clean up your work area. Clean & oil machines after using
 - Clean-up time = ½ hour before end of class
9. Have your tool box available

Projects for Machine Shop Practices I

1. Drill & hole gauge
2. Lathe turned shaft
3. Keyed shaft
4. Final project

Week #1 Assignments

1. Shop introduction; i.e. types of equipment found in most machine shops & the equipment you will be introduced to here
2. Shop safety – an overall view of hazards dealing with rotating equipment, PPE, jewelry, food & drink, horseplay, & proper shop etiquette
3. Specific machine safety hazards will be dealt with in groups at individual machine centers & will be constant & ongoing throughout the course
4. Introduction to tooling & nomenclature
5. Go over layout techniques & answer any questions prior to starting drill & hole gauge
6. The last half hour of each class will be used to clean up and oil down machinery

*NOTE: Study Section 1, Unit's 1 thru 3, Workbook Section 1, Unit's 1 thru 3

Week #2 Assignments

1. Quick quiz on previous weeks text assignments (Intro to Machining, workplace skills)
2. Begin threading project
3. Cut steel for first project: 1 ¼" x 7 ¼" long, CRS round stock
4. Grinder safety review
5. Grind threading tool
6. Lathe safety
7. Lathe set-up (Have instructor do a quick run through on lathe chosen)

*NOTE: Study Section 2, Unit's 1 and 2, Workbook Section 2, Unit's 1 and 2

Week #3 Assignments

1. Quick quiz on previous weeks study assignment (Safety and Measurement)
2. Finish grinding threading tool – submit to instructor for inspection
3. Practical threading tool test
4. Begin fabrication

*NOTE: Study Section 2, Unit's 3 and 4, Workbook Section 1, Unit's 1 thru 3

Week #4 Assignments

1. Continue threading project
2. Have instructor go over lathe project or lathe concerns with you

*NOTE: Review Section 2, Unit's 3 thru 4, Workbook Section 2, Unit's 3 and 4

Week #5 Assignments

1. Quiz on Section 2, Unit's 3 and 4 (Safety and Measurement)
2. Continue threading project

*NOTE: Study Section 2, Unit's 5 thru 8, Workbook Section 2, Unit's 5 thru 8

Mid-term Exam *to be announced*

Week #6 Assignments

1. Quiz on Section 2, Unit's 5 thru 8 (Metals, Cutting Fluid, Planning)
2. Start Boring project

*NOTE: Study Section 3, Unit's 1 and 2, Workbook Section 3, Unit's 1 and 2

Week #7 Assignments

1. Quiz on Section 3, Unit's 1 and 2 (Drawings and Layout)
2. Start milling machine boring project
3. Start re-familiarizing yourself with the milling machine

*NOTE: Study Section 3, Unit's 3 and 4, Workbook Section 3, Unit's 3 and 4

Week #8 Assignments

1. Quiz on Section 3, Unit's 3 and 4 (Hand tools and Cutoff)
2. Go over Milling machine operations & controls
3. Go over safety concerns on the milling machine with the instructor

*NOTE: Study Section 3, Unit's 5 and 6, Workbook Section 3, Unit's 5 and 6

Week #9 Assignments

1. Quiz on Section 3, Unit's 5 and 6 (Drilling, Threading and Tapping)
2. Finish up milling machine project
3. Start preparing for the practical final

Week #10 Assignments

1. Finish practical Final
2. Prepare for Final

Week #11 Assignments

1. Final Exam

Mid-term and Final projects to be determined at a later date.

Course No.: MFG112
Credit Hours: 3
Lecture Hours: 0
Lecture/Lab Hours: 6
Clock Hours: 66
Length of Course: 11 weeks
Prerequisite: MFG111

Course Title: **Machine Shop II**
Developed By: Dan Sprague
Date:
Revision Date: January 2009

COURSE DESCRIPTION:

This builds upon the skills learned in MFG111 with a continuing emphasis on the fundamentals and mechanics machine shop concepts and general shop practices involving the use of an engine lathe, milling machine, drill press, grinders, and other machine shop tools. Instruction will be provided in general machining techniques with safety and economy of operation being emphasized. Students will work at their own pace through specific projects.

COURSE OUTCOMES:

At the end of this course the student will be able to:

- Demonstrate advanced setup of milling machine and lathe
- Identify the parts of a drill press, mill, and lathe
- Manufacture of center punch, c-clamp using engine lathe and milling machine
- Setup a single point thread operation on engine lathe
- Manufacture of thread project, tap handle
- Identify proper speeds and feeds for machine tools
- Demonstrate proper sharpening techniques for drill bits and lathe tool bits
- Demonstrate understanding of shop heat-treating
- Demonstrate holding and reading outside micrometers
- Demonstrate correct use of measuring tools
- Identify ferrous and nonferrous metals
- Demonstrate proper use of cutting fluids
- Demonstrate proper use of tool holders and tooling
- Identify uses of taps
- Interpret drawings and symbols on blueprints

REQUIRED TEXTS:

Machine Tool Practices, Kibbe, Neely, Meyer, White, & Warren; Prentice Hall, Columbus, OH.

Workbook: Machine Tool Practices, Kibbe, Neely, Meyer, White, & Warren; Prentice Hall, Columbus, OH

MATERIALS:

- Steel tape measure
- 6" scale
- Center punch
- Scribe
- 12" adjustable wrench
- Safety glasses

SHOP RULES:

1. No smoking in classroom, lab, or shop area
2. No horseplay
3. Appropriate clothing must be worn at all times while in shop
 - a. No loose sleeves, rings, ties, or untied long hair
4. Eye Protection must be worn at all times while in the shop
5. Start lab and class work at the scheduled time
6. Use only the materials designated for your project.
 - a. Ask the instructor if in doubt
7. Return shop tools to proper area after use.
8. Clean up your work area.
9. Clean and oil machines after use.
10. Have your tool box available for use on your projects.

COURSE OUTLINE

Draft Revision

Course No.: MFG113
Credit Hours: 3
Lecture Hours: 0
Lecture/Lab Hours: 6
Clock Hours: 66
Length of Course: 11 weeks
Prerequisite: MFG112

Course Title: **Machine Shop III**
Developed By: Dan Sprague
Date:
Revision Date: January 2009

COURSE DESCRIPTION:

This course covers and will build upon the skills learned in MFG112, with a continuing emphasis on the fundamentals and mechanics machine shop concepts and general shop practices involving the use of an engine lathe, milling machine, drill press, grinders, and other machine shop tools. Instruction will be provided in general machining techniques with safety and economy of operation being emphasized. Students will work at their own pace through specific projects.

COURSE OUTCOMES: At the end of this course the student will be able to:

- Manufacture complex projects
- Bore a hole in a large shaft to acceptable accuracy of depth and diameter
- Machine vise
- Hydraulic jack
- Hammer with tools

REQUIRED TEXTS:

Machine Tool Practices, Kibbe, Neely, Meyer, White, & Warren; Prentice Hall, Columbus, OH
Workbook: Machine Tool Practices, Kibbe, Neely, Meyer, White, & Warren; Prentice Hall, Columbus, OH

MATERIALS:

- Steel tape measure
- 6" scale
- Center punch
- Scribe
- 12" adjustable wrench
- Safety glasses

SHOP RULES:

1. No smoking in classroom, lab, or shop area
2. No horseplay
3. Appropriate clothing must be worn at all times while in shop
 - a. No loose sleeves, rings, ties, or untied long hair
4. Eye Protection must be worn at all times while in the shop
5. Start lab and class work at the scheduled time
6. Use only the materials designated for your project.
 - a. Ask the instructor if in doubt
7. Return shop tools to proper area after use.
8. Clean up your work area.
9. Clean and oil machines after use.
10. Have your tool box available for use on your projects.

COURSE OUTLINE

Draft Revision

Course No.: MFG 121
Credit Hours: 3
Lecture Hours: 3
Lecture/Lab Hours: 0
Clock Hours: 33
Length of Course: 11 weeks
Prerequisite: MTH 052 or MTH 060

Course Title: Hydraulics I
Developed By: Brad Albertus
Date: September 2011
Revision Date: September 2011

Course Description:

This introductory course covers the basic principles of hydraulics for millwright apprentices and hydraulic technicians. Included in this course are pressure, force and area relationships, velocity calculations, fundamentals of reservoir design, fluids and fluid flows, and principles of hydraulic pump design. Common industrial circuits are developed and studied to give the student a better understanding of how and where each component is best used.

Course Outcomes:

At the end of the course, the successful student will:

- Know and be able to state the relationship between:
 - Force, pressure and area
 - Flow, cylinder size and cylinder velocity
 - Hydraulic, mechanical and electrical horsepower
 - Horsepower input and output relationships
- Know and be able to identify the six major components of any hydraulic system
- Know and be able to state the purpose of each of the above named components
- Know and be able to state the operating principle of all positive displacement pumps
- Be able to recognize and correctly identify six different hydraulic pumps
- Know the difference between aeration and cavitations of a hydraulic pump
- Be able to read and connect a hydraulic circuit from a schematic drawing
- Be able to draw a schematic, using proper symbols, from a written statement of expected circuit performance
- Understand basic reservoir layout and design

Required Text:

Vickers Industrial Hydraulics Manual, Eaton, Current Edition, #935100-C

Course Outline

I Introduction of Hydraulics

- (1) Pascal's Law
- (2) Pressure Defined
- (3) How Pressure is Created
- (4) Computing Piston Area
- (5) Speed of an Actuator
- (6) Horsepower and Torque

II Introduction of Symbols

- (1) Drawing a simple hydraulic circuit

III Principles of Hydraulics

- (1) Atmospheric Pressure and how it effects a Hydraulic System
- (2) Measuring Vacuum
- (3) Oil Flow through a Hydraulic System
- (4) Bernoulli's Principle- Effects
- (5) Principles of Fluid
- (6) Fluid Properties
- (7) Defining Viscosity

IV Demonstration of hydraulic trainers

- (1) Hook up and operate a basic circuit

V SUS Viscosity- Meter

- (1) Viscosity fluid types

VI Fluid conductors

- (1) Fitting selection
- (2) Installation Recommendations
- (3) Fitting identification
- (4) Seals & Leakage

VII Function of a hydraulic reservoir

- (1) Understanding the importance of the reservoir layout
- (2) Theory behind the design

Course No.: **MFG122**
Credit Hours: 3
Lecture Hours: 3
Lecture/Lab Hours: 0
Clock Hours: 33
Length of Course: 11 weeks
Prerequisite: MFG121

Course Title: **Hydraulics II**
Developed By: Dan Jones
Date: January 2003
Revision/Review Date: April 2012

COURSE DESCRIPTION:

This is the second in a three course series. The focus of this course is on pressure relief valves, hydraulic actuators, and flow controls. Each of the above is studied in structured classroom sessions, while lab activities are directed at disassembly, inspection, and circuitry involving the specific component. Students will be using lab trainers to examine the operation of circuits using these components.

COURSE OUTCOMES:

At the end of the course, the successful student will:

- Know and be able to understand contamination control:
 - Source-both built in and in-gressed
 - Types of contamination and the effects
 - Be able to understand ISO and Beta charts
 - Where the best place is to add additional filtration.
- Learn about hydraulic actuators and how they are used.
- Understand when and where to use flow controls.
- Learn about hydraulic accessories including accumulators and pressure switches.
- Given a statement of expected outcomes, be able to draw a schematic of a hydraulic circuit using the proper symbols.
- Given a schematic of an existing hydraulic circuit, be able to correctly connect and operate that circuit.
- Gain trouble shooting experience in diagnosing hydraulic circuit requirements.

REQUIRED TEXT:

Vickers Industrial Hydraulics Manual, Eaton, Current Edition, #935100-C

COURSE OUTLINE

Week 1	Hydraulic Pumps Principle of a hydraulic gear pump
Week 2	Balanced and unbalanced vane pump Principle of hydraulic piston pump
Week 3	Operation of a pressure compensated controller Disassembly and reassembly of gear, vane and piston pumps
Week 4	Hydraulic Valves Two-way & three-way valves Spool and Poppet type valves Direct operated
Week 5	Complex directional controls Remote piloting, Solenoid controls
Week 6	Disassembly and reassembly of control valves
Week 7	Power unit startup Pressure Controls
Week 8	Relief valves Unloading valves Sequence valves
Week 9	Pressure and flow Controls Counter balance valves
Week 10	Pressure and temperature compensated flow controls
Week 11	Final Exam

Course No.: **MFG123**
Credit Hours: 3
Lecture Hours: 3
Lecture/Lab Hours: 0
Clock Hours: 33
Length of Course: 11 weeks
Prerequisite: MFG122

Course Title: **Hydraulics III**
Developed By: Dan Jones
Date: January 2003
Revision/Review Date: April 2012

COURSE DESCRIPTION:

This is the final course in a three course series for practicing millwrights desiring instruction in industrial hydraulics. This course concerns itself with common industrial hydraulic circuits. Each student will study contamination control, hydraulic actuators, flow controls, and hydraulic accessories. Circuits using those components are fabricated, discussed and studied during structured lab sessions.

LEARNER OUTCOMES:

At the end of the course, the successful student will:

- Know and be able to understand contamination control:
 - Source-both built in and ingressed
 - Types of contamination and the effects
 - Be able to understand ISO and Beta charts
 - Where the best place is to add additional filtration.
- Learn about hydraulic actuators and how they are used.
- Understand when and where to use flow controls.
- Learn about hydraulic accessories including accumulators and pressure switches.
- Given a statement of expected outcomes, be able to draw a schematic of a hydraulic circuit using the proper symbols.
- Given a schematic of an existing hydraulic circuit, be able to correctly connect and operate that circuit.
- Gain trouble shooting experience in diagnosing hydraulic circuit requirements.

REQUIRED TEXT:

Vickers Industrial Hydraulics Manual, Eaton, Current Edition, #935100-C

COURSE OUTLINE

Week 1	Pressure controls Directional valve symbols
Week 2	Contamination control Sources of contamination Effect on functions of hydraulic fluid Relative size of micronic particle Measurement of contamination
Week 3	Methods of taking fluid sample ISO solid contamination codes
Week 4	Establishing a target cleanliness level Achieving target cleanliness, & Filtration products
Week 5	Hydraulic Actuators Linear actuators (Hydraulic cylinders)
Week 6	Hydraulic Actuators Rams & telescoping Single & double acting Cushions & mounting styles
Week 7	Rotary actuators (hydraulic motors) Gear, Gerotor, Vane, and Piston
Week 8	Flow Controls Types & Flow control methods
Week 9	Cartridge valves Cartridge valve concept
Week 10	Hydraulic Accessories Accumulators & applications Intensifiers & pressure switches
Week 11	Final Exam



Course Number: MTH 52
Course Credit: 4
Lecture Hrs/Wk: 44
Clock hrs: 44
Length of Course: 11 wks
Prerequisite (registration enforced): MTH 20
with a C or better, placement test score, or instructor permission
Load Factor: 4 ILC
Activity Code:
CIPS:

COURSE TITLE: Introduction to Algebra for the Trades
OUTLINE DEVELOPED BY: Mariah Beck
DATE DEVELOPED: October 2005 (revised 2007; reviewed 2011, 2012)

COURSE DESCRIPTION:

This is an introductory algebra and geometry class in professional-technical mathematics. Topics that are covered include measurement and conversions, signed numbers, algebraic equations and formulas, ratio and proportion, perimeters, areas, volumes, reading and interpreting graphs, and measures of central tendency. Mth 52 does not serve as a prerequisite for Mth 65.

LEARNER OUTCOMES:

Upon successful completion of the course the student will be able to:

1. Use mathematical problem solving techniques involving linear equations and formulas.
2. Use appropriate technology to solve mathematical problems and to judge the reasonableness of results.
3. Identify geometric shapes and compute perimeters, areas, and volumes.
4. Be able to analyze and interpret data using a variety of graphs and measures of central tendency.

TEXT AND MATERIALS:

Mathematics for Vocational and Technical Students, by Boyce, Margolis, and Slade; Prentice Hall
scientific calculator (recommended); stapler (optional)

COURSE OUTLINE:

- I. Number Sense:
 - A. Computations on whole numbers and fractions (addition, subtraction, multiplication, division, powers, and roots) using order of operations.
 - B. Conversions (U.S. and metric system)
 - C. Percentages
 - D. Technology: using a scientific calculator
- II. Introduction to Algebra
 - A. Signed numbers
 - B. Using formulas
 - C. Solving algebraic equations with applications
 - D. Ratios and Proportion
- III. Geometry
 - A. Properties of Geometric Shapes: rectangles, triangles, quadrilaterals, polygons, circles
 - B. Using the Pythagorean Theorem
 - C. Computing perimeters, areas, and volumes
- III. Statistics
 - A. Reading, interpreting, and creating graphs
 - B. Measures of central tendency



Course Number: MTH 75
Course Credit: 3
Lecture Hrs/Wk: 3
Clock hrs: 33
Length of Course: 11 wks
Prerequisite (registration enforced): MTH 60
with a C or better, placement test score, or instructor permission
Load Factor: 4 ILC
Activity Code:
CIPS:

COURSE TITLE: Applied Geometry
OUTLINE DEVELOPED BY: Mariah Beck
DATE DEVELOPED: March 2003 (revised 2007; reviewed 2011, 2012)

COURSE DESCRIPTION:

This course is designed to further the application and understanding of informal geometric concepts for those students wishing to fill in gaps in their mathematical backgrounds and to prepare themselves for higher level math course. This course emphasizes geometric concepts rather than formal proofs.

COURSE OBJECTIVES:

Upon successful completion of the course the student will be able to:

1. Operate proficiently with whole numbers, fractions, and decimals.
2. Perform algebraic operations and solve algebraic equations.
3. Use ratio and proportion to solve application problems.
4. Calculate area and perimeter of plane figures.
5. Calculate volume and surface area of solids.
6. Use right triangle trigonometry to solve application problems.

TEXT and MATERIALS:

Mathematics for Vocational and Technical Students, by Boyce, Margolis, and Slade, Prentice Hall
scientific calculator, graphing paper, 6 or 12" ruler, stapler (optional)

COURSE OUTLINE:

- | | |
|--|--|
| I. Review of basic operations | III. Circles and The Ellipse (Ch 8) |
| A. Whole numbers, Fractions, Decimals (Ch 1,2,3) | A. Circumference and area |
| B. Percentages (Ch 4) | B. Areas of Rings |
| C. Ratios and Proportions, Averages (Ch 5) | C. Arcs and Sectors |
| D. Algebra - using formulas (Ch 6) | |
| II. Rectangles and Triangles (Ch 7) | IV. Solids (Ch 9) |
| A. Perimeter and Area | A. Types of Solids |
| B. Right Triangles and Pythagorean Theorem | B. Volume formulas |
| C. Isosceles Triangles | C. Lateral Surface areas |
| D. Scalene triangles - Hero=s formula | D. Volumes of Rings and Composite Solids |
| E. Angles in Triangles | E. Density and weight |
| | F. Board measure |
| III. Quadrilaterals and Regular Polygons (Ch 8) | V. Trigonometry (Ch 15) |
| A. Types of Regular Polygons | A. Solutions of Right Triangles |
| B. Types of Quadrilaterals | B. Applications |
| C. Trapezoids | |
| D. Area and perimeters | VI. Pulleys and Gears (Ch 19, 22) |



Course Number and Title: WLD 131- Basic Metallurgy CRN: #####
Credits: 3 **Lab Hours:** 5 **Class:** M-W 6-8:30
Lecture Hours: 2 **Length:** 11 weeks **Prerequisite:** WLD 101

Instructor and Office Hours:
 Ian Fisher (Welding Instructor/ Coordinator/ CWI) 1-2:00 M-T-W-R (541) 440-7819
Ian.Fisher@umpqua.edu

COURSE DESCRIPTION:

This course covers the principles related to metals, their structure and physical properties. The testing of various metals, their uses and the results of heat treating are explored. Laboratory time is provided for experiments and demonstrations to correlate with classroom activities.

COURSE OUTCOMES:

The student will be evaluated on his/her ability to demonstrate the development of course competencies.

EXPECTED STUDENT COMPETENCIES

Safety practices

Continue to follow safe working practices demonstrated and tested on in WLD 101
 Function safely in the UCC Welding Shop.

Practical Metallurgy

Understand the reasons for studying Metallurgy and it's applications in welding
 Utilize and experience practical lab situations pertaining to Metallurgy
 Understand Metallurgical & Chemical Terminology: (See list below)
 Have a basic understanding of materials (both Ferrous & Nonferrous) and their properties
 Understand Crystal Structure and atomic structure of materials
 Understand failure & Deformation of metal
 Understand Phase changes as it relates to Steel, atomic structure, characteristics, etc.

TERMS TO KNOW:

- | | | | | |
|-------------------|-----------------------------|-----------------------|--------------------------|--------------------|
| 1. Aging | 2. Alloy | 3. Anneal | 4. Austenite | 5. Base Metal |
| 6. Brittleness | 7. Carburizing | 8. Case Hardening | 9. Cladding | 10. Cold Rolling |
| 11. Conductivity | 12. Deformation | 13. Density | 14. Ductility | 15. Elasticity |
| 16. Equilibrium | 17. Extrusion | 18. Fatigue in Metals | 19. Ferrous | 20. Forging |
| 21. Fracture | 22. Fusion | 23. Grain | 24. Hardening | 25. Hard Facing |
| 26. Hardness | 27. Heat Sink | 28. Hot Rolling | 29. Hydrogen Brittleness | 30. Inclusions |
| 31. Malleability | 32. Nonferrous | 33. Normalizing | 34. Oxidation | 35. Peening |
| 36. Permeability | 37. Precipitation Hardening | 38. Quenching | 39. Scale | 40. Slag |
| 41. Soaking | 42. Strain | 43. Strength | 44. Stress | 45. Stress Riser |
| 46. Stress Relief | 47. Tempering | 48. Thermal | 49. Thermal Expansion | 50. Thermal Stress |
| 51. Torque | 52. Torsion | 53. Void | 54. Weld Metal | |

Necessary Materials & Supplies

TEXT BOOK:

Metallurgy Fundamentals Ferrous and Nonferrous (4th edition), Daniel A. Brandit & J.C. Warner, The Goodheart-Willcox Company, Inc. (Required)

Materials & Supplies

Students are required to purchase and bring safety goggles to all lab sessions; work will not be permitted without the proper safety equipment. A current equipment list for each of the welding classes will be distributed on the first class meeting. Please refer to this current equipment list for necessary items such as; lab coat, welding gloves, welding hood, chipping hammer, etc. These items should also be purchased by the new welding student. Specific materials from this current equipment list will be discussed the first class meeting. Lockers are also available for student use, if interested please see me, Mitch Cugley and or Student aid in the main Auto Lab Tool Crib may also be of assistance.

Required Reports

There are no required reports for this course.

Class Etiquette

Each student is expected to keep up with the class lectures and lab work. This includes current reading assignments in the text and completion of all lecture and lab assignments. Students should be aware that this is a “learn by doing” environment, and that lab exercises and participation is mandatory.

Class Etiquette

An additional focus of this course is to assist the student in learning the “soft skills” required for employment. These skills include but are not limited to Attitude, Professionalism, Work Ethics, and general knowledge of Tools and Safety. Students are advised to conduct themselves in a business like manner. As always cell phones and chewing tobacco are prohibited, as well as food and beverages, please reserve these activities for before and after class or during breaks. **All students will be held to the rules and guidelines of the current UCC Student Code of Conduct, copies of which are available at registration and the counseling center.**

UCC is committed to supporting all students. Any student who feels he or she may need an accommodation for any type of disability should make contact with the Disability Services Office in the Advising and Career Service Center of the Campus Center Building. If you plan to use academic accommodations for this course, please contact your instructor and our office as soon as possible to discuss your needs. Accommodations are not retroactive; they begin when the instructor receives the “Approved Academic Accommodations” letter. To request academic accommodations for a disability, please contact a Disability Service Coordinator. Phone (541) 440-7655 or (541) 440-4610 or Oregon Relay 1-800-735-2900.

Veterans and active duty military personnel with special circumstances are welcome and encouraged to communicate these, in advance if possible, to Danielle Haskett in Disability Services.

- **Additional information may be found at the Disability Services web page at:**
<http://www.umpqua.edu/disability-services-home>
- **New and returning students may access information at:**
<http://www.umpqua.edu/your-first-term>

Test Schedule & Make-ups

All tests are proctored according to the official college schedule and this courses scope and sequence (see attached). There will be no test make-ups, and all special considerations must be arranged before the day of testing. For the final testing schedule please see the official College Final Exam Schedule printed in the specified term schedule.

Grading

You are required to demonstrate skills that meets or exceeds industry standards, thus all lab work must be evaluated as “pass or fail”. If lab work receives a “fail” upon evaluation the student must redo or repair the lab assignment to prove that he or she has met or surpassed the industries standard. Student grades will be a result of four different categories; Tests and Quizzes, Lab work, Participation, and Professionalism. In addition to these categories daily points will be earned by the student for their participation, professionalism, lab work, and cleanup 1pt. a piece for a total of 4pts. per day. The final exam may be cumulative, and will be added to the other test scores for an overall test grade. Students are expected to keep up with the outline of the class (see attached). Weekly chapter work assignments are due no later than the first class meeting of the following week. Homework assignments will also be worth 1pt. apiece and late work will not be accepted after the last class meeting. Likewise, all lab work for the term is due by the end of the course, with a “pass” or better quality stamp of approval given by the instructor. Lab work receiving less than the quality standard set by the instructor and industry must be redone. Frequent “Pop Quizzes” will be given in lecture, students will receive 2pts. for these assignments. These quizzes will happen at the beginning of lecture students must be present and participate with quizzes for full credit. Major exams, such as, the final, midterm and other tests will be announced ahead of time so students will have enough preparation time. The final course grade will be a combination of all categories listed above with a grading scale as follows.

Over all Grading Scale			Break down of Graded Elements
A = 100 – 90%	Dailey	}	Participation = 1 pt.
B = 89 – 80%			Professionalism = 1 pt.
C = 79 – 70%			Lab work = 1 pt.
D = 69 – 60%			Cleanup = 1 pt.
F = 59 – 0%			} 40%
			Cumulative Lab Exercises = TBA 10%
			Assignments/Chapter work = 1 pt. 10%
	Final Exam	}	Written Final = 40%
			Performance Final = n/a

*Participation:

Completion/working towards lab exercises and homework
 Use of time once labs are completed
 Clean-Up (booth/personal work space & Common work spaces e.g. Bandsaw, Burn table, Grinding area etc.)
 Overall Class Involvement (Lecture & Lab)
 No more than one break per lab session
 Be inquisitive, questions help the entire class understand course material better

*Professionalism:

On time ready & prepared for Lectures & Labs
 Follow-through and completion of assignments and projects (project for lab, customer, personal)
 Quality of work and overall concern and care in a job well done (class & lab assignments)
 Time Frame Awareness
 Good Communication Skills (with instructor & peers)
 A positive Attitude & good work Ethics



Course Number and Title: WLD 140- Blue Print Reading & Sketching CRN: 30108
Credits: 3 **Lab Hours:** Class: Thurs. 6-8:50pm
Lecture Hours: 3 **Length:** 11 weeks **Prerequisite:** N/A

Instructor and Office Hours:

Duane Thompson (Welding Instructor) 1-2:00 M-T-W-R (541) 440-7820
Duane.Thompson@umpqua.edu

COURSE DESCRIPTION:

This course covers basic sketching and reading of shop drawings. A study is made of three-view drawings, pictorial drawings, dimensioning, lines, notes, and weld symbol interpretation. This is an outcome based course utilizing a lecture, demonstrations and, lab formats. This course includes, but is not limited to: classroom discussions, multimedia presentations, and lab demonstrations covering technical skills.

COURSE OUTCOMES:

The student will be evaluated on his/her ability to demonstrate the development of course competencies.

EXPECTED STUDENT COMPETENCIES

Skills Building and Development

Know the basic lines involved in the construction of a blueprint
Sketch a three-view orthographic drawing from a pictorial view
Identify different views on a blueprint
Interpret notes and symbols on a blueprint
Understand, implement, and convert different scales and units of measurement (standard& metric)
Know and interpret weld symbols and dimensions
Construct a "List of Materials" from a given blueprint
Know the purpose of a "Title Block"
Demonstrate professional work habits (Ethics & Soft skills)
Interpret drawings and symbols to accurately layout a project; prepare and assemble to specified tolerances; all weld symbols are accordance to AWS standards.

Necessary Materials & Supplies

Textbook

Basic Blueprint Reading For Welders (8th edition), A.E. Bennett, Louis J. Siy, Delmar Cengage Learning (Required)

Materials & Supplies

Students are required to purchase and bring a T- square, scale, compass, protractor, triangles (x2) 30-60-90 & 45-90, pencil, eraser, to all lecture/lab sessions. Class work will often consist of completing drawings and sketches, the general use of the previously mentioned drawing equipment are essential. The specific materials for this class will be discussed at length the first class meeting.

Required Reports

There are no required reports for this course.

Class Etiquette

Each student is expected to keep up with the class lectures and lab work. This includes current reading assignments in the text and completion of all lecture and lab assignments. Students should be aware that this is a “learn by doing” environment, and that lab exercises and participation is mandatory.

Class Etiquette

An additional focus of this course is to assist the student in learning the “soft skills” required for employment. These skills include but are not limited to Attitude, Professionalism, Work Ethics, and general knowledge of Tools and Safety. Students are advised to conduct themselves in a business like manner. As always, cell phones and tobacco products are prohibited, as well as, food and beverages please reserve these activities for before and after class or during a break.

***Any student who feels that he or she may need an accommodation for any type of disability or assistance with note taking, testing, or is in need of tutoring, please make an appointment with me, or contact Barb Stoner in Disability Services located in the Campus Center.

Test Schedule & Make-ups

All tests are proctored according to the official college schedule and this courses scope and sequence (see attached). There will be no test make-ups, and all special considerations must be arranged before the day of testing. For the final testing schedule please see the official College Final Exam Schedule printed in the specified term schedule.

Grading

You are required to demonstrate skills that meets or exceeds industry standards, thus all lab work must be evaluated as “pass or fail”. If lab work receives a “fail” upon evaluation the student must redo the lab assignment to prove that he or she has met or surpassed the industries standard. Student grades will be a result of four different categories; Tests and Quizzes, Lab work, Participation, and Professionalism. The final exam may be cumulative, and will be added to the other test scores for an overall test grade. Students are expected to keep up with the scope and sequence of the class (see attached). Homework assignments for the week are due no later than the first class meeting of the following week. Again, all lab work for the term is due by the end of the course, with a “pass” or better quality stamp of approval given by the instructor. Lab work receiving less than the quality standard set by the instructor and industry must be redone. Major exams, such as, the final, midterm and other tests will be announced ahead of time so students will have enough preparation time. The final course grade will be a combination of all four categories listed above with a grading scale as follows.

***Participation:**

Completion/working towards lab exercises and homework

Use of time once labs are completed

Clean-Up (booth/personal work space & Common work spaces e.g. Bandsaw, Burn table, Grinding area etc.)

Overall Class Involvement (Lecture & Lab)

No more than one break per lab session

Be inquisitive, questions help the entire class understand course material better

A = 100 – 90%

B = 89 – 80%

C = 79 – 70%

D = 69 – 60%

F = 59 – 0%

Contact information:

Duane Thompson
Welding Instructor
Umpqua Community College
Duane.Thompson@umpqua.edu
(541) 440-7820

***Professionalism:**

On time ready & prepared for Lectures & Labs

Follow-through and completion of assignments and projects (project for lab, customer, personal)

Quality of work and overall concern and care in a job well done (class & lab assignments)

Time Frame Awareness

Good Communication Skills (with instructor & peers)

A positive Attitude & good work Ethics

Office hours:

1:00pm – 2:00pm

MEMORANDUM

To: Curriculum Committee/Instructional Committee

From: Clay Baumgartner, Chair, Engineering/CIS Department
Ken Carloni, Chair, Science Department

cc: Roxanne Kelly, Vice President of Instruction
Jesse Morrow, Dean, CTE
Jason Aase, Dean, Arts & Science

Date: April 6, 2016

Re: **NATURAL RESOURCES AND FORESTRY PROGRAMS, CROSS LISTING OF COURSES**

PROPOSAL

The Engineering/CIS Department and Science Department have jointly submitted course revision forms to add the prefix "FOR" and cross list 10 existing UCC courses. This is the only change proposed. A list of the 10 courses is attached.

We believe that cross listing is important for the short-term and long-term viability of both the new Natural Resources and Forestry programs at UCC.

Multiple educational pathways and multiple career pathways are necessary to support enrollment in UCC courses and increases opportunities for employment of UCC graduates. Cross listing makes it easier for business and industry to recognize the multiple educational pathways, makes it easier for students to identify courses related to their areas of interest, should simplify advising and is expected to increase enrollment.

Cross-listing of courses has many benefits including improved student success, helping to maintain viability of career programs, and increasing student enrollment. However, cross-listing of courses will create some additional administration work for the registrar's office and has potential to create some confusion on course prefixes. This memorandum has been prepared to summarize how these issues might be addressed.

CROSS-LISTING, COORDINATION AND ADMINISTRATION

Cross-listing is common at other colleges. Attached is an example of a course at LCC that has been cross-listed with both a GIS and GEOG prefix.

When a course is cross listed, it is listed in catalog and schedule with both prefixes. For the Forestry and Natural Resources program we have proposed to keep the course number and the course title identical. We have also proposed to add a note in the catalog descriptions that states the course are cross-listed.

The UCC registrar's office has identified a list of concerns about cross-listing, including concerns about added work load with limited staff. These are valid concerns and recognize the issues need to be addressed

We believe that keeping the same course number and course name, and including a note on cross listing in the course description, will help to minimize confusion to students. At UCC, major-related courses are generally only offered once a year, and cross listing should reduce confusion for students by making it easier to identify program related courses. The course descriptions will be repeated in the catalog and schedule for both prefixes which may add to the number of pages, however, these documents are now mostly digital (limited printed) so additional printing costs would be minimal. The college has software that should automate and may reduce related administration. Staff at a faculty level work with the transfer universities on course equivalency agreements for major-specific courses, and cross-listing actually should simplify these agreements. Other colleges cross list courses, and although staffing may be different, it may be possible to utilize some of their procedures.

The list of concerns from the registrar's office includes:

- Be confusing to students – will it be clear to them that NR 241 and FOR 241 are NOT different courses?
- Cause issues with our repeat policy – what if a student completed NR 241 and then re-enrolled in FOR 241?
- Create maintenance issues for the catalog – courses will have to be listed twice
- Create system maintenance issues degree audit and student planner – programs will have to be set up to advise both course numbers but only accept one
- Create maintenance issues with the course schedule and the setup of sections (both courses would be offered in the same place at the same time needing someone to maintain in both Banner and R25) and the enrollment capacities would have to be setup in a least three different areas
- Create confusion with transfer credit – which course would a transfer student be given credit for?
- Create issues with receiving transfer schools- they will need to articulate and evaluate both courses to what they offer there
- Create additional steps for IR and reporting – these course numbers will have to be rolled together to provide accurate FTE
- Students after the fact (even years later) asking to be switched to the other course for various reasons.

CROSS LISTING OF FORESTRY/NATURAL RESOURCES COURSES

OSU	PROPOSED CROSS LISTING		
	UCC		
College of Forestry	Forestry	Natural Resources	Other Programs
FE 102 Forestry Engineering Problem Solving & Technology or FOR 112 Computing Applications in Forestry	FOR 112 Problem Solving & Technology		ENGR 112 Problem Solving & Technology
FES 141 Tree & Shrub Identification	FOR 141 Tree & Shrub Identification	NR 241 Tree & Shrub Identification	
FOR 111 Intro to Forestry or NR 201 Managing Natural Resources for the Future	FOR 201 Intro to Natural Resources	NR 201 Intro to Natural Resources	
FOR 206 Soil Science Lab	FOR 206 Soil Science Lab		SOIL 206 Soil Science Lab
FE 208 Forest Surveying	FOR 261 Surveying I		SUR 161 Surveying I
FE 209 Forest Photogrammetry	FOR 209 Photogrammetry & Intro to Remote Sensing		SUR 209 Photogrammetry & Intro to Remote Sensing
FE 257 GIS & Forestry Applications	FOR 234 GIS I		GIS 234 GIS I
FES 240 Forest Biology	FOR 240 Forest Biology	NR 240 Forest Biology	
FES 241 Dendrology	FOR 241 Dendrology	NR 241 Dendrology	
FES 251 Recreation Resource Management	FOR 261 Recreation Resource Management	NR 261 Recreation Resource Management	

Commercial/Instrument Pilot in single-engine, multi-engine airplanes and helicopter. Professional Pilot students may be prepared to become qualified as flight instructors with ratings so they may provide Instrument Instruction and multi-engine airplane instruction. The Professional Pilot Course is a comprehensive course of study including preparation that will meet Airline Transport Pilot (ATP) proficiency. Emphasis throughout the Professional Pilot Course is placed on instrument piloting skills and the use of conventional and advanced navigation systems including GPS and digital/electronic display technology. This course is repeatable.

FT 249 Flight 10 1-3 credits
This course will present the principles of attitude instrument flying using a simulator. The course will cover all instrument procedures used under instrument flight conditions.

FT 250 Private Pilot Ground School 5 credits
This course introduces and develops each knowledge and skill areas essential for successful completion of the FAA written examination for a Private Pilot Airplane and/or Helicopter. Topics include FARs, airplane structures, aerodynamics, meteorology, navigation, accessing and using performance data and numerous other industry information resources. May be offered online.

FT 251 Commercial Pilot Ground School 4 credits
Recommend private pilot license or equivalent. This course develops the knowledge and skills required for a candidate to successfully complete and pass the FAA written test required to be certificated as a commercial pilot.

FT 252 Instrument Ground School 4 credits
Recommend completion of Commercial Pilot Ground School FT 251. This course prepares the student for successful completion of the FAA written examination required for an instrument rating. The course develops an understanding of the IFR environment, systems and procedures.

FT 254 Aerodynamics 3 credits
An analysis of the physics of flight; the characteristics of high-speed and low-speed flight and the effects of pressure, altitude, weight, center of gravity, and airfoil design on aircraft performance.

FT 255 Fundamentals of Instruction and Human Factors 3 credits
Psychological principles of the human learning process with methods to improve instructor effectiveness. Human factors including hazardous attitudes, fatigue, human error, decision making, cockpit design and ergonomics of the man/machine interface are covered. Studies CRM to improve crew coordination and situational awareness.

FT 256 Flight Instructor-Airplane and Instrument Flight Instructor-Airplane Ground School 3 credits
Details of airplane flight operations and maneuver analysis, FAA regulations, and recommended procedures for CFIs. CFI-I prep includes a concise review of airspace, regulations, radio navigation, and meteorology specific to IFR flight. Prepares students for the FAA Flight Instructor-Airplane and Instrument Flight Instructor written exams.

FT 261 Air Traffic Control and Airspace 1 credit
Co-requisite: FT 251. A review of Air Traffic Control (ATC) procedures and communications, radar and non-radar operations, navigational aids, and airspace classifications to include operational requirements for various airspace classifications. At completion of this course the student should be able to understand and apply critical elements of ATC within the National Airspace System. NOTE: FT 251 and FT 261 are co-requisites and must be taken concurrently.

FT 262 Aviation Law and Regulations 1 credit
Co-requisite: FT 252. A review of regulations and enforcement actions primarily referencing 14 CFR but also including International (ICAO) regulations. Aircraft and pilot certification, rule-making legislation and implementation, and an analysis of aviation regulatory environments and processes will be reviewed, including legal decisions resulting from specific incidents. At completion of this course the student should be able to understand and apply pertinent regulations from 14 CFR to instrument and commercial flight operations. NOTE: FT 252 and FT 262 are co-requisites and must be taken concurrently.

FT 280 Co-op Ed: Flight Tech 3-12 credits
This course provides students with flight-related learning in businesses and public organizations as well as integrating theory and practice gained in the classroom with practical experience in the

professional world. Students may develop skills, explore career options and network with professionals and employers while earning credit toward a degree.

GS 109 Meteorology 5 credits
This course is a survey of the field of meteorology with detailed emphasis on the elements specific to the aviation industry. Students exit this course understanding how to access, analyze and use weather data to make decisions essential for safe flight.

Foreign Languages-See Language Studies

French-See Language Studies

Geography

For information, contact the Social Science Division, Center Bldg./Rm. 403, 541.463.5427.

GEOG 141 Natural Environment 4 credits
This course is designed to introduce and analyze natural processes and the impacts of human/cultural activities operating in our environment. Dynamic processes create and alter landforms, climatic patterns, and biotic regional differences on the earth's surface. Understanding the causes and results of global climate change as it impacts future geographies is a fundamental theme in this course. Analysis of natural processes with added human impacts will introduce the student to scientific methodologies, using graphs, models and mapping techniques. This course is strongly recommended as a prerequisite for ENVS 184, Global Climate Change. This course meets the AAOI science or social science requirement. May be offered online.

GEOG 142 Introduction to Human Geography 4 credits
This course is an introduction to human geography patterns and concepts that help explain the spatial distribution for contemporary cultures. Concepts of region, movement of cultural ideas, and human interaction with their natural and built environment are stressed. Globalizations and changes in cultures resulting from environmental alterations will be presented. Changing cultural patterns will be explored and analyzed using maps, videos, and in-class exercises. This course fulfills the race, gender, and ethnicity requirement. May be offered online.

GEOG 151 Digital Earth 4 credits
Prerequisite: MTH 060 or above. CIS 101 is strongly recommended. Digital Earth is a computer-aided instructional introduction to geospatial concepts course that includes both lectures and hands-on computer labs that implement various geospatial technologies to explore fundamental concepts and theories in cultural and physical geography. Students will be introduced to spatial theory and technology. Students will focus on how spatial technology is woven into our daily lives and what can be accomplished with web-based spatial technologies. Students will learn how technologies such as GPS, Google Earth, Multispec and I-Tree Canopy can be used to solve real-world problems and aid critical decision making.

GEOG 201 World Regional Geography 3 credits
An introduction to major culture regions of the world through the study of human patterns and the natural environments. Cultures, resources, and historical contexts illuminate the world's distinctive regional nature. An emphasis is placed on development within the context of globalization. GEOG141 or GEOG142 is recommended prior to this class.

GEOG 223 Geography of the Muslim World 4 credits
Presents Islam as a major cohesive component of Muslim culture. Students will study cultural traits and physical environments influenced by Islam, its distinctive and unifying cultural expression in the Muslim world. Spatial patterns, cultural landscapes, and non-western points of view are key.

GEOG 280 Co-op Ed: Geography 2-12 credits
This course provides the student with geography-related work experience in community businesses and organizations. Students will have the opportunity to integrate theory and practice gained in the classroom with practical experience in the professional world. In this course a student may develop skills, explore career options and network with professionals while earning transferable college credit.

GIS 151 Digital Earth 4 credits
Prerequisite: MTH 060 or above. CIS 101 is strongly recommended. Digital Earth is a computer-aided instructional introduction to geospatial concepts course that includes both lectures and hands-on

UCC Course Revision

Basic Information

Name of Course Revision Contact: Clay Baumgartner

Date: 04-05-2016

Contact Title: Department Chair

Department: ENGR/CIS

Course Number: ENGR 112/FOR 112

Course Title: Problem Solving and Technology

Course Revision Information

Type of change

Revision

Reactivation

Deletion

Date, Year, and Term of Proposed Revision: Fall 2016

Parent Program:

Course Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.
Cross listing with FOR prefix . No other changes. Multiple educational pathways are necessary to support enrollment. The cross listing makes it easier for business and industry to recognize the multiple educational pathways, makes it easier for students to identify courses, should simplify advising and is expected to increase enrollment.

Course Revision Impacts - *select all that apply*

Instructional costs (staff, materials, equipment, or facilities) required.

Additional instructional costs (staff, materials, equipment, or facilities) are needed.

Impact to other divisions in terms of classes and staffing

Other:

Description of Impact

If your revision will have one of the impacts listed above, please describe...

UCC Course Revision

List current information and proposed changes

	CURRENT		PROPOSED <i>if no changes put "same"</i>
Course number	ENGR 112	Course number	ENGR 112/FOR 112
Course title	Problem Solving and Technology	Course title	Same
Credits	3	Credits	Same
Lecture Hrs/Wk	3	Lecture Hrs/Wk	Same
Lec/Lab Hrs/Wk		Lec/Lab Hrs/Wk	
Lab/Hrs/Wk		Lab/Hrs/Wk	
Practicum		Practicum	
Banner/Instr. Prerequisites	MTH 65	Banner/Instr. Prerequisites	Same
Co-requisites		Co-requisites	
Length (Weeks)	11	Length (Weeks)	Same
Terms Offered	Winter	Terms Offered	Same
Grading Option	A-F	Grading Option	Same
Load Factor	3	Load Factor	Same

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

Course Outline - required

Other:

ENGR112/FOR112 Problem Solving and Technology Course Outline

Course No: ENGR112/FOR112
Course Credit: 3
Lecture Hrs/wk: 3
Lab Hrs/Wk:
Lecture/Lab Hrs/Wk:
Practicum Hrs/Wk:
Clock Hours: 33
Length of Course: 11 wks
Banner enforced Prerequisite:
Instructor enforced Prerequisite:
Co-Requisite:
Load Factor: 3
Activity Code: 100
CIPS: 140101

Course Title: **Problem Solving and Technology**
Developed By: Clay Baumgartner, PE
Development Date:
Revision Date: 04/05/16
Review Date:

COURSE DESCRIPTION:

Systematic approaches to engineering problem solving using computers and technology. Logical analysis, flowcharting, input/output design, introductory computer programming are covered. Two distinct software applications will be utilized in this course, Microsoft EXCEL® and MathWorks MATLAB®. This course is cross listed as both ENGR 112 and FOR 112.

COURSE TOPICS:

- Concepts and principles of computation.
- Computational language fundamentals
- Macros and script files
- Graphical displays (2D)
- Program modules: functions and algorithms
- Elementary decision structures
- Numerical analysis
- Symbolic manipulation

COURSE OUTCOMES:

1. Discuss concepts and principals of computations.
2. Demonstrate use of engineering software to solve applicable engineering problems.
3. Demonstrate knowledge of the basic capabilities of Excel.
4. Demonstrate knowledge of basic descriptive statistics to analyze and describe data – mean, median, mode, standard deviation, charts, graphs, and histograms.
5. Demonstrate the basic capabilities of MATLAB programming applications.
6. Represent an engineering problem using a flowchart.
7. Translate a flowchart into a basic computer program.
8. Develop Graphic User Interfaces (GUI).

COURSE OUTLINE:

ENGR 112

#1	Introduction MATLAB	Syllabus	Homework Set 1	
#2	MATLAB		Homework Set 2	
#3	MATLAB		Homework Set 3	
#4	MATLAB		Homework Set 4	
#5	MATLAB		Homework Set 5	
#6	Excel Fundamentals –		Homework Set 6	

#7	Excel – MATLAB		Homework Set 7	
#8	Excel MATLAB		Homework Set 8	
#9	Excel MATLAB		Final Project	
#10	Excel MATLAB		Final Project	
#11	Final Exam and Final Project Due			

UCC Course Revision

Basic Information

Name of Course Revision Contact: Clay Baumgartner

Date: 04-05-2016

Contact Title: Department Chair

Department: Engineering/CIS

Course Number: GIS234/FOR234

Course Title: GIS I Introduction to Geographic Information Systems

Course Revision Information

Type of change

Revision

Reactivation

Deletion

Date, Year, and Term of Proposed Revision: Fall 2016

Parent Program:

Course Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.
Cross listing with FOR prefix . No other changes. Multiple educational pathways are necessary to support enrollment. The cross listing makes it easier for business and industry to recognize the multiple educational pathways, makes it easier for students to identify courses, should simplify advising, and is expected to increase enrollment.

Course Revision Impacts - *select all that apply*

Instructional costs (staff, materials, equipment, or facilities) required.

Additional instructional costs (staff, materials, equipment, or facilities) are needed.

Impact to other divisions in terms of classes and staffing

Other:

Description of Impact

If your revision will have one of the impacts listed above, please describe...

UCC Course Revision

List current information and proposed changes

	CURRENT		PROPOSED <i>if no changes put "same"</i>
Course number	GIS234	Course number	GIS234/FOR234
Course title	GIS I Introduction to Geographic Information Systems	Course title	Same
Credits	3	Credits	Same
Lecture Hrs/Wk		Lecture Hrs/Wk	
Lec/Lab Hrs/Wk		Lec/Lab Hrs/Wk	
Lab/Hrs/Wk	2	Lab/Hrs/Wk	Same
Practicum		Practicum	
Banner/Instr. Prerequisites		Banner/Instr. Prerequisites	
Co-requisites		Co-requisites	
Length (Weeks)	11	Length (Weeks)	Same
Terms Offered	Winter	Terms Offered	Same
Grading Option	A-F	Grading Option	Same
Load Factor	4.4	Load Factor	Same

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

Course Outline - required

Other:

GIS 234/FOR 234
GIS I Introduction to Geographic Information Systems
Department of Engineering, CIS, and CS
Umpqua Community College
Winter 2016

Course No:	GIS 234/FOR 234
Course Credit:	4
Lecture Hrs/wk:	3
Lab Hrs/Wk:	2
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	55
Length of Course:	11 wks
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	
Co-Requisite:	
Load Factor:	4.4
Activity Code:	100
CIPS:	450702

Course Title: **GIS I Introduction to Geographic Information Systems**

Developed By: Clay Baumgartner, PE

Development Date:

Revision Date: 10/18/15

Review Date:

Catalog Description:

This course is designed as an introduction to GIS and the spatial concepts it promotes. An understanding of digital geographic information and the intelligence behind it will be understood. ArcGIS is the software program used for spatial data input, analysis, and display. This course is cross listed as both GIS 234 and FOR 234.

Course Outcomes:

The material for this course will be presented in the following basic topic areas:

1. Recognize and use basic spatial and cartographic concepts (e.g. scale, projection, and coordinate systems), as well as statistical and surveying principles.
2. Demonstrate facility in the classification and analysis of geospatial data (e.g. satellite images, digital maps and their associated tabular datasets) and the ability to use geographic information science technology (software, data collection instruments and devices).
3. Develop and integrate spatial thinking and the capacity to create visualizations (e.g. images, maps, diagrams, charts, 3D views) of spatial phenomena, including those illustrating natural and human systems and their interactions.

4. Describe and interpret key concepts of geospatial science: Basic statistical principles; principles of computational geometry and location; principles of surveying
5. Construct and compose the following tools and skills used by geospatial scientists, at multiple scales: Select, apply geospatial technologies; acquire data from imagery and online sources; use measurement units and mathematical notation.
6. Describe the foundational concepts of Geographic Information Systems and working with geospatial data
7. Demonstrate proficiency in the basic functions of geospatial software (ArcGIS).
8. Employ a conceptual and working knowledge of coordinate systems and map projections to geospatial data.
9. Demonstrate basic proficiency in map creation and design principles, including thematic map display, map projections and cartographic design.
10. Carry out basic spatial data analysis and display the results in the form of maps and tables.
11. Demonstrate how to access different sources of data.
12. Demonstrate the process of creating and editing spatial data.
13. Discuss the fundamental concepts of data quality.

COURSE OUTLINE

Wk	Dates	Topic	Reading	Quiz	test/assign
1		Intro: Geographic Information Systems	Ch. 1,2		Pretest
2		Coordinate systems	Ch. 3	Quiz 1	Lab 1
3		Vector data model	Ch. 3	Quiz 2	Lab 2
4		Raster data model	Ch. 4	Quiz 3	Lab 3
5		GIS data acquisition	Ch. 5	Quiz 4	Lab 4
5		<u>Midterm Exam.</u>			Midterm
6		Geometric transformation	Ch. 8	Quiz 5	Lab 5
7		Spatial data accuracy and quality	Ch. 9	Quiz 6	Lab 6
8		Attribute data quality	Ch. 10	Quiz 7	Lab 7
9		Image analysis		Quiz 8	Lab 8
10		Geovisualization		Quiz 9	Lab final
10		Review for Final Exam			
11		Final Exam			

UCC Course Revision

Basic Information

Name of Course Revision Contact: Ken Carloni

Date: 04-05-2016

Contact Title: Department Chair

Department: Science

Course Number: NR141/FOR 141

Course Title: Tree and Shrub Identification

Course Revision Information

Type of change

Revision

Reactivation

Deletion

Date, Year, and Term of Proposed Revision: Fall 2016

Parent Program:

Course Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.
Cross listing with FOR prefix . No other changes. Multiple educational pathways are necessary to support enrollment. The cross listing makes it easier for business and industry to recognize the multiple educational pathways, makes it easier for students to identify courses, should simplify advising, and is expected to increase enrollment.

Course Revision Impacts - *select all that apply*

Instructional costs (staff, materials, equipment, or facilities) required.

Additional instructional costs (staff, materials, equipment, or facilities) are needed.

Impact to other divisions in terms of classes and staffing

Other:

Description of Impact

If your revision will have one of the impacts listed above, please describe...

UCC Course Revision

List current information and proposed changes

	CURRENT		PROPOSED <i>if no changes put "same"</i>
Course number	NR141	Course number	NR141/FOR141
Course title	Tree and Shrub Identification	Course title	Same
Credits	3	Credits	Same
Lecture Hrs/Wk	3	Lecture Hrs/Wk	Same
Lec/Lab Hrs/Wk		Lec/Lab Hrs/Wk	
Lab/Hrs/Wk		Lab/Hrs/Wk	
Practicum		Practicum	
Banner/Instr. Prerequisites		Banner/Instr. Prerequisites	
Co-requisites		Co-requisites	
Length (Weeks)	11	Length (Weeks)	Same
Terms Offered	Winter	Terms Offered	Same
Grading Option	A-F	Grading Option	Same
Load Factor	3	Load Factor	Same

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

Course Outline - required

Other:

UCC Course Outline

Course No:	FOR 241/NR 241
Course Credit:	3
Lecture Hrs/wk:	1
Lab Hrs/Wk:	
Lecture/Lab Hrs/Wk:	2
Practicum Hrs/Wk:	
Clock Hours:	33
Length of Course:	11 wks.
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	
Co-Requisite:	
Load Factor:	3.1 ILCs
Activity Code:	100
CIPS:	260101

Course Title: **Tree and Shrub Identification**

Developed By: Ken Carloni, Ph.D.

Development Date: Nov. 2015

Revision Date: Apr. 2016

Review Date:

COURSE DESCRIPTION:

Identification of the principal forest trees of North America, emphasizing trees and shrubs of SW Oregon and N California. Introduction to the forested regions of the world, and to the structure and function of woody plants. This is a hybrid course -- during spring term, students must either attend the NR 241 face-to-face lectures or enroll in the online NR 141 course. A six-day field tour of Southwestern Oregon and Northern California will follow in early summer. The use of cameras and field notebooks for documenting tree and shrub identification, location and habitat will be emphasized. The field tour will highlight the use of botanical keys to identify native woody plants while touring through regional plant communities. The tour will leave from the UCC campus, and will likely include stops in the Siskiyou Mountains, Smith River, Redwood State and National Parks, Trinidad State Beach, the Trinity River, the Mt. Hood/McCloud River area, McArthur-Burney Falls State Park, Lava Beds National Monument, Crater Lake National Park, the North Umpqua River, and other sites of botanical interest before returning to UCC. Students should be reasonably fit and prepared to hike several miles over the course of the tour on easy to moderately difficult trails, and to camp at improved campsites each night. This is an extended spring term course and grades will be awarded after the tour during the following summer term. A fee is required to cover transportation, food and camping. This course is cross listed as both NR141 and FOR 141.

UCC Course Outline

Course Outcomes

Students who successfully complete this course will be able to:

1. Identify economically and culturally important native tree and shrub species found in the United States, and describe the forested biomes of the world.
2. Explain the general anatomy and physiology of woody plant species.
3. Use botanical keys to identify dominant trees and shrubs of SW Oregon and N California.
4. Use camera and field notebook for documenting woody plant identification, location and habitat will be emphasized.

Course Outline

- Woody plant families and important genera
- Using dichotomous keys
- Structure and function of woody plants
- Ecological functions of woody plant species in their habitats
- Role of woody plants in forest succession
- Documenting trees and shrubs in the field
- Forested biomes of the world with emphasis on SW Oregon and N California

UCC Course Revision

Basic Information

Name of Course Revision Contact: Ken Carloni

Date: 04-05-2016

Contact Title: Department Chair

Department: Science

Course Number: NR201/FOR 201

Course Title: Introduction to Natural Resources

Course Revision Information

Type of change

Revision

Reactivation

Deletion

Date, Year, and Term of Proposed Revision: Fall 2016

Parent Program:

Course Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.
Cross listing with FOR prefix . No other changes. Multiple educational pathways are necessary to support enrollment. The cross listing makes it easier for business and industry to recognize the multiple educational pathways, makes it easier for students to identify courses, should simplify advising, and is expected to increase enrollment.

Course Revision Impacts - *select all that apply*

Instructional costs (staff, materials, equipment, or facilities) required.

Additional instructional costs (staff, materials, equipment, or facilities) are needed.

Impact to other divisions in terms of classes and staffing

Other:

Description of Impact

If your revision will have one of the impacts listed above, please describe...

UCC Course Revision

List current information and proposed changes

	CURRENT		PROPOSED <i>if no changes put "same"</i>
Course number	NR201	Course number	NR201/FOR201
Course title	Introduction to Natural Resources	Course title	Same
Credits	3	Credits	Same
Lecture Hrs/Wk	3	Lecture Hrs/Wk	Same
Lec/Lab Hrs/Wk		Lec/Lab Hrs/Wk	
Lab/Hrs/Wk		Lab/Hrs/Wk	
Practicum		Practicum	
Banner/Instr. Prerequisites		Banner/Instr. Prerequisites	
Co-requisites		Co-requisites	
Length (Weeks)	11	Length (Weeks)	Same
Terms Offered	Winter	Terms Offered	Same
Grading Option	A-F	Grading Option	Same
Load Factor	3	Load Factor	Same

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

Course Outline - required

Other:

Course No: FOR 201/NR 201
Course Credit: 3
Lecture Hrs/wk: 3
Lab Hrs/Wk:
Lecture/Lab Hrs/Wk:
Practicum Hrs/Wk:
Clock Hours: 33/term
Length of Course: 11 wks.
Banner enforced Prerequisite:
Instructor enforced Prerequisite:
Co-Requisite:
Load Factor: 3 ILCs
Activity Code: 100
CIPS: 260101

Course Title: Introduction to Natural Resources
Developed By: Bryan Benz
Development Date: Nov. 2014
Revision Date: Apr. 2016
Review Date:

COURSE DESCRIPTION:

Introductory course for Forestry and Natural Resources majors. Overview of the underlying principles and complexities involved in managing natural resources of the Pacific Northwest. Investigation of major natural resource issues of the region. Development of critical thinking and collaboration skills useful in seeking solutions. This course is cross listed as both FOR 201 and NR 201.

COURSE OUTCOMES

Upon completion of the course, you will be able to:

- Identify and describe key characteristics and processes that characterize renewable natural resources, with an emphasis on Oregon, Washington and Northern California.
- Recognize and describe key knowledge, skills, and attitudes you will need to become a successful natural resource manager or specialist.
- Identify and discuss several major natural resource issues that you are likely to face in your career.
- Identify and discuss basic principles and applied techniques that will help you address important issues throughout your career.
- Locate and understand written and multi-media material public and private sources, and critically assess factual and value statements related to natural resources.
- Demonstrate critical thinking and effective collaboration skills while communicating in verbal, written and multi-media modes.
- Effectively communicate to diverse audiences how sustainable management practices can be used to resolve resource management conflicts.

COURSE OUTLINE

- Introduction to natural resources and the concept of sustainability
- History of resource exploitation; natural resources as a “commons”; public attitudes
- Ecological foundations and habitat principles
- Water and soil resources and management
- Forest resources and management
- Rangeland resources and management
- Endangered species and resource extraction
- Natural resource economics
- Sustainable development and urban ecology

UCC Course Revision

Basic Information

Name of Course Revision Contact: Ken Carloni

Date: 04-05-2016

Contact Title: Department Chair

Department: Science

Course Number: NR240/FOR240

Course Title: Forest Biology

Course Revision Information

Type of change

Revision

Reactivation

Deletion

Date, Year, and Term of Proposed Revision: Fall 2016

Parent Program:

Course Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.
Cross listing with FOR prefix . No other changes. Multiple educational pathways are necessary to support enrollment. The cross listing makes it easier for business and industry to recognize the multiple educational pathways, makes it easier for students to identify courses, should simplify advising, and is expected to increase enrollment.

Course Revision Impacts - *select all that apply*

Instructional costs (staff, materials, equipment, or facilities) required.

Additional instructional costs (staff, materials, equipment, or facilities) are needed.

Impact to other divisions in terms of classes and staffing

Other:

Description of Impact

If your revision will have one of the impacts listed above, please describe...

UCC Course Revision

List current information and proposed changes

	CURRENT		PROPOSED <i>if no changes put "same"</i>
Course number	NR240		Course number NR240/FOR240
Course title	Forest Biology		Course title Same
Credits	4		Credits Same
Lecture Hrs/Wk	3		Lecture Hrs/Wk Same
Lec/Lab Hrs/Wk			Lec/Lab Hrs/Wk
Lab/Hrs/Wk	3		Lab/Hrs/Wk
Practicum			Practicum
Banner/Instr. Prerequisites			Banner/Instr. Prerequisites
Co-requisites			Co-requisites
Length (Weeks)	11		Length (Weeks) Same
Terms Offered	Winter		Terms Offered Same
Grading Option	A-F		Grading Option Same
Load Factor	5.1		Load Factor Same

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

Course Outline - required

Other:

UCC Course Outline

Course No:	FOR 240/NR 240
Course Credit:	4
Lecture Hrs/wk:	3
Lab Hrs/Wk:	3
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	66
Length of Course:	11 wks.
Banner enforced Prerequisite:	Course in BI or NR; Instructor's consent
Instructor enforced Prerequisite:	
Co-Requisite:	
Load Factor:	5.1 ILCs
Activity Code:	100
CIPS:	260101

Course Title: **Forest Biology**

Developed By: Ken Carloni, Ph.D.

Development Date: Nov. 2015

Revision Date: Apr. 2016

Review Date:

COURSE DESCRIPTION:

Forest Biology is a basic course that provides a broad foundation in biology that is relevant to many natural resource issues. This course examines forest biology at multiple levels of organization, from molecules to the globe; principles of ecosystem dynamics in managed and unmanaged forest communities, landscapes and bioregions; coevolution of competition, predation, decomposition, and mutualism; energy flow, nutrient cycles and feedback controls; the effects of disturbance and succession on carbon storage, biodiversity, and habitat stability through time. This course is cross listed as both NR 240 and FOR 240.

COURSE OUTCOMES:

Students who complete this course will be able to:

- Apply scientific methodology and demonstrate the ability to draw conclusions based on observation, analysis, and synthesis.
- Recognize and apply concepts and theories of basic biological science.
- Demonstrate connections between forest ecology principles and other subject areas.
- Describe the structure and function of trees
- Describe the components and processes of forest ecosystems at multiple scales.
- Explain the flow of energy and the cycling of nutrients in ecosystems, and discuss the factors that influence these processes.

UCC Course Outline

- Explain the influence of climate, soils, topography, and disturbance agents on ecosystem structure and function.
- Explain the relationships between the processes of disturbance and forest succession, and discuss their effects on ecosystem structure and function including stand demographics, soils, water resources, wildlife habitat, carbon storage and biodiversity.
- Discriminate among those management practices that accumulate carbon, store water, produce sustainable products, and increase biodiversity from those that don't.
- Recognize effective solutions to ecological problems and communicate them clearly.

UCC Course Outline

COURSE OUTLINE:

Lectures

- Fundamental Ecosystem Concepts
 - Anatomy and physiology of woody plants.
 - Structure and Function of Forest Ecosystems at Multiple Scales
 - Climate, Soils, Topography and Ecoregions
 - Coevolution of Populations and Communities
 - Disturbance and Succession in Forest Ecosystems
 - Energy, Productivity and Biomass
 - Biogeochemical Cycles
 - Landscape Ecology: Fragmentation, Connectivity, and Landscape Heterogeneity
- Ecosystem Services

Labs

- Introduction to Data Collection and Analysis
- Woody plant Structure
- Keying Vascular Plants
- Measuring Photosynthesis and Respiration Rates
- Transpiration
- Predator/Prey Dynamics
- Calculating Biodiversity Indices
- Forest Demographics I
- Forest Demographics II
- Carbon Dynamics

UCC Course Revision

Basic Information

Name of Course Revision Contact: Ken Carloni

Date: 04-05-2016

Contact Title: Department Chair

Department: Science

Course Number: NR241/FOR241

Course Title: Field Dendrology

Course Revision Information

Type of change

Revision

Reactivation

Deletion

Date, Year, and Term of Proposed Revision: Fall 2016

Parent Program:

Course Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.
Cross listing with FOR prefix . No other changes. Multiple educational pathways are necessary to support enrollment. The cross listing makes it easier for business and industry to recognize the multiple educational pathways, makes it easier for students to identify courses, should simplify advising, and is expected to increase enrollment.

Course Revision Impacts - *select all that apply*

Instructional costs (staff, materials, equipment, or facilities) required.

Additional instructional costs (staff, materials, equipment, or facilities) are needed.

Impact to other divisions in terms of classes and staffing

Other:

Description of Impact

If your revision will have one of the impacts listed above, please describe...

UCC Course Revision

List current information and proposed changes

	CURRENT		PROPOSED <i>if no changes put "same"</i>
Course number	NR241	Course number	NR241/FOR241
Course title	Field Dendrology	Course title	Same
Credits	4	Credits	Same
Lecture Hrs/Wk	3	Lecture Hrs/Wk	Same
Lec/Lab Hrs/Wk		Lec/Lab Hrs/Wk	
Lab/Hrs/Wk	3	Lab/Hrs/Wk	Same
Practicum		Practicum	
Banner/Instr. Prerequisites		Banner/Instr. Prerequisites	
Co-requisites		Co-requisites	
Length (Weeks)	11	Length (Weeks)	Same
Terms Offered	Spring	Terms Offered	Same
Grading Option	A-F	Grading Option	Same
Load Factor	5.1	Load Factor	Same

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

Course Outline - required

Other:

UCC Course Outline

Course No:	FOR 241/NR 241
Course Credit:	4
Lecture Hrs/wk:	3
Lab Hrs/Wk:	3
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	66
Length of Course:	11 wks.
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	
Co-Requisite:	
Load Factor:	5.1 ILCs
Activity Code:	100
CIPS:	260101

Course Title: **Field Dendrology**

Developed By: Ken Carloni, Ph.D. and Bryan Benz, M.S.

Development Date: Nov. 2014

Revision Date:

Review Date:

COURSE DESCRIPTION:

Identification of the principal forest trees of North America, emphasizing trees and shrubs of the Pacific Northwest. Other topics include the ranges over which these species grow, their structure and function, important ecological characteristics, and principal uses. We will also survey forested biomes of the world. Field trips required on and off campus. This course is cross listed as both NR 241 and FOR 241.

COURSE OUTCOMES:

Students who successfully complete this course will be able to:

- Identify economically and culturally important native tree and shrub species found in Washington, Oregon and Northern California.
- Describe the habitats, ranges, and principle uses of these species.
- Explain the general anatomy and physiology of woody plant species.
- Identify key vegetation indicators of habitat types in Southwestern Oregon
- Describe the forested biomes of the world.

UCC Course Outline

COURSE OUTLINE:

- Woody plant families and important genera
- Using dichotomous keys
- Structure and function of woody plants
- Ecological functions of woody plant species in their habitats
- Role of woody plant in forest succession
- Documenting trees and shrubs in the field
- Forested biomes of the world with emphasis on Northwestern bioregions

UCC Course Revision

Basic Information

Name of Course Revision Contact: Ken Carloni

Date: 04-05-2016

Contact Title: Department Chair

Department: Science

Course Number: NR261/FOR261

Course Title: Recreation Resource Management

Course Revision Information

Type of change

Revision

Reactivation

Deletion

Date, Year, and Term of Proposed Revision: Fall 2016

Parent Program:

Course Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.
Cross listing with FOR prefix . No other changes. Multiple educational pathways are necessary to support enrollment. The cross listing makes it easier for business and industry to recognize the multiple educational pathways, makes it easier for students to identify courses, should simplify advising, and is expected to increase enrollment.

Course Revision Impacts - *select all that apply*

Instructional costs (staff, materials, equipment, or facilities) required.

Additional instructional costs (staff, materials, equipment, or facilities) are needed.

Impact to other divisions in terms of classes and staffing

Other:

Description of Impact

If your revision will have one of the impacts listed above, please describe...

UCC Course Revision

List current information and proposed changes

	CURRENT		PROPOSED <i>if no changes put "same"</i>
Course number	NR261		Course number NR261/FOR261
Course title	Recreation Resource Management		Course title Same
Credits	4		Credits Same
Lecture Hrs/Wk	4		Lecture Hrs/Wk Same
Lec/Lab Hrs/Wk			Lec/Lab Hrs/Wk
Lab/Hrs/Wk			Lab/Hrs/Wk
Practicum			Practicum
Banner/Instr. Prerequisites			Banner/Instr. Prerequisites
Co-requisites			Co-requisites
Length (Weeks)	11		Length (Weeks) Same
Terms Offered	Spring		Terms Offered Same
Grading Option	A-F		Grading Option Same
Load Factor	4		Load Factor Same

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

Course Outline - required

Other:

UCC Course Outline

Course No:	FOR261/NR 261
Course Credit:	4
Lecture Hrs/wk:	4
Lab Hrs/Wk:	
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	44
Length of Course:	11 wks.
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	
Co-Requisite:	
Load Factor:	4 ILCs
Activity Code:	100
CIPS:	260101

Course Title: **Recreation Resource Management**

Developed By: Ken Carloni, Ph.D.

Development Date: Nov. 2015

Revision Date:

Review Date:

COURSE DESCRIPTION:

Overview of recreation resource management including study of land and water resources used for outdoor recreation. The planning and management of natural and cultural resources for long-term resource productivity, with a focus on rural and wildlife areas of the forest, range and coast. This course is cross listed as both NR 261 and FOR 261.

COURSE OUTCOMES:

Students who successfully complete this course will be able to:

1. define recreation and recount trends and historical events that shaped the field of recreation management;
2. list agencies and interest groups involved in natural resource based recreation, and describe their roles in the provision and management of recreation in outdoor settings;
3. describe and provide examples of positive and negative social (i.e., recreationists, communities) and ecological (i.e., biophysical, environmental) impacts associated with natural resource based recreation;
4. explain and provide applications of theories, concepts / constructs, and tools related to natural resource based recreation and its management (e.g., satisfaction, carrying capacity, norms, specialization, conflict, recreation opportunity spectrum, limits of acceptable change, indirect and direct management tactics); and
5. think critically about issues related to outdoor recreation and its management, and share opinions and experiences with others to strengthen understanding and comprehension.

UCC Course Outline

COURSE OUTLINE

- Current issues and overview of recreation impacts and management
- Land ethic, history, and visionaries
- Agencies in recreation management
- Ecological impacts of recreation and Leave-No-Trace
- Demographics and specialization of recreationists
- Satisfaction, motivations, experience-based management, and “Recreation Opportunity Spectrum”
- Carrying capacity, crowding, norms, and planning frameworks
- Recreation conflict, displacement, and substitutability
- Indirect and direct practices and principles of recreation management

UCC Course Revision

Basic Information

Name of Course Revision Contact: Clay Baumgartner

Date: 04-05-2016

Contact Title: Department Chair

Department: Engineering/CIS

Course Number: SOIL206/FOR206

Course Title: Soils Lab for SOIL 205 Soil Science

Course Revision Information

Type of change

Revision

Reactivation

Deletion

Date, Year, and Term of Proposed Revision: Fall 2016

Parent Program:

Course Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.
Cross listing with FOR prefix . No other changes. Multiple educational pathways are necessary to support enrollment. The cross listing makes it easier for business and industry to recognize the multiple educational pathways, makes it easier for students to identify courses, should simplify advising, and is expected to increase enrollment.

Course Revision Impacts - *select all that apply*

Instructional costs (staff, materials, equipment, or facilities) required.

Additional instructional costs (staff, materials, equipment, or facilities) are needed.

Impact to other divisions in terms of classes and staffing

Other:

Description of Impact

If your revision will have one of the impacts listed above, please describe...

UCC Course Revision

List current information and proposed changes

	CURRENT		PROPOSED <i>if no changes put "same"</i>
Course number	SOIL206		Course number SOIL206/FOR206
Course title	Soils Lab for SOIL 205 Soil Science		Course title Same
Credits	1		Credits Same
Lecture Hrs/Wk			Lecture Hrs/Wk Same
Lec/Lab Hrs/Wk			Lec/Lab Hrs/Wk
Lab/Hrs/Wk	3		Lab/Hrs/Wk
Practicum			Practicum
Banner/Instr. Prerequisites			Banner/Instr. Prerequisites
Co-requisites			Co-requisites
Length (Weeks)	11		Length (Weeks) Same
Terms Offered	Winter		Terms Offered Same
Grading Option	A-F		Grading Option Same
Load Factor	2.1		Load Factor Same

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

Course Outline - required

Other:

OUTLINE
SOIL 206/FOR 206 Soils Lab for SOIL 205 Soil Science

COURSE TITLE: Soils Lab for SOIL 205 Soil Science
COURSE NO.: SOIL 206/FOR 206

Course No:	SOIL 206/FOR 206
Course Credit:	1
Lecture Hrs/wk:	0
Lab Hrs/Wk:	
Lecture/Lab Hrs/Wk:	3
Practicum Hrs/Wk:	
Clock Hours:	33
Length of Course:	11 wks
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	
Co-Requisite:	SOIL 205
Load Factor:	2.1
Activity Code:	100
CIPS:	011201

Course Title: Soils Lab for SOIL 205 Soil Science
Developed By: Clay Baumgartner, PE
Development Date: 10/11/15
Revision Date: 04/05/2016
Review Date:

Course Description: Laboratory exercises and field trips designed to develop student competency in soil processes, description, analysis, and assessment with a particular emphasis on the role of soils in managed and unmanaged forest ecosystems. This course is cross listed as both SOIL 206 and FOR 206.

Co-Requisite: SOIL 205

Course Outcomes: Upon completion of SOIL 206, students will be able to:

1. *Describe* the relationship between the five soil forming factors, soil development, and outcomes of forest management.
2. *Explain* the environmental functions of soil and how these functions may be affected by management, especially silvicultural operations.
3. *Describe* how water moves in soils and the controls that influence its availability to plants. *Explain* the importance of soil moisture to forests at various successional stages.
4. *Locate* publically available information and maps on soils. *Explain* how this information is useful to forest managers.
5. *Calculate* nutrient pools and *explain* how they are released from the soil and made available to plants.
6. *Calculate* soil organic matter pools and *explain* their importance to soil processes.
7. *Describe* how roots, soil flora/fauna, and mycorrhiza interact with soil and influence soil processes.
8. *Describe* soils' role in sustainability and long-term soil productivity.
9. *Explain* the effects of common forest management activities on soil.
10. *Make observations* of soil and forest characteristics and *interpret observations* with regard to forest management objectives.

OUTLINE

WEEK		LAB EXERCISES
One	Introduction to soils and common field tools and techniques (Field Lab)	Methods for examining soils (soil pits, auger, and coring). Practice identifying major genetic soils horizons. Introduce field methods for collecting samples and characterizing soils (color, structure, and texture).
Two	Local soils of SW Oregon (Field Lab)	Practice identifying soil horizons using color, structure, roots, strength, and texture. Practice determining parent material and soil order. Practice identifying soil forming factors. Examine relationships between soils in the field trip area. Discuss differences between forest soils and agricultural soils.
Three	Management impacts on soils (Field Lab)	Introduce bulk density and soil strength. Examine the legacy impact of resource management on soil compaction and erosion. Examine soils in an undisturbed forest.
Four	Soil physical properties: Texture, density, and strength (Tower Soils Lab)	Learn about soil physical properties and how to determine them in the field and lab. Learn hand texturing, sieving, jar, and the hydrometer method of soil texture determination. Practice determining soil color, structure, and other characteristics.
Five	Soil water (Tower Soils Lab)	Learn how soil moisture and soil physical attributes interact to affect plant uptake. Learn about several ways to measure soil moisture and the limitations of each method. Observe saturated flow, field capacity, available water content, and plant wilting point. Observe patterns of water movement through soils. Examine the dynamics of soil moisture through seasons, soil depth, and as a result of management.
Six	Soil survey and soil mapping	Learn basics of soil survey systems (development, pertinent information, etc.). Learn the NRCS system and the kinds of information contained in the soil survey. Practice extracting specific soil information. Generate reports from NRCS Web Soil Survey. Explore Soil Resource Laboratory SoilWeb.
Seven	Soil chemistry (Tower Soils Lab)	Learn a few basic measurements related to soil nutrients and chemistry including organic matter and pH. Examine how pH and organic matter vary across soil types and depth. Calculate CEC from two different methods.
Eight	Soil biology and roots (Field Lab)	Examine the spatial distribution of roots in a forest soil. Learn the major organisms in forest soils.
Nine	Wetland soils and species composition (TBA)	Learn how soils affect the composition of species and the productivity of those species. Learn about hydric soil characteristics and introduce wetland soils.
Ten	Soils, geomorphology, and Hydrology (TBA)	Learn how geology, geomorphology, and hydrology affect soil formation. Examine the effect of forest management (harvesting) and other disturbances (fire, mass wasting and windthrow) on soils. Examine the effect of ameliorating treatments on soil disturbance.
Eleven	Finals	

UCC Course Revision

Basic Information

Name of Course Revision Contact: Clay Baumgartner

Date: 04-05-2016

Contact Title: Department Chair

Department: Engineering/CIS

Course Number: SUR161/FOR161

Course Title: Surveying I

Course Revision Information

Type of change

Revision

Reactivation

Deletion

Date, Year, and Term of Proposed Revision: Fall 2016

Parent Program:

Course Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.
Cross listing with FOR prefix . No other changes. Multiple educational pathways are necessary to support enrollment. The cross listing makes it easier for business and industry to recognize the multiple educational pathways, makes it easier for students to identify courses, should simplify advising, and is expected to increase enrollment.

Course Revision Impacts - *select all that apply*

Instructional costs (staff, materials, equipment, or facilities) required.

Additional instructional costs (staff, materials, equipment, or facilities) are needed.

Impact to other divisions in terms of classes and staffing

Other:

Description of Impact

If your revision will have one of the impacts listed above, please describe...

UCC Course Revision

List current information and proposed changes

	CURRENT		PROPOSED <i>if no changes put "same"</i>
Course number	SUR161		Course number SUR161/FOR161
Course title	Surveying I		Course title Same
Credits	4		Credits Same
Lecture Hrs/Wk	2		Lecture Hrs/Wk Same
Lec/Lab Hrs/Wk	4		Lec/Lab Hrs/Wk Same
Lab/Hrs/Wk			Lab/Hrs/Wk
Practicum			Practicum
Banner/Instr. Prerequisites			Banner/Instr. Prerequisites
Co-requisites			Co-requisites
Length (Weeks)	11		Length (Weeks) Same
Terms Offered	Winter		Terms Offered Same
Grading Option	A-F		Grading Option Same
Load Factor	4.8		Load Factor Same

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

Course Outline - required

Other:

UCC SUR 161/FOR 161

Surveying I

2 lecture hours, 4 lecture/lab hours per week

Course No:	SUR 161/FOR 161
Course Credit:	4
Lecture Hrs/wk:	2
Lab Hrs/Wk:	4
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	66
Length of Course:	11 wks
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	
Co-Requisite:	
Load Factor:	4.8
Activity Code:	100
CIPS:	150201

Course Outcomes:

- 1) Learn the fundamental principles of surveying necessary for geomatics and civil engineering career fields
- 2) Collect field data using standard surveying procedures
- 3) Analyze field measurements for conformance to accuracy standards
- 4) Understand how field data is used in the design process
- 5) Compute and stake highway curves
- 6) Learn the fundamental concepts behind the United States Public Land Survey System (USPLSS)
- 7) Learn the fundamental concepts of Geographic Information Systems (GIS)

Catalog Description: Course includes the fundamental concepts of plane surveying including theory of measurements, systematic and random errors, distance and angle measurement using total stations and differential leveling. Course also includes calculation of bearings, azimuths, coordinates, area, and traverse adjustments with an introduction to horizontal and vertical curve computations. This course is cross listed as both SUR 161 and FOR 161.

Course Outline:

TENTATIVE Course Outline:

Week 1:

- ❖ Class Introduction/Introduction to the Surveying Profession
- ❖ Surveying measurement theory and units of measure
- ❖ Quiz 1 – Surveying Profession
- ❖ Lab Exercise – Pacing, traverse staking, and point referencing

Week 2:

- ❖ Direction in surveying
- ❖ Distance measurement
- ❖ Use of a compass in surveying
- ❖ Quiz 2 – Direction in surveying and compass use
- ❖ Lab Exercise – Traverse taping

Week 3:

- ❖ Differential leveling
- ❖ Profile leveling
- ❖ Quiz 3 – Differential leveling
- ❖ Lab Exercise – Differential leveling and the automatic peg test

Week 4:

- ❖ Traverse calculations
- ❖ **Midterm 1**
- ❖ Lab Exercise – Profile leveling

Week 5:

- ❖ Traverse calculations continued
- ❖ Area calculations
- ❖ Quiz 4 – Traverse calculations
- ❖ Lab Exercise – Traverse angles with a total station

Week 6:

- ❖ Introduction to the Global Navigation Satellite System (GNSS)
- ❖ Quiz 5 – GNSS Principles
- ❖ Lab Exercise – Introduction to GNSS Surveying

Week 7:

- ❖ Horizontal curve calculations
- ❖ Quiz 6 – Horizontal curve calculations
- ❖ Lab Exercise – Using handheld GNSS units with Google Earth

Week 8:

- ❖ Vertical curve calculations
- ❖ **Midterm 2**
- ❖ Lab Exercise – Horizontal curve layout

Week 9:

- ❖ Introduction to the United States Public Land Survey System
- ❖ Thanksgiving holiday – No new lab exercises

Week 10:

- ❖ Introduction to Geographic Information Systems (GIS)
- ❖ Final exam review
- ❖ Lab – Lab practical exam

Finals Week:

- ❖ **Final exam – Time and place per Oregon Tech final exam schedule**

Lab Schedule:

WEEK 1	Pacing, traverse Staking and referencing
WEEK 2	Traverse taping
WEEK 3	Differential leveling and automatic level peg test
WEEK 4	Profile leveling
WEEK 5	Traverse Angles (Total Station)
WEEK 6	Traverse Angles (Total station with data collector)
WEEK 7	Introduction to the Global Navigation Satellite System (GNSS)
WEEK 8	Horizontal Curve Layout
WEEK 9	Map Reading and the USPLSS
WEEK 10	Lab Practical Exam

UCC Course Revision

Basic Information

Name of Course Revision Contact: Clay Baumgartner

Date: 04-05-2016

Contact Title: Department Chair

Department: Engineering/CIS

Course Number: SUR209/FOR209

Course Title: Photogrammetry and Introduction into Remote Sensing

Course Revision Information

Type of change

Revision

Reactivation

Deletion

Date, Year, and Term of Proposed Revision: Fall 2016

Parent Program:

Course Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.
Cross listing with FOR prefix . No other changes. Multiple educational pathways are necessary to support enrollment. The cross listing makes it easier for business and industry to recognize the multiple educational pathways, makes it easier for students to identify courses, should simplify advising, and is expected to increase enrollment.

Course Revision Impacts - *select all that apply*

Instructional costs (staff, materials, equipment, or facilities) required.

Additional instructional costs (staff, materials, equipment, or facilities) are needed.

Impact to other divisions in terms of classes and staffing

Other:

Description of Impact

If your revision will have one of the impacts listed above, please describe...

UCC Course Revision

List current information and proposed changes

	CURRENT		PROPOSED <i>if no changes put "same"</i>
Course number	SUR209	Course number	SUR209/FOR209
Course title	Photogrammetry and Introduction into Remote Sensing	Course title	Same
Credits	4	Credits	Same
Lecture Hrs/Wk	3	Lecture Hrs/Wk	Same
Lec/Lab Hrs/Wk		Lec/Lab Hrs/Wk	
Lab/Hrs/Wk	3	Lab/Hrs/Wk	
Practicum		Practicum	
Banner/Instr. Prerequisites		Banner/Instr. Prerequisites	
Co-requisites		Co-requisites	
Length (Weeks)	11	Length (Weeks)	Same
Terms Offered	Winter	Terms Offered	Same
Grading Option	A-F	Grading Option	Same
Load Factor	5.1	Load Factor	Same

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

Course Outline - required

Other:

Course No: FOR 209/SUR 209
Course Credit: 4
Lecture Hrs/wk: 3
Lab Hrs/Wk: 3
Lecture/Lab Hrs/Wk:
Practicum Hrs/Wk:
Clock Hours: 66
Length of Course: 11 wks
Banner enforced Prerequisite:
Instructor enforced Prerequisite:
Co-Requisite: MTH 112
Load Factor: 5.1
Activity Code: 100
CIPS: 150201

Course Title: Photogrammetry and Introduction into Remote Sensing

Developed By: Clay Baumgartner, PE

Development Date: 10/20/15

Revision Date:

Review Date:

Course Description: Management and conservation of natural resources with the fundamentals of spatial data acquisition from airborne and spaceborne sensors. Introduction to theory of spectral reflectance properties of vegetation, the principles of photographic analysis and aerial photo-interpretation and new advances such as LIDAR. This course is cross listed as both SUR 209 and FOR 209.

Course Outcomes: Students completing this course will acquire a basic understanding of the techniques available to remotely sense vegetation from airborne and spaceborne platforms. Course objectives also include basic techniques and skills in forest photogrammetry including photo interpretation, photo measurements. Another emphasis will be on field application of LiDAR, satellite imagery and aerial photographs as well as field validation of remotely sensed observations (including issues of scaling). Upon completion of SUR 209, students will be able to:

- Interpret the electromagnetic spectrum, and be able to identify and explain the spectral signature of vegetation.
- Place aerial or satellite images in a geographic coordinate system and transform between them using tools such as ArcGIS or Envi.
- Orient stereoscopic images under a stereoscope and delineate forest stands from it, and determine stand height from aerial photographs. They will further be able to determine stand volume by applying height volume relationships and type timber from interpreting aerial photographs
- Determine stand height, tree height and stand volume also from discrete LiDAR data by extracting ground returns, developing a digital elevation model from it and comparing this model to non-ground returns in a LiDAR dataset
- Independently set up a sampling scheme for ground validation of remotely sensed data and validate measurements taken from both LiDAR and air photos
- Load geospatial data into ArcGIS and do some basic operations (such as buffering/spatial querying) with it
- Explain the spatial and spectral properties of the most common satellite sensors (Landsat and MODIS) and when confronted with a specific remote sensing problem, be able to recommend either one of these technologies and explain why.

COURSE OUTLINE:

Week	Reading Assignments	Learning Activities
1	<p>Course Introduction</p> <p>Introduction into Remote Sensing The Electromagnetic Spectrum (Part I)</p>	<p>Jeffrey Sachs lecture “Frontiers of Geoscience” and Discussion</p>
2	<p>The Electromagnetic Spectrum (Part II)</p> <p>Resolution in Remote Sensing (Part I - Spatial)</p> <p>Resolution in Remote Sensing (Part II - Temporal, Spectral, Radiometric)</p>	<p>Lab 1: Electromagnetic spectrum</p> <p>Homework assignment 1</p>
3	<p>From image to map: Coordinate Systems and Map Projections (Part I)</p> <p>From image to map: Coordinate Systems and Map Projections (Part II)</p> <p>Global Positioning System (GPS)</p>	<p>Lab 2: Basic Image Analysis</p>
4	<p>Orthorectification</p> <p>Georeferencing and Image Transformations</p>	<p>Lab 3: Georeferencing Quiz 2</p> <p>Homework 2</p>
5	<p>Images Interpretation and Image Classification</p> <p>Horizontal Measurements in Aerial Photographs</p>	<p>Lab 4: Image Classification</p> <p>Midterm Exam</p>

6	<p>Vertical Measurements in Aerial Photographs (Part I - Stereovision)</p> <p>Vertical Measurements in Aerial Photographs (Part II - Measuring Vegetation Height)</p> <p>Aerial Photo Mensuration</p>	<p>Homework 3</p> <p>Lab 5: Mapping and Horizontal Measurements in Aerial Imagery</p> <p>Quiz 3</p>
7	<p>Introduction into Light Detection And Ranging (LiDAR)</p> <p>Obtaining Height Models from LiDAR I: Extracting ground Elevations</p> <p>Obtaining Height Models from LiDAR II: Fitting Surfaces</p>	<p>Lab 6: Image Interpretation and Stereoscopic measurements</p>
8	<p>Vegetation Height Estimates from LiDAR</p> <p>Obtaining Vertical Canopy Structure from LiDAR I: Height Percentiles and Canopy Profiles</p> <p>Obtaining Vertical Canopy Structure from LiDAR II: Leaf Area Profiles, Canopy Volumes and Indirect estimates of Vegetation Biomass</p>	<p>Lab 7: Introduction to LiDAR Quiz 4</p> <p>Homework assignment 4</p>
9	<p>Error sources when working with LiDAR I</p> <p>Error sources when working with LiDAR II</p> <p>Errors and Uncertainties</p>	<p>Lab 8: Estimating vegetation heights from LiDAR</p> <p>Homework Assignment 5</p> <p>Quiz 5</p>
10	<p>Sampling Techniques I (Sampling Schemes)</p> <p>Sampling Techniques II (Ground truthing)</p>	
11		Final Exam

UCC Course Revision

Basic Information

Name of Course Revision Contact: Ken Carloni

Date: April, 2016

Contact Title: Dept. Chair

Department: Science

Course Number: NR 243

Course Title: Historical Ecology of Pacific Northwest Landscapes

Course Revision Information

Type of change

Revision

Reactivation

Deletion

Date, Year, and Term of Proposed Revision: Winter 2017

Parent Program: Natural Resources

Course Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.

I am proposing to cross-list NR 243 as HST 243. This will allow Natural Resources students to satisfy a Social Science requirement at UCC rather than taking another course from OSU. I will also request that OSU articulate this class to satisfy the Difference, Power, & Discrimination category in their Baccalaureate Core requirements, which will give our OSU transfer students another opportunity to meet OSU Bacc Core requirements with UCC classes.

Course Revision Impacts - *select all that apply*

Instructional costs (staff, materials, equipment, or facilities) required.

Additional instructional costs (staff, materials, equipment, or facilities) are needed.

Impact to other divisions in terms of classes and staffing

Other:

Description of Impact

If your revision will have one of the impacts listed above, please describe...

It is possible that students who take the course as HST 243 will not take a different HST course. However, it is also just as likely that without this change, Natural Resource students would wait to satisfy that requirement after they transfer to OSU, thereby denying that FTE to UCC. So this change will most likely have no significant impact one way or the other. FTE for the class taken as HST 243 would accrue to the Social Science Dept.

UCC Course Revision

List current information and proposed changes

	CURRENT		PROPOSED <i>if no changes put "same"</i>
Course number	NR 243	Course number	NR 243 or HST 243
Course title		Course title	same
Credits		Credits	same
Lecture Hrs/Wk		Lecture Hrs/Wk	same
Lec/Lab Hrs/Wk		Lec/Lab Hrs/Wk	same
Lab/Hrs/Wk		Lab/Hrs/Wk	same
Practicum		Practicum	same
Banner/Instr. Prerequisites		Banner/Instr. Prerequisites	same
Co-requisites		Co-requisites	same
Length (Weeks)		Length (Weeks)	same
Terms Offered		Terms Offered	same
Grading Option		Grading Option	same
Load Factor		Load Factor	same

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

Course Outline - required

Other:

UCC Course Outline

Course No:	HST 243 or NR 243
Course Credit:	3
Lecture Hrs/wk:	3
Lab Hrs/Wk:	
Lecture/Lab Hrs/Wk:	
Practicum Hrs/Wk:	
Clock Hours:	33/term
Length of Course:	11 wks.
Banner enforced Prerequisite:	
Instructor enforced Prerequisite:	WR 121
Co-Requisite:	WR 121
Load Factor:	3 ILCs
Activity Code:	100
CIPS:	260101

Course Title: Historical Ecology of Pacific Northwest Landscapes
Developed By: Ken Carloni
Development Date: Feb. 2015
Revision Date: April 2016
Review Date:

COURSE DESCRIPTION:

Students will learn about changes in the landscapes of the Pacific Northwest from the end of the last ice age to the present with an emphasis on Southwestern Oregon and Northern California. We will examine the changing uses of the environment by a succession of cultures, and their effects on landscape structure and function by using a range of tools to analyze archaeological, historical and ecological data to reconstruct historic landscapes.

COURSE OUTCOMES

Upon completion of the course, you will be able to:

- Trace the major events in the ecological and cultural history of the Pacific Northwest from the late Pleistocene to the present.
- Describe the methods and data used to reconstruct historic landscape conditions.
- Use historical, archaeological and ecological data to research and reconstruct historic landscape conditions.
- Apply the concept of Historic Range of Variability to landscapes through time.
- Analyze the impacts of the succession of cultures on landscape structure and function in SW Oregon and N California.

UCC Course Outline

COURSE OUTLINE

- Introduction to the Theory and Practice of Historical Ecology
- Historic Range of Variability
- Life After the Ice Age and the Peopling of the Americas
- Cultural Evidence I: Archaeology and Ethnobiology
- Cultural Evidence II: Historic Documents, Images and Data.
- Ecological Evidence I: Dendrochronology and Vegetation Structure
- Ecological Evidence I: Pollen, Phytoliths and Geomorphology
- The Little River Watershed: Indians, Fire and the Land
- Natural Resource Conservation: Fatesheds and Management Options

TEXTS

Egan, D., and E.A. Howell (eds.), 2001. *The Historical Ecology Handbook: A Restorationist's Guide to Reference Ecosystems*. Island Press, Washington, D.C.

Carloni, K.R. 2005. *The ecological legacy of Indian burning practices in southwestern Oregon*. Ph.D. Dissertation, Oregon State Univ. <http://ir.library.oregonstate.edu/xmlui/handle/1957/13086>

UCC Program Revision

Please enter your information for the program revision you are proposing below. Your careful attention to the completion of all fields is appreciated. If you are unsure about how to enter something, please contact your Department Chair or Dean.

Basic Information

Name of Program Revision Contact: Alysha Barraza

Contact Title: V&E Student Advisor

Department: Viticulture and Enology

Program Revision Information

Date, Year, and Term of Proposed Revision: Fall 2016

Program Title: Certificate - Viticulture

Revision Type - select all that apply

Credits

Title

Summary

Outcomes

Curriculum

Suspension

Reactivate

Delete

Repackage for a new area of concentration or certificate within existing program.

Other: *(please describe)*

Revised Outcomes (If needed)

Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.

- This is just a house cleaning issue that was brought to my attention by Kristi Hurt that all courses must be in a parent program and GS 105 is not longer in our AAS degree.

Program Impacts - select all that apply

Instructional costs (staff, materials, equipment, or facilities) required.

Additional instructional costs (staff, materials, equipment, or facilities) are needed.

Impact to other divisions in terms of classes and staffing

Other:

UCC Program Revision

Please list changes to program course listing below.

CURRENT			PROPOSED		
Course #	Course Title	Credits	Course #	Course Title	Credits
GS 105 OR CH 104 OR CH 221	Physical Science (Chemistry) Intro to Chemistry General Chemistry	4 4 5	CH 104 OR CH 221	Intro to Chemistry General Chemistry	4 5
	Human Relations Course	3		Human Relations Course	3
MTH 95	Intermediate Algebra OR higher	4	MTH 95	Intermediate Algebra OR higher	4
SPAN 121	Spanish in the Workplace: Viticulture	4	SPAN 121	Spanish in the Workplace: Viticulture	4
VE 101	Introduction to the Wine Industry	1	VE 101	Introduction to the Wine Industry	1
VE 102	Intergrated Pest Control for Grapes	4	VE 102	Intergrated Pest Control for Grapes	4
VE 103	Vineyard Soils, Plant Nutrition, and Irrigation	4	VE 103	Vineyard Soils, Plant Nutrition, and Irrigation	4
VE 110	Vineyard Practices I	4	VE 110	Vineyard Practices I	4
VE 111	Vineyard Practices II	4	VE 111	Vineyard Practices II	4
VE 112	Vineyard Practices III	4	VE 112	Vineyard Practices III	4
VE 201	Winemaking for Viticulturists	3	VE 201	Winemaking for Viticulturists	3
VE 280	Cooperative Work Experience/Practicum Viticulture/Enology	4	VE 280	Cooperative Work Experience/Practicum Viticulture/Enology	4
WR 115	Introduction to Expository Writing OR higher	4	WR 115	Introduction to Expository Writing OR higher	4

UCC Program Revision

Total Credits for Program	47-48		Total Credits for Program	47-48
			Total credits for Program	

UCC Program Revision

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

Curriculum Revision Form

Start-Up and First Year Budget

Other:

MEMORANDUM

To: Curriculum Committee/Instructional Committee

From: Clay Baumgartner, Chair, Engineering/CIS Department

cc: Jesse Morrow, Dean, CTE

Date: April 6, 2016

Re: GIS COURSES: UNDER AAOT ADD SOCIAL SCIENCE FOR AREA OF DISTRIBUTION

PROPOSAL

UCC offers three GIS classes. It is proposed to list each of the courses under the AAOT as both: 1) Area 3 Courses With Labs and 2) Area 4 Social Sciences. There does not appear to be a form for revising the AAOT distribution for a course. Therefore the proposal is made by memorandum.

The proposed distribution aligns with the AAOT distribution used at Lane CC for the equivalent courses. A copy of LCC’s related catalog pages is attached. The existing UCC course distributions and proposed course distributions are summarized in the table below.

Existing and Proposed AAOT Distributions

Course	AAOT Distribution	Current	Proposed
GIS 203 The Digital World and Geospatial Concepts	Area 3 Courses With Labs	X	X
	Area 3 Courses Without Labs		
	Area 4 Social Sciences		X
GIS 234 GIS I Introduction to GIS	Area 3 Courses With Labs		X
	Area 3 Courses Without Labs	X	
	Area 4 Social Sciences		X
GIS 235 GIS II Data Analysis and Applications	Area 3 Courses With Labs		X
	Area 3 Courses Without Labs	X	
	Area 4 Social Sciences		X

ART 271	Printmaking, Relief
ART 272	Printmaking, Monotype, Collograph
ART 273	Printmaking, Intermediate Intaglio
ART 274	Printmaking, Intermediate Relief
ART 275	Silkscreen
ART 276	Sculpture: Introduction
ART 277,278	Sculpture: Welding; Wood
ART 281,284	Painting: Introduction; Intermediate
ART 282	Landscape & Architectural Photography
ART 285	Advanced Silkscreen
ART 291	Sculpture: Metal Casting
ART 293	Sculpture: Figure
ART 294,295	Watercolor: Introduction; Intermediate
COMM 100	Basic Communication
COMM 105	Listening and Critical Thinking
COMM 111	Fundamentals of Public Speaking
COMM 112	Persuasive Speech
COMM 115*	Introduction to Intercultural Communication
COMM 130	Business and Professional Speech
COMM 218	Interpersonal Communication
COMM 219	Small Group Discussion
COMM 220*	Communication, Gender and Culture
COMM 262	Voice and Articulation
CW 201,202,203	Chinuk WaWa
D 160	Dance Composition
D 251	Looking at Dance
D 256	Body Fundamentals/Body as Knowledge
D 260	Group Choreography
ENG 100	Children's Literature
ENG 104,105,106	Introduction to Literature: Fiction, Drama, Poetry
ENG 107*,108*,109*	Survey of World Literature
ENG 121	Detective Fiction
ENG 151*	Black American Literature
ENG 194	Literature of Comedy
ENG 195,196,197	Introduction to Film Studies
ENG 201,203	Shakespeare
ENG 204,205	Survey of British Literature
ENG 213*	Survey of Asian Literature
ENG 215*	Latino/a Literature
ENG 217	Digital Humanities
ENG 218*	Literature of the Islamic World
ENG 222*	Literature and Gender
ENG 232*	Native American Literature
ENG 240	Nature Literature
ENG 243*	Native American Autobiography
ENG 244*	Asian American Literature
ENG 250*	Introduction to Folklore and Mythology
ENG 253,254	Survey of American Literature
ENG 257*	The American Working Class in Fiction and Non-Fiction
ENG 259*	African American Poetry, Plays, and Film
ENG 260*	Introduction to Women Writers
ENG 261	Science Fiction
ENG 270	Bob Dylan: American Poet
ENG 271,272,273	Film Genre: Varied Topics
ES 244*	Native American Storytelling
FA 255	Understanding Movies: American Cinema
FA 263	Film in the Fifties
FA 264*	Women Make Movies
FA 265*	African American Film Images
FR 201,202,203	Second Year French
HUM 100	Humanities Through the Arts
J 134	Photojournalism
J 216	Newswriting 1
MUS 101	Music Fundamentals
MUS 102	Jazz Fundamentals
MUS 103*	Songwriting Techniques and Analysis 1
MUS 108*	Music in World Cultures
MUS 111,112,113	Music Theory 1
MUS 118,119	Music Technology MIDI/Audio 1,2
MUS 201,202,203	Introduction to Music and Its Literature
MUS 205*	Introduction to Jazz History
MUS 211,212,213	Music Theory 2
MUS 261,262,263	Music History

MUS 264*,265*,266*	History of Rock Music 1,2,3
PHL 201	Ethics
PHL 202	Theories of Knowledge
PHL 203	Theories of Reality
PHL 205*	Contemporary Moral Issues
PHL 221	Critical Thinking
REL 160*	World Religions
REL 201*	Religions of India (Hinduism, Buddhism)
REL 202*	Religions of China and Japan (Taoism, Confucianism, Buddhism, and Shinto)
REL 203*	Religions of the Middle East (Judaism, Christianity, and Islam)
REL 211	Introduction to the Bible
REL 230	Christian Beginnings
REL 231*	Buddhist Meditation Traditions
REL 243	Nature, Religion and Ecology
SPAN 201,202,203	Spanish, Second Year
TA 140	Acting Shakespeare
TA 141,142,143	Acting 1,2,3
TA 144	Improvitational Theatre 1
TA 241,242,243	Intermediate Acting
TA 272*	Introduction to Theater
WR 240	Creative Nonfiction
WR 241	Introduction to Imaginative Writing: Fiction
WR 242	Introduction to Imaginative Writing: Poetry

Social Science

Note: Courses marked with () also will satisfy the Cultural Literacy requirement.

ANTH 101	Physical Anthropology
ANTH 102*	World Archaeology
ANTH 102_H	World Archaeology-Honors
ANTH 103*	Cultural Anthropology
ANTH 227*,228*	Prehistory of Mexico; Cultures of Mexico
ANTH 229*	Chicano Culture
ANTH 231*,232*,233*	American Indian Studies
CJA 214	Introduction to Forensic Science
ECON 200	Principles of Economics: Introduction to Economics
ECON 201	Principles of Economics: Introduction to Micro Economics
ECON 202	Principles of Economics: Introduction Macro Economics
ECON 204	Introduction to International Economics
ECON 250*/ES 250*	Class, Race, and Gender in the U.S. Economy
ECON 260	Introduction to Environmental and Natural Resource Economics
ES 101*	Historical Racial and Ethnic Issues
ES 102*	Contemporary Racial and Ethnic Issues
ES 211*	Chicano/Latino Experience: Historical and Ideological Perspectives
ES 212*	Chicano/Latino Experience: Political and Ideological Perspectives
ES 213*	Chicano/Latino Experience: Contemporary Identity and Cultural Issues
ES 221*	African American Experience: Down From the Pyramids, Up From Slavery 10,000 BCE-1877
ES 222*	African American Experience: Aspiration 1877-1945
ES 223*	African American Experience: A Luta Continua: The Struggle Continues 1945 to Present
ES 231*	Asian American Experience: First and Second Generation
ES 232*	Asian American Experience: Social Movements of the 20th Century
ES 233*	Asian American Experience: Contemporary Issues in Asian America
ES 241*	Native American Experience: Consequences of Native American and European Contact
ES 242*	Native American Experience: Nineteenth Century Federal-Indian Relations
ES 243*	Native American Experience: Contemporary Native American Issues

ES 244*	Native American Story Telling
ES 250*/ECON 250*	Class, Race, and Gender in the U.S. Economy
GEOG 141	Natural Environment
GEOG 142*	Introduction to Human Geography
GEOG 201*	World Regional Geography
GEOG 223	Geography of the Muslim World
GIS/GEOG 151	Digital Earth
GIS 245	GIS 1
GIS 246	GIS 2
GIS 249	Raster Analysis and Remote Sensing
GIS 260	Applications in GIS
HE 255*	Global Health and Sustainability
HST 101,102,103	History of Western Civilization
HST 104*,105*,106*	World History
HST 155	History of Islam
HST 195*	History of the Vietnam War
HST 201,202,203	History of the United States
HST 207	History of the American West
HST 208	U.S. History Since 1945
HST 209	American History: The Civil War
HST 266*	U.S. Women's History
HUM 100	Humanities through the Arts
PHL 201	Ethics
PHL 202	Theories of Knowledge
PHL 203	Theories of Reality
PHL 205*	Contemporary Moral Issues
PHL 205_H*	Contemporary Moral Issues-Honors
PHL 221	Critical Thinking
PHL 221_H	Critical Thinking-Honors
PS 104	Problems in U.S. Politics/Film 1
PS 105	Problems in U.S. Politics/Film 2
PS 201,202	U.S. Government and Politics
PS 203	State and Local Government and Politics
PS 204	Introduction to Comparative Politics
PS 205*	International Relations
PS 208	Introduction to Political Theory
PS 211	Peace and Conflict Studies: Global
PS 212	Peace and Conflict Studies: National
PS 213	Peace and Conflict Studies: Local
PS 225	Political Ideology
PS 275	Legal Processes Through Civil Rights and Liberties
PS 297	Environmental Politics
PS 297_H	Environmental Politics-Honors
PSY 201,202,203	General Psychology
PSY 214	Introduction to Personality
PSY 215	Lifespan Developmental Psychology
PSY 216	Social Psychology
PSY 218*	Multicultural Psychology
PSY 235,236	Human Development 1,2
PSY 239	Introduction to Abnormal Psychology
REL 160*	World Religions
REL 201*	Religions of India (Hinduism, Buddhism)
REL 202*	Religions of China and Japan (Taoism, Confucianism, Buddhism, and Shinto)
REL 203*	Religions of the Middle East (Judaism, Christianity, and Islam)
REL 230	Christian Beginnings
REL 231*	Buddhist Meditation Traditions
REL 243	Nature, Religion, and Ecology
SLD 103*	Post-Racial America: Challenges and Opportunities
SLD 121*	African American Leadership: History, Philosophy and Practice
SOC 108*	Selected Topics: Women's Studies
SOC 108A*	Selected Topics: Women's Studies: Women's Bodies, Women's Selves
SOC 204	Introduction to Sociology
SOC 205	Social Stratification and Social Systems
SOC 206	Institutions and Social Change
SOC 207*	Women and Work
SOC 208*	Sport and Society
SOC 210	Marriage, Family and Intimate Relations
SOC 211	Social Deviance
SOC 213*	Race and Ethnicity

SOC 215*	Social Class
SOC 216*	Global Social Movements
SOC 218*	Sociology of Gender
SOC 225	Social Problems
WS 101*	Introduction to Women's Studies

Science, Mathematics, and Computer Science

Note: Courses marked with (*) also will satisfy the Cultural Literacy requirement.

Biological Sciences with laboratories

Note: Only one of the BI 101's, and one of the BI 102's, and one of the BI 103's will meet the Science/Math/Computer Science requirements for any Lane degree. Any additional BI 101, 102, or 103 course credits will count as electives for a Lane degree. (See the course description section of this catalog for more information.)

BI 101,102,103	General Biology (See note below) BI 102J* Ethnobotany and BI 103G* General Biology: Global Ecology also will satisfy the Cultural Literacy requirement.
BI 101_H, 102_H	General Biology-Honors
BI 112	Cell Biology for Health Occupations
BI 211	Principles of Biology (formerly BI 201, BOT 201 or Z 201)
BI 212	Principles of Biology (formerly BOT 202 or Z 202)
BI 231,232,233	Human Anatomy and Physiology 1,2,3
BI 234	Introductory Microbiology
BOT 213	Principles of Botany (formerly BOT 203)
Z 213	Principles of Zoology (formerly Z 203)

Physical Sciences with laboratories

ASTR 107	Astronomy +L
ASTR 121	Astronomy of the Solar System +L
ASTR 122	Stellar Astronomy +L
ASTR 123	Cosmology and the Universe +L
CH 104	Introductory Chemistry 1
CH 114	Introduction to Forensics
CH 221,222,223	General Chemistry 1,2,3
CH 241,242,243	Organic Chemistry
CJA 214	Introduction to Forensic Science
ENVS 181	Terrestrial Environment
ENVS 182	Atmospheric Environment and Population
ENVS 183	Aquatic Environment
ENVS 184	Global Climate Change
G 101	Earth's Dynamic Interior
G 102	Earth's Dynamic Surface
G 103	Evolving Earth
G 146	Rocks and Minerals
G 147	National Parks
G 148	Geologic Hazards
G 201	Earth Materials and Plate Tectonics
G 202	Earth's Surface Systems
G 203	Evolution of the Earth

GIS/GEOG 151	Digital Earth
GIS 245	GIS 1
GIS 246	GIS 2

GIS 249	Raster Analysis and Remote Sensing
GIS 260	Applications in GIS
GS 101	General Science Nature of the Northwest
GS 104,105,106	Physical Science
GS 142	Earth Science: Earth Revealed +L
GS 147	Oceanography +L
PH 101,102,103	Fundamentals of Physics
PH 190	Physics Investigative Lab +L
PH 201,202,203	General Physics
PH 211,212,213	General Physics with Calculus
WST 230	Watersheds and Hydrology
+L must be taken for four credits to include lab, exception is PH 190 which is a science lab with three credits	

Other Science/Math/Computer Science Courses (non-laboratory)

ANTH 101	Physical Anthropology
ASTR 107	Astronomy

UCC Program Revision

Please enter your information for the program revision you are proposing below. Your careful attention to the completion of all fields is appreciated. If you are unsure about how to enter something, please contact your Department Chair or Dean.

Basic Information

Name of Program Revision Contact: John Blackwood

Contact Title: Faculty

Department: Engineering and CIS

Program Revision Information

Date, Year, and Term of Proposed Revision: September 2017, Fall Term

Program Title: Computer Information Systems, AAS

Revision Type - select all that apply

Credits

Title

Summary

Outcomes

Curriculum

Suspension

Reactivate

Delete

Repackage for a new area of concentration or certificate within existing program.

Other: *(please describe)*

Revised Outcomes (if needed)

Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.

Courses in parent program have been revised to maintain degree relevance in changing employment market. Removed Accounting (BA 151 or 211; 3 or 4 credits), MS Server III (CIS 289M; 4 credits), Cisco 3 & 4 (CIS 153C & 154C), Writing (122/227; 4 credits); added [existing courses] Computer Systems Configuration (CIS 111; 4 credits), Intro to CIS (CIS 120; 4 credits), Computer Applications - Database Software (CIS 125D; 3 credits), Computer Applications - Spreadsheet Software (CIS 125S; 3 credits); added [new course] CCNA Security (CIS 285B; 4 credits) to parent degree program. Permit increase from 2 credits in CWE to 4 credits (2 credits optional). Degree credits decreased from 96-97 to 95-97 credits.

Net changes: Net affect is potential slight decrease in total credits for [base] AAS-CIS degree. Removed courses will not be offered as part of regular schedule. Removed Cisco courses listed above may be offered as optional summer courses in the future.

Not on this form, but good to note:

Also developed one "Option" for Cybersecurity training, which manifests itself in a new AAS. The Cybersecurity AAS degree is the same as the CIS degree except that it adds: Computer Applications – Spreadsheet Software (CIS 125S; 3 credits), optional 2 credit increase for CWE (CIS 280), Ethical Hacking

UCC Program Revision

(CIS 285A; 4 credits), Cloud Services Technologies (CIS 285C; 3 credits), Computer Forensics for Ethical Hackers (CIS 145; 4 credits), and Virtualization Technologies (CIS 286; 3 credits) as new courses. Allows increase in CWE in same manner as base CIS degree. The Cybersecurity AAS degree increases credits to potentially reach the state maximum allowed credits for the AAS degree of 108 credits.

Program Impacts - select all that apply

- Instructional costs (staff, materials, equipment, or facilities) required.
- Additional instructional costs (staff, materials, equipment, or facilities) are needed.
- Impact to other divisions in terms of classes and staffing
- Other: One new course created for this degree (CIS 285B, which replaces CIS 289M).

UCC Program Revision

Please list changes to program course listing below.

CURRENT			PROPOSED		
Course #	Course Title	Credits	Course #	Course Title	Credits
CIS 122	Orientation to Programming	4	CIS 120	Digital Literacy. Added to degree.	4
CIS 140M	Intro to Windows OS	4	CIS 122	Orientation to Programming	4
WR 121	English Comp*	4	CIS 140M or 140L	Intro to Windows OS or Intro to Linux OS	4
CIS 133CS	Intro to Programming	4	WR 121	English Comp*	4
CIS 240M	Install. & Configuring MS Windows Server	4	CIS 133CS	Intro to Programming	4
MTH	MTH 105 or higher	4	CIS 240M	Install. & Configuring MS Windows Server	4
WR 122 or 227	English Comp* or Technical Writing. Removed from degree.	4	MTH	MTH 105 or higher	4
CIS 151C	Networking Essentials (Cisco 1)	4	CIS 125D	Computer Applications - Database Software	3
CIS 233CS	Intermediate Programming	4	CIS 151C	Networking Essentials (Cisco 1)	4
CIS 275	Intro to DBMS	4	CIS 233CS	Intermediate Programming	4
CIS 279M	MS Windows Server Admin I	4	CIS 275	Intro to DBMS	4
PSY 101	Psych of Human Relations	3	CIS 279M	MS Windows Server Admin I	4
CIS 152C	Intro to Basic Switching (Cisco 2)	4	PSY 101	Psych of Human Relations	3
CIS 195	Authoring for the WWW I	4	CIS 152C	Intro to Basic Switching (Cisco 2) ¹	4
CIS 276	Intermediate DBMS II	4	CIS 195	Authoring for the WWW I	4

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CIS 280	CWE: CIS	2		CIS 276	Intermediate DBMS II	4
CIS 288M	MS Windows Server Admin II	4		CIS 280	CWE: CIS	2-4
CIS 289M	MS Windows Server Admin III. Removed from degree.	4		CIS 285B	CCNA Security	4
CIS 153C	Intermediate Switching & Routing (Cisco 3). Removed from degree.	4		CIS 125S	Computer Applications - Spreadsheet Software	3
CIS 284	Network Security Fundamentals	4		CIS 284	Network Security Fundamentals	4

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CIS 295	Authoring for the WWW II	4		CIS 295	Authoring for the WWW II
CIS 154C	WAN Protocols (Cisco 4). Removed from degree.	4		CIS 111	Computer Systems Configuration
CIS 245	Project Management	4		CIS 245	Project Management
SP 111	Fundamentals of Public Speaking	4		SP 111	Fundamentals of Public Speaking
BA 151 or BA 211	Practical Accounting I or Principles of Accounting I. Removed from degree.	3 / 4		CIS 288M	MS Windows Server Admin II
	Current credits for program	96-97			
				Total credits for Program	95-97

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

- Curriculum Revision Form
- Start-Up and First Year Budget
- Other:

PROGRAM REVISION FORM – page 2

Program revision for: **Computer Information Systems (CIS), AAS**

CURRENT

PROPOSED

Course #	Course Title	Credits		Course #	Course Title	Credits
BA 151 or 211	Practical Accounting I or Principles of Accounting I	3/4		CIS 120	Introduction to CIS	4
CIS 122	Orientation to Programming	4		CIS 122	Orientation to Programming	4
CIS 140M	Intro to Windows OS	4		CIS 140M or 140L	Intro to Windows OS or Intro to Linux OS	4
WR 121	English Comp*	4		WR 121	English Comp*	4
CIS 133CS	Intro to Programming	4		CIS 133CS	Intro to Programming	4
CIS 240M	Install. & Configuring MS Windows Server	4		CIS 240M	Install. & Configuring MS Windows Server	4
MTH	MTH 105 or higher	4		MTH	MTH 105 or higher	4
WR 122 or 227	English Comp* or Technical Writing	4		CIS 125D	Computer Applications - Database Software	3
CIS 151C	Networking Essentials (Cisco 1)	4		CIS 151C	Networking Essentials (Cisco 1)	4
CIS 233CS	Intermediate Programming	4		CIS 233CS	Intermediate Programming	4
CIS 275	Intro to DBMS I	4		CIS 275	Intro to DBMS I	4
CIS 279M	MS Windows Server Admin I	4		CIS 279M	MS Windows Server Admin I	4
PSY 101	Psychology of Human Relations	3		PSY 101	Psychology of Human Relations	3
CIS 152C	Intro to Basic Switching (Cisco 2)	4		CIS 152C	Intro to Basic Switching (Cisco 2)	4
CIS 195	Authoring for the WWW I	4		CIS 195	Authoring for the WWW I	4
CIS 276	Intro to DBMS II	4		CIS 276	Intro to DBMS II	4
CIS 280	Cooperative Work Experience	2		CIS 280	Cooperative Work Experience	2-4
CIS 153C	Intermediate Switching & Routing (Cisco 3)	4		CIS 111	Computer Systems Configuration	4
CIS 284	Network Security Fundamentals	4		CIS 284	Network Security Fundamentals	4
				CIS 285B	CCNA Security	4
CIS 295	Authoring for the WWW II	4		CIS 295	Authoring for the WWW II	4

CIS 154C	WAN Protocols (Cisco 4)	4		CIS 125S	Computer Applications - Database Software	3
CIS 245	Project Management	4		CIS 245	Project Management	4
SP 111	Fundamentals of Public Speaking	4		SP 111	Fundamentals of Public Speaking	4
CIS 288M	Microsoft Windows Server Administration II	4		CIS 288M	Microsoft Windows Server Administration II	4
CIS 289M	Microsoft Windows Server Administration III	4				
	Total Credits in Program	96-97			Total Credits in Program	95-97

Note: Net increase of 0-1 credit hours in CIS program course offerings

PROGRAM REVISION FORM – page 3

AAS - Computer Information Systems

Prerequisites and Course Availability per Term

(For complete information, see 2017-2018 UCC catalog)

LAST REVISED 04/06/2016

	Course No. and Course Name	Term Offered				Credits	Prerequisites/Notes				
		F	W	S	S						
Fall Term 1	CIS 120	Introduction to CIS		X	X	X	X	4	Digital literacy score or instructor approval		
	CIS 122	Orientation to Programming		X				4	MTH 95, placement into WR 121, or instructor approval		
	CIS 140M or CIS 140L	Intro to Windows OS or Intro to Linux OS		X			X	4	Digital literacy score, concurrent enrollment, or completion of CIS 120; or instructor approval		
	MTH 095 or higher	Intermediate Algebra		X	X	X	X	4			
											16
Winter Term 2	CIS 111	Computer Systems Configuration			X			4	CIS 120 or instructor approval		
	CIS 133CS	Intro to Programming			X			4	CIS 122 or instructor approval		
	CIS 240M	Installing & Configuring Microsoft Windows Server (70-410)			X			4	Concurrent enrollment or completion of CIS 120, or instructor approval		
	WR 121	English Comp*		X	X	X	X	4	WR 115* or placement		
											16
Spring Term 3	CIS 151C	Networking Essentials (Cisco 1)				X		4	Concurrent enrollment or completion of CIS 120, or instructor approval		
	CIS 233CS	Intermediate Programming				X		4	CIS 133CS or instructor approval		
	CIS 275	Intro to Database Mgmt. Systems I				X		4	CIS133CS or instructor approval		
	CIS 279M	Microsoft Windows Server Administration I (70-411)				X		4	CIS240M or instructor approval		
											16
Fall Term 4	CIS 152C	Intro to Basic Switching & Routers (Cisco 2)		X				4	CIS 151C or instructor approval		
	CIS 195	Authoring for the WWW I		X				4	CIS 120 or instructor approval		
	CIS 276	Intro to Database Mgmt. Systems II		X				4	CIS 275 or instructor approval		
	CIS 288M	Microsoft Windows Server Administration II (70-412)		X				4	CIS 279M or instructor approval		
											16
Winter Term 5	CIS 125S	Computer Applications - Spreadsheet Software			X			3	CIS 120 or instructor approval		
	CIS 284	Network Security Fundamentals			X			4	CIS 152C or instructor approval		
	CIS 285B	CCNA Security			X			4	CIS 152C or instructor approval		
	CIS 295	Authoring for the WWW II			X			4	CIS 195, CIS 275, or instructor approval		
											15
Spring Term 6	CIS 125D	Computer Applications - Database Software				X		3	CIS 120 or instructor approval		
	CIS 245	Project Management				X		4	Second year CIS major or instructor approval		
	CIS 280	CWE: CIS		X	X	X	X	2	Instructor approval; 33 hours=1 credit. Minimum of 2 credits; maximum of 4 credits.		
	PSY 101	Psychology of Human Relations		X	X	X	X	3	Or SDP 112 or SP 218		
SP 111	Fundamentals of Public Speaking		X	X	X		4	See current UCC catalog for course prerequisites			
											16
		TOTAL DEGREE CREDITS						95	(Cannot exceed 108 credits)		

NOTE: Placement scores of MTH 65 or higher and WR 115 or higher are required for entry into the CIS program.

*A grade of "C" or better is required in the indicated course.

Faculty Advisor: John Blackwood 541-440-7686 john.blackwood@umpqua.edu

Faculty Advisor: Vincent Yip 541-440-7886 vincent.yip@umpqua.edu

NOTES:

****If students choose to vary from this suggested sequence, then prerequisites and term availability must be watched closely because class time conflicts may arise, and/or desired courses may not be available.**

ANTH – ANTHROPOLOGY

ANTH 150: Introduction to Archaeology (3) This course offers an introduction to the archaeology and prehistory of the world and archaeological method and theory. We will review the basic field and lab techniques that archaeologists use to investigate the past, the theoretical paradigms that guide the archaeological process, and the origins of human behavior from the earliest fossils and artifacts to the ancient civilizations of the Old and New Worlds.

Registration-Enforced Prerequisite: WR 121 with a grade of C or better. 3 lecture hrs/wk. S

ANTH 165: Anthropology of Sex (3)

This course introduces students to sexuality and gender in anthropology, including current issues in America and cultures throughout the world. In this course we investigate the cultural dimensions of sex and institutionalized gender roles, including sex, gender, marriage and reproduction, cultural expectations about the behavior of men and women in social and professional situations, relationships and roles, sex and gender in the media, lesbian, gay, bisexual, transgender and other genders, gender discrimination in social position, power and economic opportunities, sex in the workplace, sex trafficking, infanticide, childbirth and childcare, domestic violence, AIDS/HIV and STDs, genital mutilation practices, the politics of sex, gender and identity, sex and gender in government institutions and the military, and sex and gender issues in the law. From an anthropological perspective, these issues are inextricable and linked to a variety of cultural institutions and practices. Registration Enforced Prerequisite:

WR 121. 3 lecture hrs/wk. F. (not currently offered).

ANTH 221: Cultural Anthropology (3)

Preliterate and modern societies are studied, compared, and contrasted to discover common human themes. Both evolutionary and institutional approaches are used; that is, we look at hunters and gatherers, bands, tribes, and state societies as well as institutions such as the family, political organization, economics, technology, and religion. This is the first term of a three-term sequence. 3 lecture hrs/wk. Registration-Enforced Prerequisite: Writing 121. F

ANTH 222: Cultural Anthropology (3)

A continuation of the major themes explored in ANTH 221/223, including social organization, cultural adaptation and change, the family, values, economics, politics, and religion.

May be taken independently of ANTH 221/223. 3 lecture/hrs/wk. Registration-Enforced Prerequisite: WR 121. W

ANTH 223: Cultural Anthropology (3)

A continuation of the major themes explored in ANTH 221/222. Ancient traditions and modern adaptations and problems are considered. May be taken independently of ANTH 221/222. 3 lecture hrs/wk. Registration-Enforced Prerequisite: Writing 121. S (not currently offered).