CURRICULUM/GEN ED COMMITTEE
a standing committee of the Education Advisory Committee

Agenda
December 6, 2006 3 pm
Sylvania, CC- Conference Room B

Information Items from the Curriculum Office:
(These items do not require curriculum committee recommendation)

Experimental Course

- BCT 299V – Vectorworks for Constructors II
- CIS 199P – PHP Web Development I
- CIS 299P – PHP Web Development II
- CAS 199 – Desktop Publishing: InDesign
- BA 199B – Legal Issues in Credit
- PS 199B – Political Skills and Issues

Course Inactivation

- MTH 259 – Calculus Review
- CIS – See attachment

Old Business

57. ENGR 211 – Statics
Course Revision – Requisites

New Business

67. ENGR 100 – Exploring Engineering
Course Revision – Description

68. ENGR 101 – Engineering Fundamentals
Course Revision – Description

69. ENGR 275 – Microcomputer Systems I
Course Revision – Description

70. ATH 234 – Death: Crosscultural Perspectives
New Course

71. SOC 234 – Death: Crosscultural Perspectives
New Course

72. CMET 110 – Statics
Course Revision – Description, Requisites

73. CMET 112 - Technical Algebra/Trigonometry
Course Revision – Description

74. CMET 132 – Plane Surveying
Course Revision – Requisites

75. CMET 133 – Materials Technology
Course Revision – Requisites

76. CMET 211 – Environment Engineering Technology I
Course Revision – Title, Requisites

77. CMET 212 – Thermodynamics I
Course Revision – Requisites

78. CMET 215 – Manufacturing Processes
Course Revision – Requisites

79. CMET 221 – Environmental Engineering Technology II
Course Revision – Title, Requisites

80. CMET 226 – Dynamics
Course Revision – Requisites

81. CMET 228 – Construction Materials
Course Revision – Requisites

82. CMET 233 – Computer Aided Design III – CET
Course Revision – Title, Requisites

83. CMET 235 – Machine Design
Course Revision – Requisites

84. CMET 236 – Structural Design
Course Revision – Requisites

85. CMET 237 – Computer Aided Design III
Course Revision – Title

86. CMET 241 – Structural Steel Drafting
Course Revision – Requisites

87. CMET 254 – Civil/Mechanical Engineering Technology Seminar
Course Revision – Requisites

88. MTH 91 – Intermediate Algebra Part 1
Course Revision – Description

89. MTH 92 – Intermediate Algebra Part 2
Course Revision – Description

90. MTH 95 – Intermediate Algebra
Course Revision – Outcomes

91. MTH 116- Calculus Preparation
Course Revision – Outcomes

92. ART 217 – Understanding Comics Art
New Course

93. PSY 285 – Psychology Majors' Seminar and Practicum
New Course

94. TA 190B – Projects in Theatre
Contact/Credit Hour Change

95. TA 290B- Projects in Theatre
Contact/Credit Hour Change

96. TA 244 – Advanced Improvisation
New Course

97. BCT 280C – Cooperative Education Building Construction Technology
Course Revision – Description, Outcomes

98. NUR 208 - Nursing Care of Clients with Emergent Health Care Needs
Course Revision – Description

99. RD 80A – Ready 80
Course Revision – Title

100. RD 80C – Ready 80
Course Revision – Title

101. WR 80C – Writing 80
Course Revision – Title

102. ALC 60 – Basic Math Skills Lab
New Course

103. ALC 62 – Basic Math Review (Lab)
Course Revision – Title

104. ALC 63 – Basic Math Review (Lab)
Course Revision – Title

105. ALC 64 – Basic Math Review (Lab)
Course Revision – Title

106. ALC 52 – Basic English Skills Lab
Course Revision – Course Number change to ALC 51

107. ALC 53 – Basic English Skills Lab
Course Revision – Course Number change to ALC 52

108. ALC 54 – Basic English Skills Lab
Course Revision – Course Number change to ALC 53

109. ALC 62 – Basic Math Review (Lab)
Course Revision – Course Number change to ALC 61

110. ALC 63 – Basic Math Review (Lab)
Course Revision – Course Number change to ALC 62

111. ALC 64 – Basic Math Review (Lab)
Course Revision – Course Number change to ALC 63

112. ALC 70 – Technical Math Support
Course Revision – Description/Requisites

113. DE 50 – Vocabulary Building
Course Revision – Description/Requisites

114. MTH 10B – Fundamentals of Arithmetic I
Course Revision – Description/Requisites

115. MTH 10C – Fundamentals of Arithmetic I
Course Revision – Description/Requisites

116. MTH 11B – Fundamentals of Arithmetic II
Course Revision – Description/Requisites

117. MTH 11C – Fundamentals of Arithmetic II
Course Revision – Description/Requisites

118. MTH 20 – Basic Math
Course Revision – Description/Requisites

119. MTH 20B – Basic Math
Course Revision – Description/Requisites

120. MTH 21C – Percentage and Statistics
Course Revision – Description/Requisites

121. MTH 22 – Measurements
Course Revision – Description/Requisites

122. MTH 22C – Measurements
Course Revision – Description/Requisites

123. MTH 23C – Introduction to Geometry
Course Revision – Description/Requisites

124. MTH 24C – Pre-Algebra
Course Revision – Description/Requisites

125. MTH 25C – Fractions
Course Revision – Description/Requisites

126. MTH 26C – Decimals
Course Revision – Description/Requisites

127. MTH 27C – Applications in Mathematics
Course Revision – Description/Requisites

The following courses are being proposed by Columbia Gorge Community College:

128. RET 101 – Introduction to Wind Turbine Technology I
New Course

129. RET 102 – Alternate Energy Power Generation
New Course

130. RET 119 – Programmable Controllers (PLC)
New Course

131. RET 120 – Basic/Introductory Hydraulics
New Course

132. RET 121 – Wind Mechanics I
New Course

133. RET 122 – Wind Mechanics II
New Course

134. RET 141 – Electrical Motor and Generator Control
New Course

135. RET 223 – Wind Mechanics III
New Course

Curriculum Request Form
Course Inactivation

Course Number and Titles:

CIS 115 Introduction to Object-Oriented Software Engineering
CIS 116 Object-Oriented Software Development
CIS 126 Object-Oriented Software Methodology
CIS 211 Object-Oriented Data Abstraction
CIS 250 Advanced Assemble Language Programming
CIS 256 Introduction to Systems Software Development
CIS 258 Object-Oriented GUI Software Development
CIS 264 C# Multi-tier.NET Architecture Software Development
CIS 266 Introduction to Embedded Software Development
CIS 268 Object-Oriented Multihreaded Software Development
CIS 272 Software Development Team Project Deployment
CIS 133G Introduction to Computer Games
CIS 133D Database Application Development II
CIS 234V Advanced Visual BASIC.NET for Programmers
CIS 235D Data Application Development II
CIS 280K CE: Computer Information Systems
CIS 288L Linux Security

Is there an impact on another dept or campus?:	NO
Description of impact on dept/campus:	
Have other sacs been contacted?:	YES
Description of contact:	There are no other disciplines using this course.
Request term:	Fall
Request year:	2006
Contact person:	Sandra Koester
Contact e-mail:	skoester@pcc.edu

Curriculum Request Form
Course Revision

Change:	Requisites
Current course number:	ENGR 211
Current course title:	Statics
Current prerequisites:	MTH 253, PHY 211; ENGR 101
Proposed prerequisites:	MTH 252, PHY 211; ENGR 101
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Todd Sanders
Contact e-mail:	tsander@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	ENGR 100
Current course title:	Exploring Engineering
Current description:	An exploration of the engineering profession. Includes education, ethics, and licensing issues, along with presentations by practicing engineers.
Proposed description:	Focuses on engineering careers, and what engineers "do". Presents various engineering disciplines and associated occupations through class discussions, presentations by practicing engineers, laboratory activities, and viewing of occupational videos. Designed to inform students of the attributes of a career in engineering and the academic preparation it requires.
Reason for description change:	ENGR SAC is unaware of the "source" of the current course description and desires that the course description match the course's CCOG. The proposed course description is the course description from the ENGR 100 CCOG.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2006
Contact name:	Todd Sanders
Contact e-mail:	tsanders@pcc.edu

Curriculum Request Form
Course Revision

CHANGE:	Course Description
CURRENT COURSE NUMBER:	ENGR 101
CURRENT COURSE TITLE:	Engineering Fundamentals
CURRENT DESCRIPTION:	Introduces engineering occupations, registration laws and ethics. Emphasizes engineering problem solving, and use of computer applications. Scientific, programmable, graphing calculator required
PROPOSED DESCRIPTION:	Introduces basic engineering problem solving, analysis and design. This course covers basic concepts of curve fitting, statistics, electricity, and mechanics, including vector algebra. It utilizes spreadsheet and computer programming applications as problem solving tools. Stuudents will be introduced to non-technical aspects of engineering, such as registration laws and ethics. Labs may include group engineering project work.
REASON FOR DESCRIPTION CHANGE:	ENGR SAC is unaware of the "source" of the current course description and desires that the course description match the course's CCOG. The proposed course description is the course description from the ENGR 101 CCOG.
WILL THIS IMPACT OTHER SACS?,IS THERE AN IMPACT ON OTHER SACS?:	no
WILL THIS IMPACT OTHER DEPTS/CAMPUSES?,IS THERE AN IMPACT ON ANOTHER DEPT OR CAMPUS?:	no
REQUEST TERM:	winter
REQUESTED YEAR:	2006
CONTACT NAME:	Todd Sanders
CONTACT E-MAIL:	tsanders@pcc.edu

Curriculum Request Form
Course Revision

CHANGE:	Course Description
CURRENT COURSE NUMBER:	ENGR 275
CURRENT COURSE TITLE:	Microcomputer Systems I
CURRENT DESCRIPTION:	Introduction to microprocessor architecture, assembly language programming and basic microcomputer system design. Use specialized software development tools to write applications programs and test/debud programs in prototype systems.
PROPOSED DESCRIPTION:	Introduces X86 microprocessor architecture and assemble language programming for the IBM PC compatible computer, including the use of BIOS and DOS functions calls and the use of procedures. Structured programming techniques will be used to write programs that accept keyboard input and create displayed results. Appropriate program testing and debugging methods will be emphasized. Includes a 3-hour per week laboratory.
REASON FOR DESCRIPTION CHANGE:	ENGR SAC is unaware of the "source" of the current course description and desires that the course description match the course's CCOG. The proposed course description is the course description from the ENGR 275 CCOG.
WILL THIS IMPACT OTHER SACS?,IS THERE AN IMPACT ON OTHER SACS?:	no
WILL THIS IMPACT OTHER DEPTS/CAMPUSES?,IS THERE AN IMPACT ON ANOTHER DEPT OR CAMPUS?:	no
REQUEST TERM:	winter
REQUESTED YEAR:	2006
CONTACT NAME:	Todd Sanders
CONTACT E-MAIL:	tsanders@pcc.edu

Curriculum Request Form
New Course

Course number:	ATH 234
Course title:	Death: Crosscultural Perspectives
Transcript title:	Crosscultural Views of Death
Lecture hours:	4
Weekly contact hours:	4
Total credits:	4
Reason for new course:	We have developed this course for the following reasons: popular response to our experimental Ant/Soc 299 offerings; the desirability in today's world of introducing cross-disciplinary exposures to death, its meaning for different cultures and how they respond in ritual; it meets clear public interest in the subject.
Course description:	This course is an interdisciplinary study into cross-cultural variations regarding human response to death and the differing cosmological implications these suggest. Death, a cultural universal, is addressed in its diversity from both anthropological and sociological perspectives. The subject of death as experienced by several major regions and cultures of the world is explored, including Asia, India, Bali, Middle East, Melanesia and Native American; historical trends in Western Europe and the Americas are assessed regarding the evolution of contemporary perspectives on mortality.
Prerequisite(s):	(a course in anthropology or sociology is recommended)
Prereq/concurrent:	None
Corequisite(s):	None
Learning outcomes:	1. To instill in the student an awareness of and appreciation for the diversity of cultural responses to death; 2. To develop an understanding of the role of rites and ritual in grief resolution across differing cultural contexts; 3. To assess Judeo-Christian and other perceptions of mortality in a global context;

	4. To elicit student perceptions regarding their own mortality.
Gened list:	YES, Gen. Ed. Requested
List b:	YES, Transfer List B Requested
Course format:	On Campus
Other format:	(two simultaneous instructors (anthro. & soc.) utilizing lectures, discussions, films, visiting speakers & visual media)
Are there similar courses existing:	YES
Description of existing courses:	(SOC 233, Death and Dying focuses on preparing students for health- and medically-related fields such as nursing, gerontology, etc.)
Required or elective:	Elective
Is there impact on degrees or certificates:	NO
Is there an impact on another dept or campus?:	NO
Description of impact on dept/campus:	(offered jointly as ANTH 234 or SOC 234; students can sign up for one or the other but not both)
Have other sacs been contacted?:	YES
Description of contact:	extensive and positive discussions (and two experimental course offerings) with the Chair, Anthropology; the Chair, Sociology; and the Dean of Social Sciences
Is there an increase in costs for library or av dept?:	NO
Implementation term:	Winter
Implementation year:	2007
Contact name:	Dr. Brook Gondara, Dean, Social Sciences
Contact e-mail:	bgondara@pcc.edu

COURSE CONTENT AND OUTCOME GUIDE

Date: September 2006
Course Number: ATH 234
Title: Death: Crosscultural Perspectives
Credit Hours: 4
Lecture Hours Per Week: N/A
Lecture/Lab Hours Per Week: N/A
Number of Weeks: 10
Special Fee: None

Official Description:
This course is an interdisciplinary study into cross-cultural variations regarding human response to death and the differing cosmological implications these suggest. Death, a cultural universal, is addressed in its diversity from both anthropological and sociological perspectives. The subject of death as experienced by several major regions and cultures of the world is explored, including Asia, India, Bali, Middle East, Melanesia and Native American; historical trends in Western Europe and the Americas are assessed regarding the evolution of contemporary perspectives on mortality.

Course Content:
1. The nature of death as a cultural universal
2. The diversity within and between cultures regarding the experience and response to death.
3. The nature of funerary ritual, its history and functions
4. Discussion of world historical thinkers on the subject of death and the implication of their thought on our own sense of mortality
5. Presentation of varying cosmologies and their implications for living and dying.
6. Changing national and cultural patterns of response to death

Intended Student Learning Outcomes:
The student will be made aware of the diverse ways in which people experience and respond to the cultural universal of death. Crosscultural and crossdisciplinary study of this phenomenon will invigorate and energize the student's learning experience. The student will have a better understanding of their own heritage regarding death, as well as that of others. This course will create the conditions to elicit not only an interest in the rites and rituals of others, but will also create a forum to discuss the student's own perceptions regarding mortality.

Learning Activities:
Lectures, discussion, text reading and review, films and other media, visiting speakers, in -lass exercises, individual projects.

This course is intended to be taught in conjunction with Sociology 234, Death: Crosscultural Perspectives . Both instructors are present and participate simultaneously in the course presentations. These instructors should have a clear idea of how they will mutually give and take, acting with recognition of each other as they present the content of the course. They are highly encouraged to make extensive use of films and guest speakers (e.g. Buddhist, Hindu, Islamic, Jewish, Native American, etc.) as elements of their course presentation. A blend of film, multidisciplinary instruction and a thought-provoking text makes the course an exciting learning experience.

Learning Assessment Tasks:
The instructors will assess student learning through a variety of evaluation tools including projects, quizzes and exams. In addition, instructors are encouraged to integrate the following types of tasks and learning experiences to assess student achievement in a more comprehensive manner:

Short position papers on specific concepts, themes and issues
Oral presentations
Service-learning tasks
Student-instructor conferences and work reviews
Video projects, oral histories and interviews
Research or term papers (e.g. how their families views and deals with death)

Competencies and Skills Resulting:

Understanding death as a cultural universal and what this implies
Knowledge of the varied ways in which societies experience and respond to death
Awareness of their own family heritage regarding their experience and response to death
Ability to apply a range of historical thinkers' ideas regarding death to their own experiences and insights
Developing a greater awareness of one's mortality and hence, living more competently
Understanding the process of death and its corresponding loss and thus function with greater compassion in living
Ability to reflect on and approach the human condition in a crosscultural and crossdisciplinary manner

Recommended Text:

World Philosophers on Death, edited by D. J. Ciraulo, Kindall/Hunt Publishing Company, 2004, ISBN 0-7575-0834-5

Curriculum Request Form
New Course

Course number:	SOC 234
Course title:	Death: Crosscultural Perspectives
Transcript title:	Crosscultural Views of Death
Lecture hours:	4
Weekly contact hours:	4
Total credits:	4
Reason for new course:	We have developed this course for the following reasons: popular response to our experimental Ant/Soc 299 offerings; the desirability in today's world of introducing cross-disciplinary exposures to death, its meaning for different cultures and how they respond in ritual; it meets clear public interest in the subject.
Course description:	This course is an interdisciplinary study of the crosscultural variations regarding human responses to death and the differing cosmological implications these suggest. Death, a cultural universal, is addressed in its diversity from both anthropological and sociological perspective. The topic of death as experienced by several major regions and cultures of the world is explored including Asia, India, Bali, Middle East, Melanesia and Native Americans; historical trends in Western Europe and the Americas are assessed regarding the evolution of contemporary perspectives on mortality.
Prerequisite(s):	(a prior course in anthropology or sociology is recommended)
Prereq/concurrent:	None
Corequisite(s):	None
Learning outcomes:	1. To instill in the student an awareness of and appreciation for the diversity of cultural responses to death; 2. To develop an understanding of the role of rites and ritual in grief resolution across differing cultural contexts; 3. To assess Judeo-Christian and other perceptions of mortality in a global context;

	4. To elicit student perceptions regarding their own mortality.
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List b:	YES, Transfer List B Requested
Course format:	On Campus
Other format:	(two simultaneous instructors (anthro. & soc.) utilizing lectures, discussions, films, visiting speakers, & visual media)
Are there similar courses existing:	YES
Description of existing courses:	(SOC 233 (Death & Dying) focuses on preparing students for health- and medically-related fields such as nursing, gerontology, etc.)
Required or elective:	Elective
Is there impact on degrees or certificates:	NO
Is there an impact on another dept or campus?:	NO
Description of impact on dept/campus:	(offered jointly as ANTH 234 or SOC 234; students can sign up for one or the other but not both)
Have other sacs been contacted?:	YES
Description of contact:	extensive and positive discussions (and two experimental course offerings) with the Chair, Anthropology; the Chair, Sociology; and the Dean of Social Sciences
Is there an increase in costs for library or av dept?:	NO
Implementation term:	Winter
Implementation year:	2009
Contact name:	Dr. Brook Gondara, Dean, Social Sciences
Contact e-mail:	bgondara@pcc.edu

COURSE CONTENT AND OUTCOME GUIDE

Date: September 2006
Course Number: SOC 234
Title: Death: Crosscultural Perspectives
Credit Hours: 4
Lecture Hours Per Week: N/A
Lecture/Lab Hours Per Week: N/A
Number of Weeks: 10
Special Fee: None

Official Description:
This course is an interdisciplinary study into cross-cultural variations regarding human response to death and the differing cosmological implications these suggest. Death, a cultural universal, is addressed in its diversity from both anthropological and sociological perspectives. The subject of death as experienced by several major regions and cultures of the world is explored, including Asia, India, Bali, Middle East, Melanesia and Native American; historical trends in Western Europe and the Americas are assessed regarding the evolution of contemporary perspectives on mortality.

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The student will be made aware of the diverse ways in which people experience and respond to the cultural universal of death. Crosscultural and crossdisciplinary study of this phenomenon will invigorate and energize the student's learning experience. The student will have a better understanding of their own heritage regarding death, as well as that of others. This course will create the conditions to elicit not only an interest in the rites and rituals of others, but will also create a forum to discuss the student's own perceptions regarding mortality.

Learning Activities:
Lectures, discussion, text reading and review, films and other media, visiting speakers, in -lass exercises, individual projects.

This course is intended to be taught in conjunction with Anthropology 234, Death: Crosscultural Perspectives . Both instructors are present and participate simultaneously in the course presentations. These instructors should have a clear idea of how they will mutually give and take, acting with recognition of each other as they present the content of the course. They are highly encouraged to make extensive use of films and guest speakers (e.g. Buddhist, Hindu, Islamic, Jewish, Native American, etc.) as elements of their course presentation. A blend of film, multidisciplinary instruction and a thought-provoking text makes the course an exciting learning experience.

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Research or term papers (e.g. how their families views and deals with death)

Competencies and Skills Resulting:

Understanding death as a cultural universal and what this implies
Knowledge of the varied ways in which societies experience and respond to death
Awareness of their own family heritage regarding their experience and response to death
Ability to apply a range of historical thinkers' ideas regarding death to their own experiences and insights
Developing a greater awareness of one's mortality and hence, living more competently
Understanding the process of death and its corresponding loss and thus function with greater compassion in living
Ability to reflect on and approach the human condition in a crosscultural and crossdisciplinary manner

Recommended Text:

World Philosophers on Death, edited by D. J. Ciraulo, Kindall/Hunt Publishing Company, 2004, ISBN 0-7575-0834-5

Curriculum Request Form
Course Revision

Change:	Course Description,Requisites
Current course number**:**	CMET 110
Current course title**:**	Statics
Proposed description**:**	Add to current description: "Department approval required."
Reason for description change**:**	CMET is a limited-enrollment program. Students must meet with a faculty adviser before starting this course.
Current prerequisites**:**	MTH60 and placement in WR121
Proposed prerequisites**:**	MTH60 and placement in WR115
Will this impact other sacs?,is there an impact on other sacs?**:**	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?**:**	No
Request term**:**	winter
Requested year**:**	2007
Contact name**:**	Jan Chambers
Contact e-mail**:**	jchamber@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	CMET112
Current course title:	Technical Algebra/Trigonometry
Proposed description:	Add to course description: "Department approval required."
Reason for description change:	CMET is a limited-enrollment program. Students must meet with a faculty adviser before starting this course.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Jan Chambers
Contact e-mail:	jchamber@pcc.edu

Curriculum Request Form
Course Revision

Change:	Requisites
Current course number:	CMET132
Current course title:	Plane Surveying
Current prerequisites/concurrent:	(CMET123 or MTH112) and (CMET113 or DRF126)
Proposed prerequisites/concurrent:	(CMET123 or MTH112) and CMET113
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	fall
Requested year:	2007
Contact name:	Jan Chambers
Contact e-mail:	jchamber@pcc.edu

Curriculum Request Form
Course Revision

Change:	Requisites
Current course number:	CMET133
Current course title:	Materials Technology
Current prerequisites:	CMET131, CH100, WR121
Proposed prerequisites:	CMET 121, 123; CH 104; WR 115
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	fall
Requested year:	2007
Contact name:	Jan Chambers
Contact e-mail:	jchamber@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Title, Requisites
Current course number:	CMET211
Current course title:	Environmental Engineering Technology I
Proposed course title:	Environmental Quality
Proposed transcript title:	Environmental Quality
Reason for title change:	Better reflects content of the course; courses currently titled "I" and "II" do not need to be taken in that order.
Current prerequisites:	CMET 123, CH 100
Proposed prerequisites:	CMET 123, CH 104, WR 115
Current prerequisites/concurrent:	WR 121
Proposed prerequisites/concurrent:	None
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Jan Chambers
Contact e-mail:	jchamber@pcc.edu

Curriculum Request Form
Course Revision

Change**:**	Requisites
Current course number**:**	CMET 212
Current course title**:**	Thermodynamics I
Current prerequisites**:**	CMET 131, CH 100
Proposed prerequisites**:**	CMET 131, 122; CH 104
Will this impact other sacs?,is there an impact on other sacs?**:**	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?**:**	No
Request term**:**	winter
Requested year**:**	2007
Contact name**:**	Jan Chambers
Contact e-mail**:**	jchamber@pcc.edu

Curriculum Request Form
Course Revision

Change:	Requisites
Current course number:	CMET 215
Current course title:	Manufacturing Processes
Current prerequisites:	CMET 121, 122
Proposed prerequisites:	CMET 121, 122; WR 115
Current prerequisites/concurrent:	CMET 133, WR 121
Proposed prerequisites/concurrent:	CMET 133
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Jan Chambers
Contact e-mail:	jchamber@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Title,Requisites
Current course number:	CMET221
Current course title:	Environmental Engineering Technology II
Proposed course title:	Environmental Systems
Proposed transcript title:	Environmental Systems
Reason for title change:	Better reflects content of the course; courses currently titled "I" and "II" do not need to be taken in that order.
Current prerequisites:	CMET 211, 213; WR 121
Proposed prerequisites:	CMET 123, WR 115
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Jan Chambers
Contact e-mail:	jchamber@pcc.edu

Curriculum Request Form
Course Revision

Change:	Requisites
Current course number:	CMET 226
Current course title:	Dynamics
Current prerequisites:	CMET 131
Proposed prerequisites:	CMET 110, 131
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Jan Chambers
Contact e-mail:	jchamber@pcc.edu

Curriculum Request Form
Course Revision

Change:	Requisites
Current course number:	CMET 228
Current course title:	Construction Materials
Current prerequisites:	CMET 121, 122, 123; WR 121
Proposed prerequisites:	CMET 121, 122, 123
proposed prerequisites/concurrent:	WR 121
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Jan Chambers
Contact e-mail:	jchamber@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Title,Requisites
Current course number:	CMET 233
Current course title:	Computer Aided Design III – CET
Proposed course title:	CET Computer Aided Design applications
Proposed transcript title:	CET CAD applications
Reason for title change:	Better describes course content.
Current prerequisites:	CMET 113, DRF 241
Proposed prerequisites:	CMET 113, CMET 241
Current prerequisites/concurrent:	None
Proposed prerequisites/concurrent:	CMET 214
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Jan Chambers
Contact e-mail:	jchamber@pcc.edu

Curriculum Request Form
Course Revision

Change:	Requisites
Current course number:	CMET 235
Current course title:	Machine Design
Current prerequisites:	CMET 226
Proposed prerequisites:	CMET 121, 226
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Jan Chambers
Contact e-mail:	jchamber@pcc.edu

Curriculum Request Form
Course Revision

Change:	Requisites
Current course number:	CMET 236
Current course title:	Structural Design
Current prerequisites:	CMET 121, 122, 123; WR 121
Proposed prerequisites:	CMET 121, 122, 123; WR 115
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Jan Chambers
Contact e-mail:	jchamber@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Title
Current course number:	CMET 237
Current course title:	Computer Aided Design III
Proposed course title:	MET Computer Aided Design Elective
Proposed transcript title:	MET CAD Elective
Reason for title change:	Better describes course content.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Jan Chambers
Contact e-mail:	jchamber@pcc.edu

Curriculum Request Form
Course Revision

Change:	Requisites
Current course number:	CMET 241
Current course title:	Structural Steel Drafting
Current prerequisites:	(CMET 113 or GE 102); CMET 121
Proposed prerequisites:	CMET 113, 121
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Jan Chambers
Contact e-mail:	jchamber@pcc.edu

Curriculum Request Form
Course Revision

Change:	Requisites
Current course number:	CMET 254
Current course title:	Civil/Mechanical Engineering Technology Seminar
Current prerequisites:	None
Proposed prerequisites:	WR 115
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Jan Chambers
Contact e-mail:	jchamber@pcc.edu

Curriculum Request Form
Course Description Change

Change:	Course Description
Current course number:	MTH 91
Current course title:	Intermediate Algebra Part 1
Current description:	Functions are investigated graphically, numerically, symbolically and verbally in real world settings. The concept of a function is introduced, with emphasis on linear and rational functions. Technology is integrated into all aspects of the course, as appropriate. Students communicate results in oral and written form. Graphing calculator required TI-89 recommended. Must take both MTH 91 and MTH 92 to satisfy MTH 95 requirements. Prerequisite: Successful completion of MTH 65 and placement into WR 115.
Proposed description:	Functions are investigated graphically and symbolically with an emphasis on function notation. Quadratic functions are examined in detail. Radical expressions are introduced. Absolute value equations and inequalities are solved. Technology is integrated as appropriate. Students communicate results in oral and written form. Graphing calculator required: TI 89/92 plus or Voyage 200 recommended. Prerequisites: MTH 63, MTH 65 or MTH 70 and placement into WR 115. Students must take both MTH 91 and MTH 92 to satisfy MTH 95 requirements.
Reason for description change:	Changes in the MTH 95 Course description need to be reflected in the course descriptions for MTH 91/92, the two-term version of MTH 95.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	fall
Requested year:	2006

Contact name: Ann Sitomer
Contact e-mail: asitomer@pcc.edu

Curriculum Request Form
Course Description Change

Change:	Course Description
Current course number:	MTH 92
Current course title:	Intermediate Algebra Part 2
Current description:	Functions are investigated graphically, numerically, symbolically and verbally in real world settings. Radical, quadratic, and exponential functions are explored. Technology is integrated into the course, as appropriate. Students communicate results in oral and written form. Graphing calculator required - TI-89 recommended. Must take both MTH 91 and MTH 92 to satisfy MTH 95 requirements. Prerequisite: Successful completion of MTH 91 and placement into WR 115.
Proposed description:	Functions are investigated graphically and symbolically with an emphasis on function notation. Rational and radical expressions and equations are emphasized. Technology is integrated as appropriate. Students communicate results in oral and written form. Graphing calculator required: TI 89/92 plus or Voyage 200 recommended. Prerequisites: MTH 63, MTH 65 or MTH 70 and placement into WR 115. Students must take both MTH 91 and MTH 92 to satisfy MTH 95 requirements.
Reason for description change:	The change is needed to align with the changes in the MTH 95 Course description.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	fall
Requested year:	2006
Contact name:	Ann Sitomer
Contact e-mail:	asitomer@pcc.edu

Curriculum Request Form
Course Revision

Change:	Learning Outcomes
Current course number:	MTH 95
Current course title:	Intermediate Algebra
Current description:	Functions are investigated graphically and symbolically with an emphasis on function notation. Quadratic functions are examined in detail. Rational and radical expressions and equations are emphasized. Absolute value equations and inequalities are solved. Technology is integrated as appropriate. Students communicate results in oral and written form. Graphing calculator required: TI 89/92 plus or Voyage 200 recommended. Prerequisites: MTH 63, MTH 65 or MTH 70 and placement into WR 115.
Proposed description:	None
Current learning outcomes:	INTENDED OUTCOMES FOR THE COURSE: Creatively use mathematical and other problem solving strategies to formulate problems, to solve problems using multiple approaches, and to interpret results. Make mathematical connections by recognizing and creating linear, quadratic, and exponential models of nontrivial real world situations. Demonstrate mastery of linear and quadratic functions. Meet the prerequisites for the study of college-level mathematics.
Proposed learning outcomes:	Intended Outcomes for the Course: 1. To recognize, formulate, interpret, describe, and apply mathematical relationships, especially linear and quadratic and to a lesser degree rational and radical, in real-world contexts. 2. To use mathematical problem solving strategies to solve problems using multiple approaches and to interpret the results in practical terms. 3. To meet the prerequisite skills for college level coursework.
Reason for learning outcomes change:	3 year review was completed. The Math SACC has updated the outcomes with more detail so that the interpretation of both full-time and part-time faculty will be more consistent.

Current prerequisites:	MTH65
Current corequisites:	Placement in WR115
Will this impact other sacs?,is there an impact on other sacs?:	no
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	no
Request term:	fall
Requested year:	2006
Contact name:	Kimberly Neuburger
Contact e-mail:	kneuburg@pcc.edu

Curriculum Request Form
Course Revision

Change:	Learning Outcomes
Current course number:	MTH 116
Current course title:	Calculus Preparation
Current description:	Logarithmic functions, exponential functions, polynomial functions, rational functions and trigonometric functions are reviewed graphically, numerically, symbolically, and verbally. Applications are investigated from Science and Engineering perspectives. Communicate results in oral and written form. Technology is integrated throughout the course. Graphing calculator required; TI 89, TI 92 or Voyage 200 recommended. Prerequisites: MTH 112; WR 115.
Proposed description:	None
Current learning outcomes:	INTENDED OUTCOMES FOR THE COURSE: Prepare students for calculus. Demonstrate ability to model non-trivial, real world phenomena. Creatively use mathematical and other problem solving strategies to formulate problems, to solve problems using multiple approaches, and to interpret results. Demonstrate mastery of exponential, logarithmic, polynomial, rational, and trigonometric functions.
Proposed learning outcomes:	INTENDED OUTCOMES FOR THE COURSE: Prepare students for calculus. Demonstrate ability to model non-trivial, real world phenomena. Creatively use mathematical and other problem solving strategies to formulate problems, to solve problems using multiple approaches, and to interpret results. Demonstrate mastery of exponential, logarithmic, polynomial, power, rational, and trigonometric functions, vector arithmetic, understanding of the polar coordinate system, and parametric equations.
Reason for learning outcomes change:	3 year review was completed. The Math SACC has updated the outcomes with more detail so that the interpretation of both full-time and part-time faculty will be more consistent.

Current prerequisites:	MTH 112
Current corequisites:	WR115
Proposed corequisites:	None
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	fall
Requested year:	2006
Contact name:	Kimberly Neuburger
Contact e-mail:	kneuburg@pcc.edu

Curriculum Request Form
New Course

COURSE NUMBER:	Art 217
COURSE TITLE:	Understanding Comics Art
TRANSCRIPT TITLE:	Understanding Comics Art
LECTURE HOURS:	3
WEEKLY CONTACT HOURS:	3
TOTAL CREDITS:	3
REASON FOR NEW COURSE:	To facilitate a forum for the critical study of an artistic and culturally significant medium, i.e., Comics Art; to be taught by nationally-recognized leaders in the field. This course has been run for three years as an Art 299 with great interest and success.
COURSE DESCRIPTION:	Examines comics art as a medium of visual communication. Aesthetic qualities unique to comic books and graphic novels are analyzed in artistic, historical, and narrative contexts using seminal texts. WR 121 placement and RD 115 placement are strongly recommended.
PREREQUISITE(S):	None
PREREQ/CONCURRENT:	None
COREQUISITE(S):	None
LEARNING OUTCOMES:	Student will: develop an appreciation of comics as an artistic and literary practice; be able to explicate the history of comics and its creators; learn to regard works of comics art "dynamically," that is, to appreciate simultaneously the uniqueness of a work, its origins and precedent, its potential as an inspiration and influence on later comic art, and its relationship to a particular cultural moment; increase understanding of word/image relationships and visual communication; acquire knowledge of the relationship between comics and commercialism; draft formal tools for aesthetic criticism; learn to generalize course content to other art not covered in the course so that he/she can understand and value art in all-encompassing ways;

	acquire skills to explore narrative content/image relationships.
GENED LIST:	YES, Gen. Ed. Requested
COURSE FORMAT:	On Campus
ARE THERE SIMILAR COURSES EXISTING:	NO
REQUIRED OR ELECTIVE:	Elective
IS THERE IMPACT ON DEGREES OR CERTIFICATES:	NO
IS THERE AN IMPACT ON ANOTHER DEPT OR CAMPUS?:	NO
HAVE OTHER SACS BEEN CONTACTED?:	NO
IS THERE AN INCREASE IN COSTS FOR LIBRARY OR AV DEPT?:	YES
DESCRIPTION OF LIBRARY/AV IMPACT:	Some curriculum-supporting texts may be ordered.
IMPLEMENTATION TERM:	Spring
IMPLEMENTATION YEAR:	2007
CONTACT NAME:	Mark Smith
CONTACT E-MAIL:	msmith@pcc.edu

COURSE CONTENT AND OUTCOME GUIDE
ART 217

Date: October 19, 2006

Course Number: Art 217
Course Title: Understanding Comics Art
Credit Hours: 3
Lecture Hours per week: 3
Number of Weeks: 11
Prepared by: James Hicks, Diana Schutz

Course Description for Catalog Publication:
This course examines comics art as a medium of visual communication. Aesthetic qualities unique to comic books and graphic novels are analyzed in artistic, historical, and narrative contexts using seminal texts. WR 121 placement and RD 115 placement are strongly recommended.

Intended Outcomes for the Course:
Student will:

- ❑ develop an appreciation of comics as an artistic and literary practice;
- ❑ be able to explicate the history of comics and its creators;
- ❑ learn to regard works of comics art "dynamically," that is, to appreciate simultaneously the uniqueness of a work, its origins and precedent, its potential as an inspiration and influence on later comic art, and its relationship to a particular cultural moment;
- ❑ increase understanding of word/image relationships and visual communication;
- ❑ acquire knowledge of the relationship between comics and commercialism;
- ❑ draft formal tools for aesthetic criticism;
- ❑ generalize course content to other art not covered in the course so that he/she can understand and value art in all-encompassing ways;
- ❑ acquire skills to explore narrative content/image relationships;

Outcome Assessment Strategies:
The student will:

- ❑ comprehend, apply, analyze, and evaluate readings via weekly written assignments;
- ❑ present oral reports on assigned cartoonist and his/her work;
- ❑ participate in group discussion;
- ❑ provide a written critical in-depth analysis of a short-comics story
- ❑ participate in field trips
- ❑ act together with a professional cartoonist

- ❑ write and draw an eight-page mini-comic
- ❑ comprehend, apply, analyze and evaluate reading assignments
- ❑ identify comic artwork, and relate facts and ideas about these works of art in exam format
- ❑ research, plan, compose, edit and revise short papers

Course Content:

Themes, Concepts, and Issues:

- ❑ **Theoretical**
  - ❑ theory and criticism in the history of comics art
  - ❑ pattern-based thinking and historical process
  - ❑ various interpretations of comic art
  - ❑ art and gender
  - ❑ creativity and the impulse to make comic art
- ❑ **Stylistic and Interpretive**
  - ❑ visual literacy
  - ❑ art media and artistic technique
  - ❑ "seeing and knowing"
  - ❑ iconography
  - ❑ formal elements of art
- ❑ **Social and Cultural**
  - ❑ other peoples and their histories, values, and culture
  - ❑ art and economics
  - ❑ art and the social fabric
  - ❑ art and religion
  - ❑ art and politics
  - ❑ art and gender
  - ❑ relationship of culture and style
  - ❑ art and cultural transmission
  - ❑ historical impact of art
    - ❑ the influence of art on one's own culture
    - ❑ the influence of art on relations with other cultures
  - ❑ art and artists
    - ❑ the impulse to make art
    - ❑ the Gestalt of art
    - ❑ the role of the artist in society
    - ❑ biography
  - ❑ geography and its influence on art and culture
  - ❑ artifact recovery, analysis, and restoration

Competencies and Skills:

The successful student should be able to:

- ❑ work creatively with comic art data, using it to develop principles of comic art
- ❑ recognize and appraise patterns in historical phenomena

- ❑ assess the ways in which a comic is affected by our own vantage point
- ❑ recognize and discriminate among various styles of comic art
- ❑ trace the development of comic art from one period to another
- ❑ analyze formally works of comic art and appreciate the interrelationship of elements
- ❑ determine symbolism in comic art
- ❑ employ iconographical nomenclature
- ❑ express the relationship of comic art to society and culture to style
- ❑ analyze the "meaning" of comic art objects through understanding of historical, social, and political context
- ❑ use specific terminology to describe works of comic art
- ❑

Prerequisite Knowledge and Skills:

- ❑ oral and written command of college level English

Curriculum Request Form
New Course

Course number:	PSY 285
Course title:	Psychology Majors' Seminar and Practicum
Transcript title:	Psy Majors Seminar/Practicum
Lecture hours:	2/20
Lab hours:	2/60
Weekly contact hours:	8
Total credits:	4
Reason for new course:	To mentor and prepare students who are planning to major in psychology. Specifically, this would involve learning more about research methods, writing a professional literature review using APA format, spending a minimum of 60 hours at a practicum site, and learning about career opportunities available to students with undergraduate as well as graduate degrees in psychology.
Course description:	Designed for psychology majors, the class consists of a two-hour weekly seminar and a practicum placement in the community (60 hours).The seminar will focus on career paths in psychology at both the undergraduate and graduate levels, research methods, and professional writing and presentation skills. Prerequisites: PSY 201A and PSY 202A. Previous completion of or concurrent enrollment in WR 122. Previous completion of or concurrent enrollment in MTH 243 is highly recommended.
Prerequisite(s):	PSY 201A and PSY 202A
Prereq/concurrent:	WR 122
Corequisite(s):	None
Learning outcomes:	1. Demonstrate an understanding of the scope of the field of psychology as well as sub-fields within the discipline and what preparation for a major and/or a career in psychology may entail.

	2. Understand and accurately interpret research-based articles in psychological journals. 3. Identify potential methodological and design flaws, as well as potential reporting errors and misinterpretations, in research studies reported in the popular press. 4. Write a review of psychological literature consistent with APA style and format. 5. Research and present an original descriptive study; carry out and analyze data from the study, and present findings orally and visually to professional peer groups.
Course format:	On Campus
Are there similar courses existing:	NO
Required or elective:	Elective
Is there impact on degrees or certificates:	NO
Is there an impact on another dept or campus?:	YES
Description of impact on dept/campus:	Only that WR 122 and MTH 243 may be taken concurrently if the student desires. We have talked with SAC chairs in those departments and that would not present a problem.
Have other sacs been contacted?:	NO
Is there an increase in costs for library or av dept?:	NO
Implementation term:	Spring
Implementation year:	2007
Contact name:	Lauren Kuhn and Judy Zimmerman
Contact e-mail:	lkuhn@pcc.edu and jzimmerm@pcc.edu

Course Content and Outcomes Guide

Course Number: Psy 285
Course Title: Psychology Majors' Seminar and Practicum

Prepared by Lauren Kuhn and Vivian Hamilton
October 2006

Credit Hours: 4
Lecture Hours Per Week: 2
Practicum Hours Per Week: 6 (a total of 60 per term)
Number of Weeks: 10
Special Fee: None

Course Description for Publication: Designed for students who are preparing for a major and/or a career in psychology. The class consists of a two-hour weekly seminar and a practicum placement in the community (a minimum of 60 hours, over the course of the term or longer if necessary, is required). The seminar will focus on furthering students' knowledge and understanding of the scope of the field of psychology, as well as research methods used in the discipline. Additional objectives include improving professional writing and oral presentation skills. Pre-requisites: PSY 201A and 202A. Previous completion of or concurrent enrollment in WR122 is required. Previous or concurrent enrollment in MTH 243 is highly recommended.

Intended Outcomes of the Seminar:

1. Demonstrate an understanding of the scope of the field of psychology as well as sub-fields within the discipline and what preparation for a major and/or a career in psychology may entail.
2. Understand and accurately interpret research-based articles in psychological journals.
3. Identify potential methodological and design flaws, as well as potential reporting errors and misinterpretations, in research studies reported in the popular press.
4. Write a review of psychological literature consistent with APA style and format.
5. Research and present an original descriptive study; carry out and analyze data from the study, and present findings orally and visually to professional peer groups.

Intended Outcomes of the Practicum Placement:

1. To make informed choices about potential career paths in psychology and to distinguish between options available with an undergraduate and/or a graduate degree in psychology.
2. To apply psychological principles and concepts to real world problems and situations.
3. To acquire and/or to improve professional skills as appropriate to the practicum placement and to the student learning objectives established at the beginning of the term. These competencies may include: basic research skills; introductory assessment skills; interviewing skills; presentation skills; group facilitation skills; community outreach and/or organization skills; crisis counseling and intervention skills, etc.

Outcome Assessment Strategies for the Seminar:
Students will demonstrate achievement of intended outcomes by any combination of the following as determined by the instructor:

1. Written and/or oral assignments designed to stimulate critical thinking.
2. Written and/or oral assignments designed to promote integration of class material with personal reflection and experience.
3. Completion of a review of psychological literature consistent with APA style and format.
4. Collaboration with other seminar students in designing an original descriptive study; carrying out and analyzing data from the study, and presenting findings orally and visually to other members of the seminar.
5. Active participation in class discussions, individual and group exercises, activities and/or class presentations.
6. Short-answer and/or essay questions that require critical examination, application and integration of material covered in class.

Outcome Assessment Strategies for the Practicum:
Students will demonstrate achievement of intended outcomes by:

1. Assessment of learning objectives by practicum supervisor.
2. Completion of journal or other written assignments that promote reflection and integration of practicum experience.

Competencies and Skills:

1. Demonstrate an understanding of the range of career options available to psychology undergraduates in business, academic and social fields such as: community and social services; human resources; public relations; residential care; probation/parole/law enforcement; management and business; student affairs and services; education; scientific research (market research, opinion survey researcher); research or teaching assistance; retail sales management; parent/family education, and customer relations.
2. Demonstrate knowledge and understanding of the various subfields within the field of psychology and identify the range of roles psychologists with advanced degrees may assume in each of these subfields (e.g., clinical psychology, counseling psychology, developmental psychology, educational psychology, experimental psychology, forensic psychology, health psychology, human factors or engineering psychology, industrial and organizational psychology, neuropsychology or psychobiology, quantitative psychology and psychometrics, social psychology, school psychology).
3. Distinguish among psychologists, social workers, psychiatrists and counselors.
4. Demonstrate knowledge of ways in which careers in the field of psychology may be explored (e.g., faculty mentors, career centers, library and internet resources, memberships in Psi Beta, Psi Chi, APA or APS, volunteer work, research experience, internships, becoming a member of various listservs, etc.)
5. Demonstrate an awareness of the covert curriculum in the pursuit of academic goals, i.e., the development of good communication skills, analytic and critical thinking skills, technological skills, reading skills, listening and note-taking skills, organization and time management skills, self-management skills, the importance of networking, finding faculty mentors, how to secure substantive letters of recommendation, etc.
6. Discuss advantages, disadvantages, and appropriate use of naturalistic observation, laboratory observation, survey, experimental, and quasi-experimental research.

7. Distinguish between correlational and causal findings in psychological journal articles as well as research reports in the popular press.
8. Describe and give examples of demand characteristics and sampling issues in survey research.
9. Design and critique an original experiment to determine cause-effect, including an hypothesis, operational definitions, experimental and control groups; and discussion of placebo effects, internal and external validity, and confounding variables.
10. Understand and calculate simple statistical measures and tests, including measures of central tendency, measures of variability, frequency distribution, statistical significance, correlational coefficients, t-tests, f-tests, and chi-square.
11. Explain meta-analysis, longitudinal, and cross-sectional research, including appropriate use and interpretation of each.
12. Design and conduct a simple, original descriptive study, and analyze data from the study using simple statistical methods. Present findings, orally and visually, to other members of the seminar.
13. Write a review of psychological literature on a current topic using APA style and format.
14. Acquire and/or improve professional skills as appropriate to the practicum placement and to the student learning objectives established at the beginning of the term. These competencies may include: basic research skills; introductory assessment skills; interviewing skills; presentation skills; group facilitation skills; community outreach and/or organization skills; crisis counseling and intervention skills, etc.

Curriculum Request Form
Contact/Credit Hour Change

Current course number**:** TA 190B

Current course title**:** Projects in Theatre

	Current	Proposed
lecture hours**:**	1	0
lab hours**:**	3	6
load**:**	4	6
credits**:**	2	2

Reason for change**:** There was an error in the original submission. The TA 190 sequence should all be lab classes, not lec/labs. This change for TA 190B will ensure consistency.

Are outcomes affected?**:** NO

Are degrees/certs affected?**:** No

Is there an impact on other dept/campus?**:** NO

Is there potential conflict with another sac?**:** YES

Implem. Term**:** Winter

Implementation year,implem. Year**:** 2006

Contact name**:** Michael Najjar

Contact email**:** mnajjar@pcc.edu

Curriculum Request Form
Contact/Credit Hour Change

Current course number:	TA 290B	
Current course title:	Projects in Theatre	
Current lecture hours:	Current	Proposed
lecture hours:	1	0
Lab hours:	3	6
load:	4	6
Current credits:	2	2
Reason for change:	There was an error in the original submission. The TA 190 sequence should all be lab classes, not lec/labs. This change for TA 190B will ensure consistency.	
Are outcomes affected?:	NO	
Are degrees/certs affected?:	No	
Is there an impact on other dept/campus?:	NO	
Is there potential conflict with another sac?:	YES	
Implem. Term:	Winter	
Implementation year,implem. Year:	2006	
Contact name:	Michael Najjar	
Contact email:	mnajjar@pcc.edu	

Curriculum Request Form
New Course

Course number: TA 244

Course title: Advanced Improvisation

Transcript title: Advanced Improvisation

Lecture hours: 2

Lec/lab hours: 2

Weekly contact hours: 4

Total credits: 3

Reason for new course: Advanced Improvisation is offered at other OUS schools, including Portland State University. Also, during the last Theatre Program Review, it was stated in the Administrative Response to Program Review, that "There is solid evidence of an interest in a continuation of improvisation...among both former and current students." Lastly, long-form improvisation is an advanced skill that is necessary in the craft of improvisation, but cannot be covered in our TA 144 Improvisational Theatre class because it is an advanced skill.

Course description: This class emphasizes the development of improvisational acting skills for sustained narrative and long-form varieties of improvisational theater. Students are encouraged to trust their intuition and to focus their senses, their body awareness and vocal qualities on the creation of narrative structures. Team work and the development of group cohesion are stressed.

Prerequisite(s): TA 144, WR 115 or placement into WR 121

Prereq/concurrent: None

Corequisite(s): None

Learning outcomes: The student will:
1. Apply knowledge of narrative structures, movement, facial expression and voice, with the development of clearly defined character and complex character relationships, to the creation of long form improvisational theatrical productions

2. Apply knowledge of improvisational acting skills to the

	critique of scene performance
List b:	YES, Transfer List B Requested
Course format:	On Campus
Are there similar courses existing:	NO
Required or elective:	Elective
Is there impact on degrees or certificates:	NO
Is there an impact on another dept or campus?:	NO
Have other sacs been contacted?:	NO
Is there an increase in costs for library or av dept?:	NO
Implementation term:	Spring
Implementation year:	2007
Contact name:	Michael Najjar
Contact e-mail:	mnajjar@pcc.edu

Course Content and Outcome Guide
PREPARED BY: Michael Najjar
DATE: October 17, 2006
COURSE NUMBER: TA 244
COURSE TITLE: ADVANCED IMPROVISATION
CREDIT HOURS: 3
LECTURE HOURS PER WEEK: 2
LECTURE/LAB HOURS PER WEEK: 2
LAB HOURS PER WEEK: 0
NUMBER OF WEEKS: 10

COURSE DESCRIPTION FOR PUBLICATION:

This class emphasizes the development of improvisational acting skills for sustained narrative and long-form varieties of improvisational theater. Students are encouraged to trust their intuition and to focus their senses, their body awareness and vocal qualities on the creation of narrative structures. Team work and the development of group cohesion are stressed. Prerequisites: TA 144 (Improvisational Theater) or the equivalent; Writing 115 or placement into Writing 121.

INTENDED OUTCOMES FOR THE COURSE:

The student will:

1. Apply knowledge of narrative structures, movement, facial expression and voice, with the development of clearly defined character and complex character relationships, to the creation of long form improvisational theatrical productions
2. Apply knowledge of improvisational acting skills to the critique of scene performance

OUTCOME ASSESSMENT STRATEGIES:

Students must be assessed based on their ability to create a long form improvisational performance working with a group.

Assessment may include:

1. In-class performances/activities
2. Quiz and homework covering material from the text
3. Critique of classroom group improvisational performance

4. Critique of outside group performance of long-form improvisation
5. Short writing assignments on aspects of performance

COURSE CONTENT (Themes, Concepts, Issues, Competencies, and Skills):

THEMES:

1. Analysis of narrative structure and application to improvisational creation
2. Team work and the development of group cohesion
3. Critical analysis
4. Character creation
5. Use of performance space to create dramatic locations
6. Development of clear character relationships
7. Appropriate use of warm-up activities
8. Application of improvisational skills to scripted material

SKILLS:

1.0 <u>ADVANCED IMPROVISATIONAL SKILLS</u>

- 1.1 Demonstrate mastery of fundamental skills of improvisation
- 1.2 Rehearse and perform complete narratives by improvisation
- 1.3 Develop exercises to break down narrative skills

2.0 PHYSICAL AND VOCAL WORK

- 2.1 Use the body, face and voice to convey character
- 2.2 Use the body and voice to create objects, machines, animals
- 2.3 Demonstrate exercises to determine era, time and location
- 2.4 Demonstrate exercises to build trust and collaboration

3.0 THEATER GAME STRUCTURES

- 3.1 Rehearse and perform mimes, condensed scenes, monologues, and character endowments as methods for creating narrative
- 3.2 Develop exercises to form group cohesion
- 3.3 Develop the conventions of various narrative structures
- 3.4 Develop an understanding of the relationship between location, character, plot, and genre or style

4.0 LONG-FORM NARRATIVE

- 4.1 Design various narrative structures
- 4.2 Design scene-to-scene connections
- 4.3 Perform long-form improvisation

Curriculum Request Form
Course Revision

Change:	Course Title,Learning Outcomes
Current course number:	BCT 280C
Current course title:	Cooperative Education Building Construction Technology
Proposed course title:	Cooperative Education BCT Design/Build Remodeling
Proposed transcript title:	CE-BCT Design/Build Remodeling
Reason for title change:	To provide a specific Co-op course for the Design/Build Remodeling AAS.
Current learning outcomes:	Function safely and effectively on a building construction job site Demonstrate professional work ethics (habits) Apply classroom skills to a variety of construction situations Appraise learned skills by providing a weekly written report Become familiar with employer expectations Use critical thinking skills to evaluate prospective employers
Proposed learning outcomes:	Function safely and effectively on a building construction job site Demonstrate professional work ethics (habits) Apply class work based on National Kitchen and Bath Association technical standards to a variety of construction and design situations Appraise learned skills by providing a written report Become familiar with employer expectations Use critical thinking skills to evaluate prospective employers
Reason for learning outcomes change:	To provide a specific Co-op course for the Design/Build Remodeling AAS.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007

Contact name**:** Nancy Pitzer-Spencer Hinkle
Contact e-mail**:** npitzer@pcc.edu shinkle@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	NUR 208
Current course title:	Nursing Care of Clients with Emergent Health Care Needs
Current description:	Focuses on the nursing management of clients experiencing physical and emotional crises. Role transition is facilitated from student to the professional graduate nurse with a focus on leadership, management and legal/ethical concepts. Prerequisites: NUR 106, 107, 108, 206, 207.
Proposed description:	Focuses on the nursing management of clients experiencing physical and emotional crises. Role transition is facilitated from student to the professional graduate nurse with a focus on leadership, management and legal/ethical concepts. Prerequisites: NUR 104, NUR 106, 107, 108, 206, 207. **Same as posted only to include a pre-requisite of Nursing 104 in addition to the other stated nursing courses.
Reason for description change:	
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	fall
Requested year:	2006
Contact name:	Peggy Sherer
Contact e-mail:	msherer@pcc.edu

Curriculum Request Form
Course Revision

CHANGE:	Course Title
CURRENT COURSE NUMBER:	RD 80A
CURRENT COURSE TITLE:	Reading 80
PROPOSED COURSE TITLE:	Reading 80A
PROPOSED TRANSCRIPT TITLE:	Reading 80A
REASON FOR TITLE CHANGE:	To be consistent with the Course Number. RD 80A.
WILL THIS IMPACT OTHER SACS?,IS THERE AN IMPACT ON OTHER SACS?:	No
WILL THIS IMPACT OTHER DEPTS/CAMPUSES?,IS THERE AN IMPACT ON ANOTHER DEPT OR CAMPUS?:	No
REQUEST TERM:	winter
REQUESTED YEAR:	2007
CONTACT NAME:	Kathy Bernunzio
CONTACT E-MAIL:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Title
Current course number:	RD 80C
Current course title:	Reading 80
Proposed course title:	Reading 80C
Proposed transcript title:	Reading 80C
Reason for title change:	To consistent with the Course Number RD 80C.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	spring
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Title
Current course number:	WR 80C
Current course title:	Writing 80
Proposed course title:	Writing 80C
Proposed transcript title:	Writing 80C
Reason for title change:	To be consistent with the Course Number WR 80C.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	spring
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
New Course

Course number:	ALC 60
Course title:	Basic Math Skills Lab
Transcript title:	Basic Math Skills Lab
Lecture hours:	N/A
Lab hours:	Flexible
Lec/lab hours:	N/A
Load total:	Flexible
Weekly contact hours:	Flexible
Total credits:	0
Reason for new course:	Some students are interested in simply reviewing their math skills or in having a slow entry into algebra. These students either don't need a credit or the requirements for passing the one-credit class are/seem to high for them.
Course description:	In conjunction with the instructor, students choose a limited number of topics in Arithmetic (Math 20) and/or Introductory Algebra (Math 60 and 65) to review over the course of one term. Instruction and evaluation are computer-based and self-guided. Completion of this course does not meet prerequisite requirements for other math courses.
Prerequisite(s):	None
Prereq/concurrent:	None
Corequisite(s):	None
Learning outcomes:	Basic Math: □ Creatively and confidently use mathematical and other problem solving strategies to formulate problems, to solve problems using multiple; approaches, and to interpret results; □ Meet the prerequisites for further course work; □ Choose and perform accurate arithmetic operations in a variety of situations with and without a calculator;

 Present results numerically, graphically, symbolically and in written and oral form. Introductory Algebra

 Recognize, formulate, interpret, describe, apply, and appreciate linear and quadratic relationships in real world contexts.

 Prepare for further course work.

Course format:	On Campus
Are there similar courses existing:	YES
Description of existing courses:	There are 1, 2, and 3 credit courses available with the same structure (ALC 62, ALC 63, ALC 64).
Required or elective:	Elective
Is there impact on degrees or certificates:	NO
Is there an impact on another dept or campus?:	NO
Have other sacs been contacted?:	NO
Is there an increase in costs for library or av dept?:	NO
Implementation term:	Spring
Implementation year:	2007
Contact name:	Heiko Spoddeck
Contact e-mail:	heike.spoddeck@pcc.edu

COURSE CONTENT AND OUTCOMES GUIDE

Date Modified: October 25, 2006 **Submitted by: Spoddeck**

Course Number: ALC 60
Course Title: Basic Math Skills Lab
Credits: 0
Lecture Hours: N/A
Lecture/Lab Hours: N/A
Lab Hours: Flexible
Special Fee: N/A

Course Description for Publication:
In conjunction with the instructor, students choose a limited number of topics in Arithmetic (Math 20) and/or Introductory Algebra (Math 60 and 65) to review over the course of one term. Instruction and evaluation are computer-based and self-guided. Completion of this course does not meet prerequisite requirements for other math courses.

Basic Math

Intended Outcomes for the Course:

- Creatively and confidently use mathematical and other problem solving strategies to formulate problems, to solve problems using multiple; approaches, and to interpret results;
- Meet the prerequisites for further course work;
- Choose and perform accurate arithmetic operations in a variety of situations with and without a calculator;
- Present results numerically, graphically, symbolically and in written and oral form.

Outcome Assessment Strategies:
N/A

Course Content:
Themes:

1. Rational, integer, and percent arithmetic operations in context
2. Appropriate use of technology
3. Application of critical thinking skills to solve mathematical problems
4. Data analysis
5. Team work

Skills:

1.0 Basic Arithmetic Facts

- **1.1** Round a given number to a specified place
- **1.2** Master fraction and decimal vocabulary
- **1.3** Determine whether a given whole number is prime or composite
- **1.4** Arrange numbers in numerical order

1.5 Determine whether an inequality statement involving two numbers is true or false
1.6 Evaluate expressions containing exponents and square roots
1.7 Perform order of operations accurately with fractions, decimals, and integers
1.8 Develop skills in estimation and number sense
1.9 Solve application problems with fractions, decimals, and percents
1.10 Convert between standard and scientific notation

2.0 Charts, Graphs, Tables, and Statistics
2.1 Read and interpret data from bar, pictorial, line, circle graphs, tables, charts, and various graphs
2.2 Find statistical measures such as median, mode, mean, maximum, minimum, and range
2.3 Collect, interpret, and organize data and draw graphs for a particular application

3.0 Basic Measurements
3.1 Convert measurements within the English and Metric systems
3.2 Convert between measurement systems
3.3 Measure objects to a specific unit
3.4 Recognize the difference between Fahrenheit and Celsius scales
3.5 Convert Fahrenheit and Celsius temperatures accurately using formulas

4.0 Geometry
4.1 Recognize at least the following geometric shapes: triangles, quadrilaterals, circles, cubes, rectangular solids, cylinders, and spheres and the relationships between them
4.2 Investigate angles and lines
4.3 Determine the perimeter and area of polygons
4.4 Determine the circumference and area of circles
4.5 Determine the volume of solids
4.6 Determine the side lengths using The Pythagorean Theorem

5.0 Integers
5.1 Introduce operations with opposites and absolute values, and integer arithmetic

6.0 Technology
6.1 Determine square roots to specified decimal places, exponents, fraction key, add, subtract, multiply, divide, order of operations, parantheses

7.0 Writing
7.1 Write answers to application problems as complete sentences.

Introductory Algebra

Intended Outcomes for the Course:

- Recognize, formulate, interpret, describe, apply, and appreciate linear and quadratic relationships in real world contexts.
- Prepare for further course work.

Outcome Assessment Strategies:

N/A

Course Content:

Themes:

1. Real number operations
2. Graphing
3. Algebraic manipulation
4. Linear equations
5. Technology
6. Problem solving
7. Critical thinking
8. Communication
9. Data analysis
10. Polynomial operation
11. Quadratic equation

Skills:

1.0 Real Numbers

- **1.1** Perform basic operations on real numbers
- **1.2** Evaluate exponential expressions with integer exponents
- **1.3** Work in scientific notation

2.0 Variables, Expressions, Equations, and Formulas

- **2.1** Manipulate algebraic expressions
- **2.2** Distinguish between expressions and equations
- **2.3** Translate from words to algebraic expressions
- **2.4** Use formulas and geometry

3.0 Relations, Functions, and Graphs

- **3.1** Plot points
- **3.2** Create tables of values from an equation
- **3.3** Understand function notation
  - 3.3.1 Determine the domain and range of a given function
  - 3.3.2 Determine whether a given relation represents a function
  - 3.3.3 Evaluate functions using function notation
  - 3.3.4 Interpret function notation in a practical setting
- **3.4** Analyze, interpret, explore, and describe nonlinear graphs using technology

4.0 Linear Equations in One Variable

- **4.1** Solve linear equations numerically, graphically, and symbolically
- **4.2** Manipulate equations
  - 4.2.1 Give strategic purpose for manipulations
  - 4.2.2 Provide logical justification of steps

5.0 Linear Equations and Functions in Two Variables

5.1 Formulate linear graphs given:
- 5.1.1 data
- 5.1.2 a verbal situation
- 5.1.3 an equation

5.2 Formulate linear equations given:
- 5.2.1 data
- 5.2.2 a verbal situation
- 5.2.3. an equation

5.3 Formulate linear data given:
- 5.3.1 data
- 5.3.2 a verbal situation
- 5.3.3 an equation

5.4 Give practical meaning to slope, and vertical and horizontal intercepts

6.0 Technology

6.1 Distinguish between the negative and subtraction key
6.2 Use FRAC and ABS
6.3 Use parentheses appropriately
6.4 Enter equations in the y=menu
6.5 Set domain, range, scale values, and be able to use some zoom features
6.6 Zero/root, eval/value and/or trace, isect
6.7 Table feature including tableset
6.8 New skills (Mth 65)
- 6.8.1 Use fmin and fmax
- 6.8.2 Optional functionality may include SIMULT, POLY, and SOLVER

7.0 Systems of Linear Equations in Two Variables

7.1 Solve systems of equations graphically and symbolically
7.2 Create and solve real world models involving systems of linear equations in two variables

8.0 Inequalities

8.1 Solve linear inequalities in one variable graphically, numerically, and symbolically
8.2 Graph linear inequalities in two variables

9.0 Polynomials

9.1 Create tables of values from polynomial functions
9.2 Evaluate polynomial functions using function notation
9.3 Graph polynomial functions using technology
9.4 Graph quadratic functions by hand and using technology
- 9.4.1 Determine whether quadratic functions are concave up or concave down based on their equations
- 9.4.2 Find and interpret vertex, axis of symmetry, and vertical and horizontal intercepts
- 9.4.3 Formulate quadratic graphs given:

9.4.3.1 data
9.4.3.2 a verbal situation
9.4.3.3 an equation

9.5 Find relative and/or absolute maximum and minimum function values
9.6 Model real world quadratic functions

10.0 Working with Polynomial Expressions

10.1 Use the rules for exponents
10.2 Add, subtract, and multiply polynomials
10.3 Factor polynomials

11.0 Solving Polynomial Equations in One Variable

11.1 Solve polynomial equations numerically, graphically, and symbolically \
11.2 Solve quadratic equations by using square roots
11.3 Solve quadratic equations by using the quadratic formula

12.0 Milestones

12.1 Solve any equation for an unknown if it appears only once (and is not an exponent); can "undo" operations
12.2 Classify curves graphically and from equations

Curriculum Request Form
Course Revision

Change:	Course Title
Current course number:	ALC 62
Current course title:	Basic Math Review (Lab)
Proposed course title:	Basic Math Skills Lab
Proposed transcript title:	Basic Math Skills Lab
Reason for title change:	To be consistent with the English ALC courses. ALC 52 Basic English Skills Lab, etc.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	spring
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Title
Current course number:	ALC 63
Current course title:	Basic Math Review (Lab)
Proposed course title:	Basic Math Skills Lab
Proposed transcript title:	Basic Math Skills Lab
Reason for title change:	To be consistent with the English ALC courses. ALC 53 Basic English Skills Lab, etc.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	spring
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Title
Current course number:	ALC 64
Current course title:	Basic Math Review (Lab)
Proposed course title:	Basic Math Skills Lab
Proposed transcript title:	Basic Math Skills Lab
Reason for title change:	To be consistent with the English ALC courses. ALC 54 Basic English Skills Lab, etc.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	spring
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Number
Current course number:	ALC 52
Proposed course number:	ALC 51
Current course title:	Basic English Skills Lab
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	fall
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Number
Current course number:	ALC 54
Proposed course number:	ALC 53
Current course title:	Basic English Skills Lab
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	fall
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Number
Current course number:	ALC 62
Proposed course number:	ALC 61
Current course title:	Basic Math Review (Lab)
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	fall
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Number
Current course number:	ALC 63
Proposed course number:	ALC 62
Current course title:	Basic Math Review (Lab)
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	fall
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Number
Current course number:	ALC 64
Proposed course number:	ALC 63
Current course title:	Basic Math Review (Lab)
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	fall
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	ALC 70
Current course title:	Technical Math Support
Current description:	Provides an opportunity to develop and refine beginning math skills in arithmetic, geometry, measurement skills, problem-solving techniques and calculator functions with emphasis on applying function math to the work world. Prerequisite: Placement into MTH 20, or instructor permission.
Proposed description:	This course supports existing math courses by providing an opportunity for students to develop and refine beginning math skills applicable to many technical programs. It provides practical exercises in arithmetic, geometry, measurement skills, problem-solving techniques and calculator functions with emphasis on applying functional math to the work world. Prerequisite: Pre-Algebra COMPASS score 21-48 or successful completion of MTH 10 or MTH 11 with a "C" or better AND Reading COMPASS score 44-65 or successful completion of RD 80 or ESOL 250 with a "C" or better.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	DE 50
Current course title:	Vocabulary Building
Current description:	Topics include parts of speech, word parts, word relationships and use of the dictionary. Recommended for students in developmental reading and writing. Prerequisite: Reading placement test score above 31.
Proposed description:	Topics include determining word meaning, parts of speech, pronunciation, spelling, and writing with new vocabulary. Recommended for students in developmental and preparatory reading and writing classes. Prerequisite: Reading COMPASS score 44-65 or successful completion of ESOL 250 with a "C" or better.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	Mth10B
Current course title:	Fundamental of Arithmetic I
Current description:	Use of whole numbers to write, manipulate, interpret, and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Prerequisite: Placement into MTH 10.
Proposed description:	Use whole numbers to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Prerequisite: Pre-Algebra COMPASS 1-20.
Will this impact other sacs?,is there an impact on other sacs?:	no
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	no
Request term:	winter
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	MTH 10C
Current course title:	Fundamental of Arithmetic I
Current description:	Use of whole numbers to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Prerequisites: Math placement test score above 22.
Proposed description:	Use whole numbers to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Prerequisite: Pre-Algebra COMPASS score 1-20
Reason for description change:	Changed from ASSET to COMPASS scores.
Will this impact other sacs?,is there an impact on other sacs?:	no
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	no
Request term:	winter
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	MTH 11B
Current course title:	Fundamentals of Arithmetic II
Current description:	Use of fractions and decimals to write, manipulate, interpret and solve applications and formulas. Concepts will be introduced numerically, graphically, symbolically and in oral and written form. Prerequisites: Placement into MTH 10 or successful completion of MTH 10B or MTH 10C.
Proposed description:	Use fractions and decimals to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Prerequisite: Pre-Algebra COMPASS score 1-20 or successful completion of MTH 10.
Reason for description change:	To include COMPASS score and wording.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	MTH 11C
Current course title:	Fundamentals of Arithmetic II
Current description:	Use fractions and decimals to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Prerequisites: Math placement test score above 22 or successful completion of MTH 10B or MTH 10C.
Proposed description:	Use fractions and decimals to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Prerequisite: Pre-Algebra COMPASS score 1-20 or successful completion of MTH 10 with a "C" or better.
Reason for description change:	Changed ASSET to COMPASS and wording.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	MTH 20
Current course title:	Basic Math
Current description:	Use of fractions, decimals, percents, integer arithmetic, measurements, and geometric properties to write, manipulate, interpret and solve application and formula problems. Introduce concepts of basic statistics, charts and graphs. Concepts will be introduced numerically, graphically, and symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisite: Placement into MTH 20 or successful completion of MTH 10 or MTH 11; placement into RD 80 or successful completion of RD 80 or ENL 250.
Proposed description:	Use fractions, decimals, percents, integer arithmetic, measurements, and geometric properties to write, manipulate, interpret and solve application and formula problems. Introduce concepts of basic statistics, charts and graphs. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisite: Pre-Algebra COMPASS score 21-48 or successful completion of MTH 10 or MTH 11 with a "C" or better AND Reading COMPASS score 44-65 or successful completion of RD 80 or ESOL 250 with a "C" or better.
Reason for description change:	Changed ASSET to COMPASS, ENNL to ESOL and wording.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	Yes
How other depts/campuses will be impacted:	Probably for a program that requires Mth 20 for certificate, but we didn't make any drastic changes.
Request term:	winter

Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	MTH 20B
Current course title:	Basic Math
Current description:	Use of fractions, decimals, percents, integer arithmetic, measurements, and geometric properties to write, manipulate, interpret and solve application and formula problems. Introduces concepts of basic statistics, charts and graphs. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisites: Math placement test score above 32 or successful completion of MTH 10 or MTH 11. Reading placement test score above 31 or successful completion of RD 80 or ENNL 250.
Proposed description:	Use fractions, decimals, percents, integer arithmetic, measurements, and geometric properties to write, manipulate, interpret and solve application and formula problems. Introduce concepts of basic statistics, charts and graphs. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisite: Pre-Algebra COMPASS score 21-48 or successful completion of MTH 10 or MTH 11 with a "C" or better AND Reading COMPASS score 44-65 or successful completion of RD 80 or ESOL 250 with a "C" or better.
Reason for description change:	Changed ASSET to COMPASS, ENNL to ESOL, and wording.
Will this impact other sacs?,is there an impact on other sacs?:	no
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	yes
How other depts/campuses will be impacted:	Probably for a program that requires Mth 20 for certificate, but we didn't make any drastic changes.
Request term:	winter
Requested year:	2007

Contact name**:** Kathy Bernunzio
Contact e-mail**:** kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	MTH 21C
Current course title:	Percentage and Statistics
Current description:	Use of fractions, decimals, and percents to write, manipulate, interpret and solve applications and formulas. Introduce concepts of basic statistics, charts and graphs. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisites: placement into MTH 20 or successful completion of MTH 11B and placement into RD 80 or successful completion of RD 80 or ENL 250.
Proposed description:	Use fractions, decimals, and percents to write, manipulate, interpret and solve application and formula problems. Introduce concepts of basic statistics, charts and graphs. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisite: Pre-Algebra COMPASS score 21-48 or successful completion of MTH 11 with a "C" or better AND Reading COMPASS score 44-65 or successful completion of RD 80 or ESOL 250 with a "C" or better.
Reason for description change:	Changed ASSET to COMPASS, ENNL to ESOL, and wording.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	MTH 22
Current course title:	Measurements
Current description:	Use of measurements both English and metric, conversions, temperature, and time to write, manipulate, interpret, and solve applications and formula problems. Concepts will be introduced numerically, graphically, and symbolically. Students will communicate their results in oral and written form. Scientific calculator with fraction capabilities required. Prerequisite: Appropriate placement score or MTH 20, and placement into RD 80 or ENL 250.
Proposed description:	Use both English and Metric measurements, conversions, temperature, and to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisite: Pre-Algebra COMPASS score 21-48 or successful completion of MTH 11 with a "C" or better AND Reading COMPASS score 44-65 or successful completion of RD 80 or ESOL 250 with a "C" or better.
Reason for description change:	Changed ASSET to COMPASS, ENNL to ESOL, and wording.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	Yes
How other depts/campuses will be impacted:	Cascade (Dept Nursing??-Holli Adams) uses Mth 22 (lecture class), but we didn't make any drastic changes.
Request term:	winter
Requested year:	2007
Contact name:	Kathy Bernunzio

Contact e-mail**:** kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	MTH 22C
Current course title:	Measurements
Current description:	The English measurement system, metric system, temperature in both scales, conversion between systems, and scientific notation (calculator permitted). Prerequisite: MTH 20.
Proposed description:	Use both English and Metric measurements, conversions, temperature, and to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisite: Pre-Algebra COMPASS score 21-48 or successful completion of MTH 11 with a "C" or better AND Reading COMPASS score 44-65 or successful completion of RD 80 or ESOL 250 with a "C" or better.
Reason for description change:	Changed ASSET to COMPASS, ENNL to ESOL, and wording.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	Mth 23C
Current course title:	Introduction to Geometry
Current description:	Use geometric properties to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisites: placement into MTH 20 or successful completion of MTH 11B and placement into RD 80 or successful completion of RD 80 or ENL 250.
Proposed description:	Use geometric properties to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisite: Pre-Algebra COMPASS score 21-48 or successful completion of MTH 11 with a "C" or better AND Reading COMPASS score 44-65 or successful completion of RD 80 or ESOL 250 with a "C" or better.
Reason for description change:	Changed ASSET to COMPASS, ENNL to ESOL, and wording.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	MTH 24C
Current course title:	Pre-Algebra
Current description:	Use integer arithmetic to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisites: placement into MTH 20 or successful completion of MTH 11B and placement into RD 80 or successful completion of RD 80 or ENL 250.
Proposed description:	Use integer arithmetic, to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisite: Pre-Algebra COMPASS score 21-48 or successful completion of MTH 11 with a "C" or better AND Reading COMPASS score 44-65 or successful completion of RD 80 or ESOL 250 with a "C" or better.
Reason for description change:	Change ASSET to COMPASS, ENNL to ESOL, and wording.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	MTH 25C
Current course title:	Fractions
Current description:	Use fractions to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisites: placement into MTH 20 or successful completion of MTH 10B and placement into RD 80 or completion of RD 80 or ENL 250.
Proposed description:	Use fractions to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisite: Pre-Algebra COMPASS score 21-48 or successful completion of MTH 10 with a "C" or better AND Reading COMPASS score 44-65 or successful completion of RD 80 or ESOL 250 with a "C" or better.
Reason for description change:	Change ASSET to COMPASS, ENNL to ESOL, and wording.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	MTH 25C
Current course title:	Fractions
Current description:	Use fractions to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisites: placement into MTH 20 or successful completion of MTH 10B and placement into RD 80 or completion of RD 80 or ENL 250.
Proposed description:	Use fractions to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisite: Pre-Algebra COMPASS score 21-48 or successful completion of MTH 10 with a "C" or better AND Reading COMPASS score 44-65 or successful completion of RD 80 or ESOL 250 with a "C" or better.
Reason for description change:	Change ASSET to COMPASS, ENNL to ESOL, and wording.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	MTH 26C
Current course title:	Decimals
Current description:	Use decimals to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisites: placement into MTH 20 or successful completion of MTH 10B and placement into RD 80 or successful completion of RD 80 or ENL 250.
Proposed description:	Use decimals, to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisite: Pre-Algebra COMPASS score 21-48 or successful completion of MTH 10 with a "C" or better AND Reading COMPASS score 44-65 or successful completion of RD 80 or ESOL 250 with a "C" or better.
Reason for description change:	Change ASSET to COMPASS, ENNL to ESOL, and wording.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
Course Revision

Change:	Course Description
Current course number:	MTH 27C
Current course title:	Applications In Mathematics
Current description:	Use fractions, decimals, percents, integer arithmetic, and measurements to write, manipulate, interpret and solve applications and formulas. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisites: placement into MTH 20 or successful completion of MTH 11B and placement into RD 80 or successful completion of RD 80 or ENL 250.
Proposed description:	Use fractions, decimals, percents, integer arithmetic, and measurements to write, manipulate, interpret and solve application and formula problems. Concepts will be introduced numerically, graphically, symbolically, and in oral and written form. Scientific calculator with fraction capabilities required. Prerequisite: Pre-Algebra COMPASS score 21-48 or successful completion of MTH 11 with a "C" or better AND Reading COMPASS score 44-65 or successful completion of RD 80 or ESOL 250 with a "C" or better.
Reason for description change:	Change ASSET to COMPASS, ENNL to ESOL, and wording.
Will this impact other sacs?,is there an impact on other sacs?:	No
Will this impact other depts/campuses?,is there an impact on another dept or campus?:	No
Request term:	winter
Requested year:	2007
Contact name:	Kathy Bernunzio
Contact e-mail:	kbernunz@pcc.edu

Curriculum Request Form
New Course

Course number:	RET 101
Course title:	Introduction to Wind Turbine Technology I
Transcript title:	Intro Wind Turbine Technology
Lecture hours:	1
Weekly contact hours:	1
Total credits:	1
Reason for new course:	To fulfill requirements for new one-year certificate for the Wind Energy Technician and the two-year AAS degree in Renewable Energy Technology.
Course description:	This course presents basic concepts of wind turbine technology. General concepts include how wind energy is captured and transformed into electrical power. Fundamental mechanical physics, electricity and magnetism, fluid dynamics, and aerodynamics explain physical principles that underlie the engineering of wind towers, electrical generators, and the transfer of wind-driven momentum through a shaft to an electrical dynamo.
Prerequisite(s):	None
Prereq/concurrent:	None
Corequisite(s):	None
Learning outcomes:	Upon finishing this course, students will: Understand and appreciate how wind turbine technology was developed as a feat of engineering. Understand and appreciate the different disciplines in physics that support the engineering of wind towers. Have a greater understanding and appreciation of any literature they encounter concerning wind power technology.

	◆Know how to research the World Wide Web for topics on wind power.
Other format:	At CGCC, and may later be developed as a hybrid course.
Are there similar courses existing:	YES
Description of existing courses:	EET and CMET
Required or elective:	Required
Is there impact on degrees or certificates:	NO
Is there an impact on another dept or campus?:	NO
Have other sacs been contacted?:	YES
Description of contact:	EET and CMET
Is there an increase in costs for library or av dept?:	NO
Implementation term:	Fall
Implementation year:	2007
Contact name:	Tom Lieurance
Contact e-mail:	tlieurance@cgcc.cc.or.us

Course Content and Outcome Guide

Prepared by: Roy Torley
Course Number: RET 101
Course Title: Introduction to Wind Turbine Technology I
Credits: 1
Lecture hrs/wk: 1
Number of weeks: 11/12

Course description:
This course presents basic concepts of wind turbine technology. General concepts include how wind energy is captured and transformed into electrical power. Fundamental mechanical physics, electricity and magnetism, fluid dynamics, and aerodynamics explain physical principles that underlie the engineering of wind towers, electrical generators, and the transfer of wind-driven momentum through a shaft to an electrical dynamo.

Prerequisites:
None

Outcomes:
Upon finishing this course, students will:

- Understand and appreciate how wind turbine technology was developed as a feat of engineering.
- Understand and appreciate the different disciplines in physics that support the engineering of wind towers.
- Have a greater understanding and appreciation of any literature they encounter concerning wind power technology.
- Know how to research the World Wide Web for topics on wind power.

Evaluation:
Class participation.

Specific Topics the Students Will Learn:

- Components that make up a wind tower:
  - Towers (construction materials, height considerations, foundations).
  - Types of propellers
  - Electrical generators.
  - Shafts and bearings.
- Wind farm locations.
  - Areas conducive to “harvesting” energy from the wind.
    - America
    - Europe
    - Australia
    - Asia
      - China.
      - Studies in Russia.
  - Wind maps.
  - Topographical considerations.
- How energy is transferred from wind to a propeller blade.
  - Linear force, acceleration, velocity, momentum, and energy.
  - Wind pressure.
  - Angular velocity, momentum, acceleration, torque, and energy of rotation.
  - Energy loss through friction.
- Comparison of energy output to hydro-electric, wave, bio-electric, and nuclear generators.

A custom textbook will be created consisting of selected chapters and articles from journal, manual, textbook, and Web resources, copied with publishers’ permission.

Curriculum Request Form
New Course

Course number:	RET 102
Course title:	Alternate Energy Power Generation
Transcript title:	Alternate Energy Power Generat
Lecture hours:	1
Weekly contact hours:	1
Total credits:	1
Reason for new course:	To fulfill requirements for new one-year certificate for the Wind Energy Technician and the two-year AAS degree in Renewable Energy Technology.
Course description:	Subjects that will be explored in this course are Biodiesel, Wind, Solar cells, Fuel cells, Ocean wave, Geothermal, Hydrogen, Connection to grid, (homeowner), Electric vehicles, Effect of politics on long term wind generation, Other forms. Also research into old technologies as well as new will be explored. This course also discussed the power grid, local utilities and how power is generated and sold back to local utilities.
Prerequisite(s):	None
Prereq/concurrent:	None
Corequisite(s):	None
Learning outcomes:	o Become more aware of possible energy sources. o Be aware of what a renewable resource is. o Understand power grids and how to connect to them. o Understand energy conservation. o Understand the political climate that creates incentive for alternate energy production. o Understand how alternate energy is created. o Research new and old technologies dealing with alternate energy.

	o Explore environmental effects of renewable and conventional energy production on the environment. o Understand green power, green certificates, and what regulates the price of power on the market.
Other format**:**	At CGCC, and may later be developed as a hybrid course.
Are there similar courses existing**:**	YES
Description of existing courses**:**	EET and CMET
Required or elective**:**	Required
Is there impact on degrees or certificates**:**	NO
Is there an impact on another dept or campus?**:**	NO
Have other sacs been contacted?**:**	YES
Description of contact**:**	EET and CMET
Is there an increase in costs for library or av dept?**:**	NO
Implementation term**:**	Fall
Implementation year**:**	2007
Contact name**:**	Tom Lieurance
Contact e-mail**:**	tlieurance@cgcc.cc.or.us

Course Content and Outcome Guide

Wind Energy Technician
Date: 10/12/06
Prepared by: Tom Lieurance
Course Number: RET 102
Course Title: Alternate Energy Power Generation
Number of Credits: 1
Lecture hours per week: 1
Lab hours per week: 0
Number of weeks: 11/12

Course Description:
Subjects that will be explored in this course are Biodiesel, Wind, Solar cells, Fuel cells, Ocean wave, Geothermal, Hydrogen, Connection to grid, (homeowner), Electric vehicles, Effect of politics on long term wind generation, Other forms. Also research into old technologies as well as new will be explored. This course also discussed the power grid, local utilities and how power is generated and sold back to local utilities.

Prerequisites: None

Course Activities and Design:
Lecture and discussion are the instructional methods used. Weekly homework is assigned. There will be a final research paper on energy production. Web and library search for materials concerning alternate energy.

Instructional Goals and Objectives:
Upon successful completion of this course the student will have satisfactorily accomplished the goals and objectives listed in this course content guide. Course content guides are developed by college-wide Subject Area Curriculum Committees and approved by management.

Course outcomes:

- Become more aware of possible energy sources.
- Be aware of what a renewable resource is.
- Understand power grids and how to connect to them.
- Understand energy conservation.
- Understand the political climate that creates incentive for alternate energy production.
- Understand how alternate energy is created.
- Research new and old technologies dealing with alternate energy.
- Explore environmental effects of renewable and conventional energy production on the environment.
- Understand green power, green certificates, and what regulates the price of power on the market.

Curriculum Request Form
New Course

Course number:	RET 119
Course title:	Programmable Controllers (PLC)
Transcript title:	Programmable Controllers (PLC)
Lecture hours:	2
Lab hours:	3
Weekly contact hours:	5
Total credits:	3
Reason for new course:	To fulfill requirements for new one-year certificate for the Wind Energy Technician and the two-year AAS degree in Renewable Energy Technology.
Course description:	The student will understand the operation of a variety of programmable controllers. The applications, operations, and programming of PLC's are the areas of study with the main emphasis on programming. (Computers and manual methods will be used to program PLC's.)
Prerequisite(s):	None
Prereq/concurrent:	None
Corequisite(s):	None
Learning outcomes:	⁄Know all the basic components and their functions that are common to all programmable controllers. ⁄Understand programming basics for Allen Bradley and other types of PLC's. ⁄Understand and implement input and output modules. ⁄Use the computer as a programmer and properly configure communications for upload and download.

	◆Learn all of the basic programming instructions and their application as they relate to industrial controls and the wind energy industry. ◆Create programs for different applications, utilizing the basic instructions. ◆Monitor and edit programs. ◆Download test and troubleshoot programs. ◆Review NEC and IEEE standards relating to proper wiring code techniques of low voltage controls. ◆Understand and implement motor Controls (two wire, three wire, start/stop etc) related to PLC control. ◆Understand and implement analog current loops for controls (4-20mA vs. 0-10vdc). ◆Implement contactor and Auxiliary Relay operation. ◆Implement proper ground isolation and signal wiring for use with PLC communications. ◆Identify related code articles and proper applications.
Other format**:**	At CGCC, and may later be developed as a hybrid course.
Are there similar courses existing**:**	YES
Description of existing courses**:**	EET and CMET
Required or elective**:**	Required
Is there impact on degrees or certificates**:**	NO
Is there an impact on another dept or campus?**:**	NO

Have other sacs been contacted?:	YES
Description of contact:	EET and CMET
Is there an increase in costs for library or av dept?:	NO
Implementation term:	Fall
Implementation year:	2007
Contact name:	Tom Lieurance
Contact e-mail:	tlieurance@cgcc.cc.or.us

Course Content and Outcome Guide

Date: 3/13/03
Prepared by: Tom Lieurance
Course No.: RET 119
Course Title: Programmable Controllers (PLC)
Credit Hours: 3
Lecture Hours Per Week: 2
Lab Hours Per Week: 3
Number of Weeks: 12
Special Fee: N/A

Course Description for Publication:
The student will understand the operation **of a variety of programmable controllers. The applications, operations, and programming of PLC's are the areas of study with the main emphasis on programming. (Computers and manual methods will be used to program PLC's.)**

Addendum to Course Description:
This course will be presented by means of lecture/discussion sessions, demonstrations, and heavy emphasis **on the "Hands-On" laboratory exercises. *Allen Bradley SLC5000 series and other Programmable Controllers will be used in conjunction with RS Logix 5000 software over network and RS-232 communication protocol.**

Some of the topics that will be discussed:

- Input/Output Modules
- PLC module wiring
- Safety Circuit
- PLC Processors
- Numbering Systems & Codes
- Basic Programming and instruction sets
- Timer Instructions
- Counter Instructions
- Program Control Instructions
- Data Manipulation
- Math Functions
- Shift registers and sequencers
- Introduction to PLC control software
- Introduction of SCADA
- Overview of RSLogix5000 ™
- Overview of RSLinx
- PLC Architecture
- PLC Memory
- Project Organization
- Data File Types

- PLC Bit Instructions
- Timer Instructions
- Counter Instructions
- Data Collecting

Course Activities and Design:
Using "Hands-On" Programming with a computer, PLC and hardware, the student will design, create, modify **and test basic programs for different applications.**

Expected Student Competencies:
(Course outcomes)

- Know all the basic components and their functions that are common to all programmable controllers.
- Understand programming basics for Allen Bradley and other types of PLC's.
- Understand and implement input and output modules.
- Use the computer as a programmer and properly configure communications for "Upload" and "download".
- Learn all of the basic programming instructions and their application as they relate to industrial controls and the wind energy industry.
- Create programs for different applications, utilizing the basic instructions.
- Monitor and edit programs.
- Download test and troubleshoot programs.
- Review NEC and IEEE standards relating to proper wiring code techniques of low voltage controls.
- Understand and implement motor Controls (two wire, three wire, start/stop etc) related to PLC control.
- Understand and implement analog current loops for controls (4-20mA vs. 0-10vdc).
- Implement contactor and Auxiliary Relay operation.
- Implement proper ground isolation and signal wiring for use with PLC communications.
- Identify related code articles and proper applications.

Outcome Assessment Strategies:
Assessment methods are to be determined by the instructor. Typically, in class exams and quizzes along with homework assignments are used. Lab work is typically assessed by informal and formal lab reports, oral presentation, and possibly a lab exam.

The primary purpose of the Course Content and Outcome Guide is to provide faculty a SAC approved outline of the course. It is not intended to replace the Course Syllabus, which details course content and requirements for students.

Curriculum Request Form
New Course

Course number:	RET 120
Course title:	Basic/Introductory Hydraulics
Transcript title:	Basic/Introductory Hydraulics
Lecture hours:	4
Lab hours:	3
Weekly contact hours:	7
Total credits:	5
Reason for new course:	To fulfill requirements for new one-year certificate for the Wind Energy Technician and the two-year AAS degree in Renewable Energy Technology.
Course description:	Students learn fundamental concepts of hydraulics, lubrication, and bearing technology with a focus on entering a profession in the wind power industry. Lab work includes learning and applying hydraulic concepts using an MB 400 Hydraulic System.
Prerequisite(s):	Math 60 and Math 65
Prereq/concurrent:	None
Corequisite(s):	Math 95
Learning outcomes:	Using their foundational knowledge of hydraulics, lubrication, and hands-on experience in the lab, students should be able to work with technical proficiency on a wind power farm to: build and maintain mechanical and electrical equipment, identify and troubleshoot hydraulic system problems, learn new relevant skills as hydraulic technology develops, and work well both alone and in a team on a hydraulic project.

	◆work safely and maintain a safe working environment using established practices.
Other format:	Other Format Selected
Other format:	At CGCC, and may later be developed as a hybrid course.
Are there similar courses existing:	YES
Description of existing courses:	EET and CMET
Required or elective:	Required
Is there impact on degrees or certificates:	NO
Is there an impact on another dept or campus?:	NO
Have other sacs been contacted?:	YES
Description of contact:	EET and CMET
Is there an increase in costs for library or av dept?:	NO
Implementation term:	Fall
Implementation year:	2007
Contact name:	Tom Lieurance
Contact e-mail:	tlieurance@cgcc.cc.or.us

Course Content and Outcome Guide

Course Number: RET 120
Course Title: Basic/Introductory Hydraulics
Credits: 5
Lecture hrs/week: 4
Lab hrs/week: 3
Number of weeks: 5 + lab

Course Description:
Students learn fundamental concepts of hydraulics, lubrication, and bearing technology with a focus on entering a profession in the wind power industry. Lab work includes learning and applying hydraulic concepts using an MB 400 Hydraulic System.

Prerequisites:
Math 60 and 65

Corequisites:
Math 95

Outcomes:
Using their foundational knowledge of hydraulics, lubrication, and hands-on experience in the lab, students should be able to work with technical proficiency on a wind power farm to:

- build and maintain mechanical and electrical equipment,
- identify and troubleshoot hydraulic system problems,
- learn new relevant skills as hydraulic technology develops, and
- work well both alone and in a team on a hydraulic project.
- work safely and maintain a safe working environment using established practices,

Evaluation:
Evaluation is done by midterm and final exams, quality of lab work, and quality of a term project.

General Topics the Students Will Learn:

- Definitions of force, weight, mass, inertia, kinetic and potential energy, work, power, horsepower, pressure (both fluid and pneumatic), and resistance.
- Friction:
  - Static, dynamic, coefficient of friction, frictional force, and cleanliness.
  - Friction as resistance.
  - Friction of smooth surfaces.
  - Friction of rough surfaces.
- Tribology
  - Lubrication definitions:
    - Asperities.
    - Laws of friction.
    - Wear.
    - Abrasion.
    - Adhesive wear.
    - Corrosion
    - Viscosity index of oils.
    - Difference between mineral and synthetic oil.
    - Base oil and additives.
    - Grease and thickeners.
  - Terminology of filtration and lubrication.
  - Types of lubrication:
    - Hydrodynamic.
    - Elasto-hydrodynamic.
  - Summary of lube regimes and the Stribeck curve.
    - Applying the above knowledge to the Stribeck curve.
    - Coefficient of friction versus lube thickness:
      - Boundary coefficient of friction.
      - Hydrodynamic coefficient of friction.
      - Elasto-hydrodynamic coefficient.
    - Boundary lube.
    - Application to turbines.
- Heat, temperature, atoms, and molecules. Properties of gases and liquids. The Gas Law.
- Definition of viscosity, viscosity of different fluids, viscosity versus temperature, mechanics of viscosity at the molecular level, effects of pressure on viscosity, and viscosity versus fluid, film, and flow regimes. Effect of viscosity on hydrodynamic lubrication.
- Fluid transmission of force and energy; types of pressure gauges and associated methods of measurement, hydraulic intensifiers, and hydraulic accumulators.
- Types of pumps (including rotary displacement pumps), theory of operation, friction versus heat, change in direction versus heat, and pressure differential.
- Piping and tubing.
- Filters, LO systems, and grease systems.
- Care, maintenance, and attention of lube systems.

- Supporting fluid mechanical and math concepts for calculating pressure, horsepower, pressure drop, fluid viscosities, and velocities, and other parameters necessary for the understanding and efficient operation of hydraulic pumps, motors, and hydraulic systems.
- Hydraulic symbols: tribological, lubrication, and filtration terminology; and nomenclature and purpose of hydraulic components.
- Petroleum-based and other hydraulic fluids, their use in transmitting energy from pump to destination, and properties as lubricants.
- Greases.
- Oil properties and selection.
- Oil additives:
  - Problems:
    - Anti-wear additives:
      - Temperature breakdown.
      - Pressure additives.
      - Air-oil mix — oxidation by-products.
      - Faster oxidation at high temperatures.
      - Water effects — high temperature from compressed air at pump outlet.
      - Varnish, sludge, and varnish as a result of resin formation in oil.
    - Rust and corrosion:
      - Acidic products of oil oxidation.
      - Metal erosion and dissolution resulting from corrosion.
      - Increased surface tolerance problems from rusting.
    - Rust and oxidation inhibitors:
      - Chemical compounds that bond with metal surfaces and inhibit rust formation.
      - Oxidation inhibitors in oil to inhibit oxidation chains of reaction.
      - Removal of air bubbles.
      - Additives in turbine quality hydraulic fluids.
- Dirt and other contaminants:
  - Water, air, and dirt.
  - Problems with dirt:
    - Insoluble.
    - Sources of dirt.
    - Solutions for dirt.
    - Methods of inspection.
- Reservoir cleanliness.
- Safety practices associated with the various pieces of equipment used in the lab relevant to field work.

Topics Covered in Lab:

- Identifying the components of the MB 400 Hydraulic System.
- Safety practices for the hydraulics laboratory.
- Identifying the major parts of a hydraulic fluid supply system and their functions.
- Hydraulic circuits.
- How fluid flows from a reservoir to the hydraulic circuit.
- Basic properties of fluids.

- Identifying common hydraulic fluid contaminants.
- Operation of a filter and strainer.
- Types, operation, and application of hydraulic pumps.
- Operation and functions of pressure regulators and pressure relief valves.
- Difference(s) between normally open and normally closed hydraulic components.
- Using a pressure regulator to control system fluid pressure.
- Identifying and describing the operation and function of manual directional control valves, check valves, needle valves, hydraulic cylinders, hydraulic flow control valves, paired cylinders, hydraulic presses, hydraulic jacks, and hydraulic positioners.

Lab Equipment:

MB 400 Hydraulics System and Laboratory Manual, produced by TII Technical Educational Systems

Textbooks (supplied by Columbia Gorge Community College):

Mott, Robert L., 2006, Applied Fluid Mechanics, 6th Edition. Merrill Publishing Co., Columbus, OH.

Smith, Jamie C., Ed., 2004, Fundamentals of Technology: Principles of Hydraulics. MB 400 Manual, 3rd Edition. TII Technical Education Systems, Mundelein, IL.

Curriculum Request Form
New Course

Course number:	RET 121
Course title:	Wind Mechanics I
Transcript title:	Wind Mechanics I
Lecture hours:	4
Lab hours:	3
Weekly contact hours:	7
Total credits:	5
Reason for new course:	To fulfill requirements for new one-year certificate for the Wind Energy Technician and the two-year AAS degree in Renewable Energy Technology.
Course description:	This course focuses on learning the fundamentals of wind turbine construction. It emphasizes learning the different mechanical components that create a complete turbine from nuts and bolts to propellers, shafts, and bearings. It demonstrates the importance of lubrication in maintaining gears and other movable parts. Basic alignment is taught with regards to wind turbine structural stability. Basic classical mechanics physics, including aerodynamics, is used to demonstrate how wind energy is transmitted from propeller to electric generator.
Prerequisite(s):	Math 65 , RET 120 (Hydraulics 120)
Prereq/concurrent:	None
Corequisite(s):	Math 95
Learning outcomes:	Upon finishing this course, students will: Be prepared to take Wind Mechanics II, which involves larger-scale mechanical construction using knowledge and experience gained from taking Wind Mechanics I. Build and maintain mechanical and electrical equipment having movable parts.

	• Troubleshoot mechanical problems. • Work safely both alone and in a team.
Other format:	At CGCC, and may later be developed as a hybrid course.
Are there similar courses existing:	YES
Description of existing courses:	EET and CMET
Required or elective:	Required
Is there impact on degrees or certificates:	NO
Is there an impact on another dept or campus?:	NO
Have other sacs been contacted?:	YES
Description of contact:	EET and CMET
Is there an increase in costs for library or av dept?:	NO
Implementation term:	Fall
Implementation year:	2007
Contact name:	Tom Lieurance
Contact e-mail:	tlieurance@cgcc.cc.or.us

Course Content and Outcome Guide

Course Number: RET 121
Course Title: Wind Mechanics I
Credits: 5
Lecture hrs/wk: 4
Lab hrs/wk: 3
Number of weeks: 11/12

Course description:
This course focuses on learning the fundamentals of wind turbine construction. It emphasizes learning the different mechanical components that create a complete turbine from nuts and bolts to propellers, shafts, and bearings. It demonstrates the importance of lubrication in maintaining gears and other movable parts. Basic alignment is taught with regards to wind turbine structural stability. Basic classical mechanics physics, including aerodynamics, is used to demonstrate how wind energy is transmitted from propeller to electric generator.

Prerequisites: Math 65, Hydraulics 120

Corequisites: Math 95

Outcomes:
Upon finishing this course, students will:

- Be prepared to take Wind Mechanics II, which involves larger-scale mechanical construction using knowledge and experience gained from taking Wind Mechanics I.
- Build and maintain mechanical and electrical equipment having movable parts.
- Troubleshoot mechanical problems.
- Work safely both alone and in a team.

Evaluation:
Evaluation is done by midterm and final exams, quality of lab work and of a term project.

Specific Topics the Students Will Learn:

- Description of different types of nuts and bolts, fasteners, propellers, bearings, and other pieces of machinery involved in the construction of wind turbines.
- The importance of lubrication to reduce frictional wear of gears and other types of mechanical moving parts. This topic will review material covered in Hydraulics 120
- Introduction to bearing technology.
- Descriptions of pressure gauges, intensifiers, hydraulic accumulators, pumps, and lubrication properties of petroleum-based fluids. This topic might be review material covered in Hydraulics 120
- Definitions of mathematical quantities such as scalar, vector, scientific notation, and frame of reference.

- Definitions of physical quantities, such as linear force, momentum, and energy; angular velocity and momentum, torque, moment of inertia; and other quantities used to describe characteristics of wind turbine technology.
- Physics of kinetic energy transfer from wind to propeller to electric turbine, and energy loss through mechanical friction and electrical resistance.
- Basic aerodynamic concepts that govern how wind interacts with a turbine propeller.

Laboratory Equipment:

MB 300 Mechanisms System and Laboratory Manual

Textbooks (supplied by Columbia Gorge Community College):

Bearing Technology:

FAG Rolling Bearings, Catalogue WI. 41 520/3 ED, 2000 Edition. FAG Bearings Sales Corporation, Danbury, CT.

Hydraulics:

Mott, Robert L., 2006, Applied Fluid Mechanics, 6th Edition. Merrill Publishing Co., Columbus, OH.

Smith, Jamie C., Ed., 2004, Fundamentals of Technology: Principles of Hydraulics. MB 400 Manual, 3rd Edition. TII Technical Education Systems, Mundelein, IL.

Tribology:

Bharat, Bushan, 2002, Introduction to Tribology. John Wiley & Sons, New York, NY.

A custom textbook will also be created consisting of selected chapters and articles from journal, manual, textbook, and Web resources, copied with publishers' permission.

Curriculum Request Form
New Course

Course number:	RET 122
Course title:	Wind Mechanics II
Transcript title:	Wind Mechanics II
Lecture hours:	4
Lab hours:	3
Weekly contact hours:	7
Total credits:	5
Reason for new course:	To fulfill requirements for new one-year certificate for the Wind Energy Technician and the two-year AAS degree in Renewable Energy Technology.
Course description:	This course introduces the student to the process of constructing a wind turbine. Discussion includes construction techniques involving cranes and rigging, and mechanical alignment procedures. Students assemble a functioning scale model of a wind turbine. They apply what they learned in Wind Mechanics I about types and functions of levers, inclined planes, screws, wheels and axles, and other mechanisms used in wind turbine construction.
Prerequisite(s):	RET 120 (Hydraulics 120), RET 121 (Wind Mechanics I)
Prereq/concurrent:	None
Corequisite(s):	None
Learning outcomes:	Outcomes: Upon finishing this course, students will: Be prepared to take Wind Mechanics III, which involves analysis of wind farm locations with regards to wind factors, topography, and access for development. Be prepared to learn full-scale wind turbine assembly, maintenance, and operation.

	◆Identify and troubleshoot mechanical problems. ◆Work safely both alone and in a team on a wind turbine project.
Other format:	At CGCC, and may later be developed as a hybrid course.
Are there similar courses existing:	YES
Description of existing courses:	EET and CMET
Required or elective:	Required
Is there impact on degrees or certificates:	NO
Is there an impact on another dept or campus?:	NO
Have other sacs been contacted?:	YES
Description of contact:	EET and CMET
Is there an increase in costs for library or av dept?:	NO
Implementation term:	Fall
Implementation year:	2007
Contact name:	Tom Lieurance
Contact e-mail:	tlieurance@cgcc.cc.or.us

Course Content and Outcome Guide

Course Number: RET 122
Course Title: Wind Mechanics II
Credits: 5
Lecture hrs/wk: 4
Lab hrs/wk: 3
Number of weeks: 11/12

Course description:
This course introduces the student to the process of constructing a wind turbine. Discussion includes construction techniques involving cranes and rigging, and mechanical alignment procedures. Students assemble a functioning scale model of a wind turbine. They apply what they learned in Wind Mechanics I about types and functions of levers, inclined planes, screws, wheels and axles, and other mechanisms used in wind turbine construction.

Prerequisites:
Hydraulics 120, Wind Mechanics I

Corequisites:

Outcomes:
Upon finishing this course, students will:

- Be prepared to take Wind Mechanics III, which involves analysis of wind farm locations with regards to wind factors, topography, and access for development.
- Be prepared to learn full-scale wind turbine assembly, maintenance, and operation.
- Identify and troubleshoot mechanical problems.
- Work safely both alone and in a team on a wind turbine project.

Evaluation:
Evaluation is done by midterm and final exams, quality of lab work and of a term project.

Specific Topics the Students Will Learn:

- How to assemble a scale model of a functioning wind turbine.
- Principles and logistics of cranes and rigging.
  - Center of gravity of crane-load systems.
  - Lever principles as applied to crane and load:
    - Tipping axis.
    - Fulcrum.
    - Load.
  - Wind loading.
  - Blocking, outriggers.
  - Maintaining clearance of power lines.
  - Rigging:
    - Converting between US Standard Weight System to metric weight system.
    - Slings:
      - Load edge related to sling.
      - Types and characteristics.
      - Hardware and correct use of lifting capacity.
        - Eyebolts and hoist rings.
      - Sling inspections and safe handling.
    - Types of hitches and lifting capacities.
    - Wire rope, synthetic web, and round slings.
    - Removal-from-service issues:
      - Inspection and removal.
      - Capacity loss.
- Crane safety.
- Mechanical alignment:
  - Pipes with flange alignment.
  - Shaft-to-shaft alignment procedures.
  - Centerline alignment.
  - Two 3” pipes with flange alignment.
  - Types of misalignment.
  - Two-plane alignment.
  - Run-out correction.
  - Preparation of driver and driver unit.
  - Alignment operations.
  - Coupling types.
  - Bearings — types, float, installation best practices.
  - Calculating for alignment.
  - Alignment specifications and tolerance.
  - Tools:
    - Straight edge, feeler gauge (single/double), taper gauge (gap gauge), Cliter spark plug gauge taper.
  - Measurement of alignment.
  - Surface alignment method.
  - Tools for alignment:

    - Porta power, jacks, etc.
    - Laser alignment.
- Basic maintenance and operation of a wind turbine.
- Basic mechanical theory as applied to gear ratios and gearboxes.
- Application of mechanical theory as applied to levers, wheels, axles, pulleys, and other mechanisms to wind turbine construction.
- Propeller blade pitch — hydraulic/motor type.
- Propeller blade yaw — nacelle rotation, motor type and actuator.
- Drive trains, drive lines, U joints, and transmission.
- Towers.
- Introduction to tools of the trade:
    - Wrenches, torque wrenches, hammers, screwdrivers, grease guns, DMM, porta power, other miscellaneous tools, and dirty grease disposal.
- Airframe aerodynamics (wind – surface boundary effects on propellers, air foils, and rotors).
- 3-Phase power line connections.
- Substations.
- Generator-Power line setups (no substation).

Textbooks (supplied by Columbia Gorge Community College):

Smith, Jamie C., Ed., 2006, Fundamentals of Technology: Principles of Mechanisms, Version 4.01. TII Technical Educational Systems, Mundelein, IL.

A custom textbook will also be created consisting of selected chapters and articles from journal, manual, textbook, and Web resources, copied with publishers' permission.

Curriculum Request Form
New Course

Course number:	RET 141
Course title:	Electrical Motor and Generator Control
Transcript title:	Electr Motor/GeneratorControls
Lecture hours:	2
Lab hours:	3
Weekly contact hours:	5
Total credits:	3
Reason for new course:	To fulfill requirements for new one-year certificate for the Wind Energy Technician and the two-year AAS degree in Renewable Energy Technology.
Course description:	Included subjects: Logic applied to line diagrams; Rules of line diagrams, signals, decisions, action, and logic. electromagnetism, solenoids, DC generators, DC motors. AC generators, transformers, and AC motors, single and 3 phase motors, delta and Wye configurations, Contactors and motor starters; magnetic motor starters and contactors, motor drives. Industrial sensors and input devices; temperature, pressure, flow, ultrasonic, photoelectric, switches. Reversing motor circuits, and controls. Power distribution systems. Overview of solid state devices. Timers and counters. Relays and solid state starters. Reduced voltage starting. Motor acceleration and decelerating methods. Electrical safety. Lock out, tag out. The National Electrical code will also be explored.
Prerequisite(s):	None
Prereq/concurrent:	None
Corequisite(s):	Math 95, WR 115
Learning outcomes:	1.0 To introduce the symbols and concepts used to describe electrical circuits. Learn to draw electrical circuits using standard symbols. These are known as schematic diagrams.

- Learn to draw electrical circuits using One-line, Line and Ladder diagrams.

- Learn and practice skills in creating several types of electrical diagram and electronic schematic drawings.

- Learn and practice skills in reading several types of electrical diagram and electronic schematic drawings.

- Learn rules of line diagrams; load, control, switch, numbering systems, signals, decisions, actions, logic functions, memory, common circuits and component symbols.

2.0 To introduce magnetic fields, solenoids, DC motors, and DC generators.

- Be able to describe the characteristics and causes of magnetic fields.

- Be able to describe the Hysteresis curve and how it applies to relays and motors.

- Be able to identify control mechanisms for relays and DC motors.

- Be able to draw a control circuit, and identify the proper components to use in the circuit.

- Describe the operation and construction of a DC generator and motors.

- Describe the various types and characteristics of DC generators and motors.

- Be able to identify types of DC motors and their characteristic torque curve.

- Describe the operation and construction of a DC motor.

- Be able to connect a DC motor to a source by understanding the standard motor connections.

3.0 AC generators, transformers, and motors. To introduce the concepts of AC solenoids, transformers, generators, and motors.

- Be able to describe the characteristics and causes of an AC magnetic field.

- Be able to describe the operation and construction of common types of AC generators and motors.

- Be able to describe what a shading coil is and what it is used for.

- Be able to identify control mechanisms for relays, AC generators, and AC motors.

- Be able to draw a control circuit, and identify the proper components to use in the circuit.

- Be able to identify types of AC motors and their characteristic torque curve.

- Be able to connect an AC motor to a source.

- Be able to analyze the operation and characteristics of circuit protection devices.

- Describe transformer operation and standard connections.

- Describe Delta and Wye operation and connections of an AC motor and generator.

- Determine the differences between single phase, three phase, and the different voltages transformers create.

- Troubleshoot motors and generators.

4.0 To explore types of switching used to control motors and generators.

- Describe the problems associated with switching high current devices and describe solutions to the problems.

- Describe common types of contactors, their construction, protection ratings, operation, and use.

- Draw line diagrams for contactor circuits.

- Recognize common types of contactors and the connections on the contactors and implement them in a control circuit.

- Describe problems and solutions using AC and DC contacts.

- Describe common types of overload relays and their construction and use.

- Select for use, identify, and size control switches.

- Understand theory and use of common control switches and associated wiring diagrams.

- Troubleshoot control devices.

5.0 To introduce concepts of motor reversing control circuits.

- Understand, identify, and create motor reversing circuits from common components.

Understand operation and construction of motor reversing controls.

Understand Control and motor connections.

Identify and understand operation and construction of common types of reversing motor switches.

Understand Start, Stop, forward and reverse jogging circuits.

Understand motor control wiring methods, and wiring diagrams.

Troubleshoot reversing motor control circuits.

6.0 To introduce Relays and solid state starters.

Describe and use common types of solid state relays, their

construction, theory of operation and technical specifications.

Describe and use common types of general purpose electromechanical relays, their construction, use, theory of operation, circuit diagrams, and troubleshooting.

Understand troubleshooting problems associated with electromechanical and solid state relays.

7.0 To understand the power companies role in power generation and transmission, and determine the common voltage sources associated with power distribution systems.

Describe the power generation and transmission system.

Describe the components of a substation and read the electrical diagrams that describe it.

Understand the differences between 110, 115, 120, 208, 220, 240, 277, 440, and 480 volt power.

Understand the voltages on high tension power lines, transformers, and power lines, and how they are created and used.

Understand phase connections and Delta and Wye connections.

Understand transformers connected for Delta and Wye distribution systems.

Understand three phase and balancing loads.

Understand the purpose of all the components of a power system.

Understand switchboards, busways, feeders, and troubleshooting devices found inside a substation.

Understand and describe the connection between an electric generation utility and the power grid.

8.0 Introduce high power solid state devices, common sensors and control devices.

Understand theory and use of diodes in power transmission and motor control.

Understand theory and use of the silicon controlled rectifier in power transmission and motor control.

Understand industrial timers and counters.

Understand electrical diagrams of timers, counters, SCR's and diodes.

Understand the use of common industrial sensors.

Understand the conditions for mounting sensors in an industrial environment.

9.0 Introduce methods of starting electric motors and solving related current surges.

Determine load torque and starting requirements for single phase and 3 phase electric motors.

Be able to read motor characteristic charts.

Determine common methods of starting motors using reduced voltage methods such as primary resistor, autotransformer, part winding, wye and delta. Use solid state switches such as SCR, triacs, alternistors, soft starters.

Read electrical motor diagrams.

Determine which starting method is best for a given situation.

Troubleshoot starting circuits.

10.0 Introduce methods of controlling motor speed and motor braking. Objectives:

Implement and describe common methods of motor braking: friction brake pads, plugging, DC injection braking, and dynamic braking.

Calculate torque, locked rotor torque, pull up torque, breakdown torque, full load torque and braking torque of a motor.

Determine the speed control scheme for common types of motors with respect to the kind of load it will drive.

Calculate motor horsepower, and understand the relationship between speed, horsepower and torque.

Other format**:** At CGCC, and may later be developed as a hybrid course.

Are there similar courses existing:	YES
Description of existing courses:	EET and CMET
Required or elective:	Required
Is there impact on degrees or certificates:	NO
Is there an impact on another dept or campus?:	NO
Have other sacs been contacted?:	YES
Description of contact:	EET and CMET
Is there an increase in costs for library or av dept?:	NO
Implementation term:	Fall
Implementation year:	2007
Contact name:	Tom Lieurance
Contact e-mail:	tlieurance@cgcc.cc.or.us

Course Content and Outcome Guide

Wind Energy Technician

Date: 10/12/06
Prepared by: Tom Lieurance
Course Number: RET 141
Course Title: Electrical Motor and Generator Control
Number of Credits: 3
Lecture hours per week: 2
Lab hours per week: 3
Number of weeks: 11/12

Course Description:
Included subjects: Logic applied to line diagrams; Rules of line diagrams, signals, decisions, action, and logic. electromagnetism, solenoids, DC generators, DC motors. AC generators, transformers, and AC motors, single and 3 phase motors, delta and Wye configurations, Contactors and motor starters; magnetic motor starters and contactors, motor drives. Industrial sensors and input devices; temperature, pressure, flow, ultrasonic, photoelectric, switches. Reversing motor circuits, and controls. Power distribution systems. Overview of solid state devices. Timers and counters. Relays and solid state starters. Reduced voltage starting. Motor acceleration and decelerating methods. Electrical safety. Lock out, tag out. The National Electrical code will also be explored.
Corequisite: MTH 95, WR 115.

Instructional Goals and Objectives:
Upon successful completion of this course the student will have satisfactorily accomplished the goals and objectives listed in this course content guide. Course content guides are developed by college-wide Subject Area Curriculum Committees and approved by management.

Course Outcomes:

1.0 ELECTRICAL DIAGRAMMING SKILLS
Instructional Goal:
To introduce the symbols and concepts used to describe electrical circuits.

Objectives:

- Learn to draw electrical circuits using standard symbols. These are known as schematic diagrams.
- Learn to draw electrical circuits using One-line, Line and Ladder diagrams.
- Learn and practice skills in creating several types of electrical diagram and electronic schematic drawings.

- Learn and practice skills in reading several types of electrical diagram and electronic schematic drawings.
- Learn rules of line diagrams; load, control, switch, numbering systems, signals, decisions, actions, logic functions, memory, common circuits and component symbols.

2.0 Magnetism and Motion, DC
Instructional Goal:
To introduce magnetic fields, solenoids, DC motors, and DC generators.

Objectives:

- Be able to describe the characteristics and causes of magnetic fields.
- Be able to describe the Hysteresis curve and how it applies to relays and motors.
- Be able to identify control mechanisms for relays and DC motors.
- Be able to draw a control circuit, and identify the proper components to use in the circuit.
- Describe the operation and construction of a DC generator and motors.
- Describe the various types and characteristics of DC generators and motors.
- Be able to identify types of DC motors and their characteristic torque curve.
- Describe the operation and construction of a DC motor.
- Be able to connect a DC motor to a source by understanding the standard motor connections.

3.0 AC generators, transformers, and motors.
Instructional Goal:
To introduce the concepts of AC solenoids, transformers, generators, and motors.

Objectives:

- Be able to describe the characteristics and causes of an AC magnetic field.
- Be able to describe the operation and construction of common types of AC generators and motors.
- Be able to describe what a shading coil is and what it is used for.
- Be able to identify control mechanisms for relays, AC generators, and AC motors.
- Be able to draw a control circuit, and identify the proper components to use in the circuit.
- Be able to identify types of AC motors and their characteristic torque curve.
- Be able to connect an AC motor to a source.
- Be able to analyze the operation and characteristics of circuit protection devices.
- Describe transformer operation and standard connections.
- Describe Delta and Wye operation and connections of an AC motor and generator.
- Determine the differences between single phase, three phase, and the different voltages transformers create.
- Troubleshoot motors and generators.

4.0 Contactors and Motor Starters

Instructional Goal:

To explore types of switching used to control motors and generators.

Objectives:

- Describe the problems associated with switching high current devices and describe solutions to the problems.
- Describe common types of contactors, their construction, protection ratings, operation, and use.
- Draw line diagrams for contactor circuits.
- Recognize common types of contactors and the connections on the contactors and implement them in a control circuit.
- Describe problems and solutions using AC and DC contacts.
- Describe common types of overload relays and their construction and use.
- Select for use, identify, and size control switches.
- Understand theory and use of common control switches and associated wiring diagrams.
- Troubleshoot control devices.

5.0 Control Devices, Reversing Motor Circuits

Instructional Goal:

To introduce concepts of motor reversing control circuits.

Objectives:

- Understand, identify, and create motor reversing circuits from common components.
- Understand operation and construction of motor reversing controls.
- Understand Control and motor connections.
- Identify and understand operation and construction of common types of reversing motor switches.
- Understand Start, Stop, forward and reverse jogging circuits.
- Understand motor control wiring methods, and wiring diagrams.
- Troubleshoot reversing motor control circuits.

6.0 Relays and Solid State Starters

Instructional Goal:

To introduce Relays and solid state starters.

Objectives:

- Describe and use common types of solid state relays, their construction, theory of operation and technical specifications.
- Describe and use common types of general purpose electromechanical relays, their construction, use, theory of operation, circuit diagrams, and troubleshooting.

- Understand troubleshooting problems associated with electromechanical and solid state relays.

7.0 SERIES – Power distribution systems
Instructional Goal:
To understand the power companies role in power generation and transmission, and determine the common voltage sources associated with power distribution systems.

Objectives:

- Describe the power generation and transmission system.
- Describe the components of a substation and read the electrical diagrams that describe it.
- Understand the differences between 110, 115, 120, 208, 220, 240, 277, 440, and 480 volt power.
- Understand the voltages on high tension power lines, transformers, and power lines, and how they are created and used.
- Understand phase connections and Delta and Wye connections.
- Understand transformers connected for Delta and Wye distribution systems.
- Understand three phase and balancing loads.
- Understand the purpose of all the components of a power system.
- Understand switchboards, busways, feeders, and troubleshooting devices found inside a substation.
- Understand and describe the connection between an electric generation utility and the power grid.

8.0 High power solid state devices
Instructional Goal:

Introduce high power solid state devices, common sensors and control devices.

- Understand theory and use of diodes in power transmission and motor control.
- Understand theory and use of the silicon controlled rectifier in power transmission and motor control.
- Understand industrial timers and counters.
- Understand electrical diagrams of timers, counters, SCR's and diodes.
- Understand the use of common industrial sensors.
- Understand the conditions for mounting sensors in an industrial environment.

9.0 Reduced voltage starting
Instructional Goal:
Introduce methods of starting electric motors and solving related current surges.
Objectives:

- Determine load torque and starting requirements for single phase and 3 phase electric motors.

- Be able to read motor characteristic charts.
- Determine common methods of starting motors using reduced voltage methods such as primary resistor, autotransformer, part winding, wye and delta. Use solid state switches such as SCR, triacs, alternistors, soft starters.
- Read electrical motor diagrams.
- Determine which starting method is best for a given situation.
- Troubleshoot starting circuits.

9.0 Motor speed control, acceleration and deceleration methods
Instructional Goal:
Introduce methods of controlling motor speed and motor braking.
Objectives:

- Implement and describe common methods of motor braking: friction brake pads, plugging, DC injection braking, and dynamic braking.
- Calculate torque, locked rotor torque, pull up torque, breakdown torque, full load torque and braking torque of a motor.
- Determine the speed control scheme for common types of motors with respect to the kind of load it will drive.
- Calculate motor horsepower, and understand the relationship between speed, horsepower and torque.

Evaluation:
Evaluation is by unit exams, homework, and a comprehensive final exam.

Course Activities and Design:
Lecture and discussion are the instructional methods used. Weekly homework is assigned. Laboratory activity includes building circuits on solderless circuit boards, electrical boards, making circuit measurements using test equipment, and electrical trades equipment, analyzing test data, and comparing to predictions using theory.

Curriculum Request Form
New Course

Course number:	RET 223
Course title:	Wind Mechanics III
Transcript title:	Wind Mechanics III
Lecture hours:	4
Lab hours:	3
Weekly contact hours:	7
Total credits:	5
Reason for new course:	To fulfill requirements for new one-year certificate for the Wind Energy Technician and the two-year AAS degree in Renewable Energy Technology.
Course description:	This course focuses on methods used to evaluate land opportunities for developing wind farms, and managing a wind farm in both a field and an office setting. Students learn how to read and analyze topographic and wind maps as means to assessing the viability of developing wind farms on newly acquired land. They also learn MS Office software as wind farm management tools. Other topics covered include cranes and rigging methods, non-destructive materials testing, networking, and basic meteorological forecasting.
Prerequisite(s):	RET 121 (Wind Mechanics I) and RET 122 (Wind Mechanics II)
Prereq/concurrent:	None
Corequisite(s):	None
Learning outcomes:	Upon finishing this course, students will: �be prepared to read and analyze topographic and wind maps with the aim of assessing the viability of developing wind farms on newly acquired land. �be able to forecast local weather on a short-term basis and determine whether upcoming changes in the weather pose a danger when working in the field.

	• Perform office work, such as maintaining parts inventories, placing work orders, and writing reports, among other administrative and/or managerial tasks. • Work safely both alone and in a team on wind farm tasks.
Other format:	At CGCC, and may later be developed as a hybrid course.
Are there similar courses existing:	YES
Description of existing courses:	EET and CMET
Required or elective:	Required
Is there impact on degrees or certificates:	NO
Is there an impact on another dept or campus?:	NO
Have other sacs been contacted?:	YES
Description of contact:	EET and CMET
Is there an increase in costs for library or av dept?:	NO
Implementation term:	Fall
Implementation year:	2007
Contact name:	Tom Lieurance
Contact e-mail:	tlieurance@cgcc.cc.or.us

Course Content and Outcome Guide

Course Number: RET 223
Course Title: Wind Mechanics III
Credits: 5
Lecture hrs/wk: 4
Lab hrs/wk: 3
Number of weeks: 11/12

Course description:
This course focuses on methods used to evaluate land opportunities for developing wind farms, and managing a wind farm in both a field and an office setting. Students learn how to read and analyze topographic and wind maps as means to assessing the viability of developing wind farms on newly acquired land. They also learn MS Office software as wind farm management tools. Other topics covered include cranes and rigging methods, non-destructive materials testing, networking, and basic meteorological forecasting.

Prerequisites: Wind Mechanics I and II

Corequisites:

Outcomes:
Upon finishing this course, students will:

- be prepared to read and analyze topographic and wind maps with the aim of assessing the viability of developing wind farms on newly acquired land.
- be able to forecast local weather on a short-term basis and determine whether upcoming changes in the weather pose a danger when working in the field..
- Perform office work, such as maintaining parts inventories, placing work orders, and writing reports, among other administrative and/or managerial tasks.
- Work safely both alone and in a team on wind farm tasks.

Evaluation:
Evaluation is done by midterm and final exams, quality of lab work and of a term project.

Specific Topics the Students Will Learn:

- How to read and analyze topographic maps.
    - Identifying ravines, mountain ridges, gullies, cliffs, flatlands, and bodies of water.
- How to read and analyze wind maps.
- How to make reasonable decisions concerning wind farm development on promising areas of land, including citing concerns if and when necessary.
- How to make short-term weather forecasts with the goal of maintaining worker and equipment safety if bad weather approaches (such as electrical and thunderstorms, squall lines, high winds, etc.).
- How to make reports and other word-processed documents using MS Word.
- How to create and manipulate spreadsheets using MS Excel.

- How to create, maintain, and manipulate relational databases using MS Access.
- Techniques used in and logistics of cranes and rigging in wind turbine construction.
- Non-destructive materials testing:
  - Ultrasound and scanning electron microscope (SEM):
    - Theory of operation:
      - SEM
        - Magnetic focusing of electron beam.
        - Secondary electron imaging.
        - Back-scattered electron imaging.
      - Sound beam:
        - Convergent.
        - Near-field.
        - Far-field.
        - Divergence angle.
        - Acoustic axis.
      - Testing methods.
  - Identification of reflectors, discontinuities, and other imperfections and impurities.
  - Pulse echo method:
    - Speed of sound in materials.
    - Longitudinal acoustical waves.
    - Oscilloscope display: initial and reflected pulse.
    - Using the intermediate echo to detect flaws.
      - Location of discontinuity.
      - Near, far, and dead zones.
  - Types of probes:
    - Transverse/shear waves.
    - Angle beam probes: angle of incidence, angle of reflection, refraction, sound velocity, and critical angles.
  - Problem-solving methods.
  - Failure analysis.
  - DGS and DAC methods.
  - Document test results.
  - Overview of data interpretation (diagnosis).
- Fiber optic and cat-5 networking.
- Sensors.

Topic Addenda:

- Haz-Mat handling, storage, and use.
- Site environmental, wildlife, and cultural issues.
- Vehicle safety and maintenance.
- Site safety.
- Fall protection.
- Road maintenance.
- Weed control.
- CMMS — maintenance management.
- Preventive and predictive maintenance.

Textbooks (supplied by Columbia Gorge Community College):

Industrial Maintenance:

Green, Denis and Gosse, Jonathan F., 2006, Industrial Maintenance, 2nd E. American Technical Publishers, Inc., Homewood, IL.

Programmable Logic Controllers:

Rabiee, Max, 2002, Programmable Logic Controllers: Hardware and Programming. The Goodheart-Wilcox Company, Inc., Tinley Park, Il.

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