Undergraduate Academic Board
Agenda

April 19, 2013
2:00-5:00
ADM 204

I. Roll

( ) Dave Fitzgerald (CBPP)	( ) Ira Ortega (COE)	( ) Christina Stuive (SA)	( ) Adjunct vacancy
( ) Paola Banchero (CAS)	( ) Jeffrey Callahan (CTC)	( ) Francisco Miranda (FS CAS)	( ) USUAA vacancy
( ) Mari Ippolito (CAS)	( ) Utpal Dutta (SOE)	( ) Alberta Harder (FSAL)	Ex-Officio Members:
( ) Barbara Harville(CAS)	( ) Michael Hawfield (KPC)	( ) Soren Orley (FSAL)	( ) Susan Kalina
( ) Len Smiley (CAS)	( ) Kevin Keating (LIB)	( ) FS at large vacancy	( ) Lora Volden
( ) Lynn Senette (COH)	( ) Joan O'Leary (Mat-su)	( ) Kathrynn Hollis Buchanan(Kodiak)	( ) S&P
( ) Eileen Weatherby (COH)	( ) Vacant (Adjunct)		

II. Approval of the Agenda (pg.1-2)

III. Approval of Meeting Summary (pg. 3-4)

IV. Administrative Report

A. Vice Provost for Undergraduate Academic Affairs Susan Kalina

B. University Registrar Lora Volden

V. Chair's Report

A. UAB Chair- Dave Fitzgerald

B. GERC

VI. Program/Course Action Request- Second Readings

Chg	PSY A427	Field Experience in Psychology (3 cr)(1+6)(pg. 5-9)
Chg		BS, Psychology (pg. 10)
Chg		BA, Psychology (pg. 11-20)

VII. Program/Course Action Request- First Readings

Chg		Minor, Civil Engineering (pg. 21)
Chg		BS, Civil Engineering (pg. 22-35)
Add		Prefix, Fisheries Technology (FT) (pg. 36-37)
Chg	PRT A101	Introduction to Process Technology (3 cr)(3+0)(pg. 38-41)
Chg	PRT A110	Introduction to Process Safety/Health/Environmental Awareness (3 cr)(3+0)(pg. 42-46)
Chg	PRT A130	Process Technology I: Equipment (4 cr)(4+0)(pg. 47-53)
Chg	PRT A160	Oil & Gas Exploration and Production I (3 cr)(3+0)(pg. 54-59)
Chg	PRT A230	Process Technology II: Systems (4 cr)(3+2)(pg. 60-65)
Chg	PRT A231	Process Technology III: Operations (4 cr)(3+2)(pg. 66-72)

Chg	PRT A250	Process Troubleshooting (3 cr)(3+0)(pg. 73-76)
Chg	PRT A255	Quality Concepts for the Process Industry (1 cr)(1+0)(pg. 77-80)

VIII. Old Business

IX. New Business

X. Informational Items and Adjournment

Undergraduate Academic Board
Summary

April 12, 2013
2:00-5:00
ADM 204

I. Roll

(x) Dave Fitzgerald (CBPP)	(x) Ira Ortega (COE)	(e) Christina Stuive (SA)	( ) Adjunct vacancy
(x) Paola Banchero (CAS)	(x) Jeffrey Callahan(CTC)	(x) Francisco Miranda (FS CAS)	( ) USUAA vacancy
(x) Mari Ippolito (CAS)	( ) Utpal Dutta (SOE)	(x) Alberta Harder (FSAL)	Ex-Officio Members:
(e) Barbara Harville(CAS)	(x) Michael Hawfield (KPC)	(x) Soren Orley (FSAL)	(x) Susan Kalina
(x) Len Smiley (CAS)	(x) Kevin Keating (LIB)	( ) FS at large vacancy	(x) Lora Volden
(e) Lynn Senette (COH)	(x) Joan O'Leary (Mat-su)	( ) Kathrynn Hollis Buchanan(Kodiak)	(x) S&P
(e) Eileen Weatherby (COH)	( ) Vacant (Adjunct)		

II. Approval of the Agenda (pg.1-2)
Approved

III. Approval of Meeting Summary (pg. 3-5)
Approved

IV. Administrative Report

A. Vice Provost for Undergraduate Academic Affairs Susan Kalina
Written report is attached to agenda website
Discussed issues that may arise in the next academic year including course sequencing documents for programs, NWCCU credit-hour policy, and Academic dispute policy and procedures

B. University Registrar Lora Volden
Catalog proofs have been released and edits are due April 26th
Discussed box 1a. on the CAR

Minor Catalog Change for Elementary Education (pg. 6)
Motion to approve minor changes to the Elementary Education catalog copy.
Unanimously Approved

V. Chair's Report

A. UAB Chair- Dave Fitzgerald
Discussed Faculty Senate motions

B. GERC

VI. Program/Course Action Request- Second Readings

Chg ACCT A316 Accounting Information Systems II (3 cr)(3+0)(pg. 7-11)
Unanimously Approved

Chg SOC A377 Sociology of Gender (3 cr)(3+0)(pg. 12-15)
Unanimously Approved

Chg BA, Computer Science (pg. 16-26)
Unanimously Approved

Chg BS, Computer Science (pg. 27-34)
Unanimously Approved

Chg BSE, Computer Systems Engineering (pg. 35)
Unanimously Approved

VII. Program/Course Action Request- First Readings

Del PSY A327 Field Experience in Psychology I (3 cr)(1+6)(pg. 36-37)
Waive first reading, approve for second

Chg PSY A427 Field Experience in Psychology (3 cr)(1+6)(pg. 38-42)
Accepted for first reading

Del OEC, Community Mental Health Services (pg. 43-44)
Accepted for first reading

Chg BS, Psychology (pg. 45)
Accepted for first reading

Chg BA, Psychology (pg. 46-55)
Accepted for first reading

Chg AAS, Construction Management (pg. 56-58)
Waive first reading, approve for second

Chg BS, Construction Management (pg. 59-69)
Waive first reading, approve for second

VIII. Old Business

A. Program Deletion and Suspension Policy (pg. 70-92)
Added language regarding faculty consultation
Motion to accept the deletion and suspension policy packet including the cover memos. Unanimously Approved

B. Language Regarding Concentrations
Postponed until fall

IX. New Business

X. Informational Items and Adjournment

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
AS CAS	ASSC Division of Social Science	PSY

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
PSY	A427	N/A	3.0	(1+6)

6. Complete Course Title
Field Experience in Psychology

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☒ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Spring/2014 To: Fall/9999

12. ☐ Cross Listed with

☐ Stacked with _____ Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Community Mental-Health Services, Occupational Endorsement Certificate	11-30-12	Claudia Lampman
2. Psychology, BA	11-30-12	Claudia Lampman
3. Psychology, BS	11-30-12	Claudia Lampman

Initiator Name (typed): Gwen Lupfer Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 1-29-13
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1-29-13

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Arranged placement in supervised settings that provide psychological experience. Focus on policy, communication skills, intervention skills, assessment, service planning, and evaluation. Students are expected to complete 90 hours of supervised experience. Special note: meets the departmental capstone requirement for the Psychology major.

16a. Course Prerequisite(s) *(list prefix and number or test code and score)*
[(PSY A111, PSY A150, PSY A260, PSY A260L, and PSY A261) and (ENGL A211, ENGL A212, ENGL A213, or ENGL A214)] with a minimum grade of C.

16b. Co-requisite(s) *(concurrent enrollment required)*
N/A

16c. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16d. Registration Restriction(s) *(non-codable)*
Instructor Permission

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
PSY A327 (Field Experience in Psychology I), which was a prerequisite for this course is being deleted -- necessitating a change in prerequisites and a change in course title from Field Experience II.

Initiator (faculty only)	Date	☐ Approved ☐ Disapproved	Dean/Director of School/College	Date
Gwen Lupfer Initiator (TYPE NAME)				
☐ Approved ☐ Disapproved	Department Chair	Date	☐ Approved ☐ Disapproved	Undergraduate/Graduate Academic Board Chair	Date
☐ Approved ☐ Disapproved	College/School Curriculum Committee Chair	Date	☐ Approved ☐ Disapproved	Provost or Designee	Date

UNIVERSITY OF ALASKA ANCHORAGE
COURSE CONTENT GUIDE

I. Initiation Date: January 24, 2013

II. Course Information

A.	College:	College of Arts and Sciences
B.	Course Title:	Field Experience in Psychology
C.	Course Subject/Number:	PSY A427
D.	Credit Hours:	3.0 Credits
E.	Contact Time:	Lecture hours: 1 Lab hours: 6
F.	Grading Information:	A-F
G.	Course Description:	Arranged placement in supervised settings that provide psychological experience. Focus on policy, communication skills, intervention skills, assessment, service planning, and evaluation. Students are expected to complete 90 hours of supervised experience. Special note: Meets the departmental capstone requirements for the Psychology major.
H.	Status of course relative to degree or certificate program:	Departmental capstone selective for the BA and BS in psychology.
I.	Lab Fees:	Yes
J.	Coordination:	Faculty Listserv, Library Liaison, Claudia Lampman
K.	Course Prerequisites:	[(PSY A111, PSY A150, PSY A260, PSY A260L, and PSY A261) and (ENGL A211, ENGL A212, ENGL A213, or ENGL A214)] with a minimum grade of C.
L.	Registration Restrictions:	Instructor Permission

III. Course Activities

Lecture

Agency Placement: Students will devote 90 hours to working in a community mental-health agency, keeping an activity log of their experiences.

IV. Evaluation

The course will assess knowledge of service delivery, communication, problem-solving skills, and personal growth. Class attendance and participation are essential to this course and are a component of the final course evaluation. The course grade is based on the summative evidence of the skills and knowledge developed. Evaluation procedures are at the discretion of the instructor and will be discussed at the first class meeting of the semester. Students will be evaluated on

- quizzes/exams
- in-class discussion

- reflective journals
- papers
- class presentations
- site supervisor evaluations

V. Course Level Justification

The course requires well-developed writing skills and an understanding of psychological research methods gained in PSY A260L, PSY A260, and PSY A261. The course is designed for advanced psychology students to provide opportunities to apply knowledge in settings that provide psychological services and develop skills for entry into the workforce.

VI. Outline

A. Foundations to service provision
   1. Personal learning goals
   2. Assessing personal values
   3. Applying theoretical approaches
B. Policy and practice
   1. Federal policy
   2. State policy
   3. Evidence-based practice
   4. Advocacy
C. Skills and techniques
D. Assessment process
E. Service planning
F. Special topics related to service delivery issues or specific populations

VII. Instructional Goals and Student Learning Outcomes

A. Instructional Goals. The instructor will:
   1. Describe participant empowerment, advocacy, and current policy and practice.
   2. Structure the learning environment to facilitate effective communication and interventions with service recipients.
   3. Describe client assessment processes.
   4. Describe service planning processes.
   5. Structure the learning environment to facilitate critical thinking, problem solving, and decision making.
   6. Structure the learning environment to facilitate the development of professional behaviors.
B. Student Learning Outcomes.

	Upon successful completion of the course, the student will be able to do the following:	This student learning outcome will be assessed by one or more of the following:
1.	Apply communication skills,	Reflective journals, quizzes, class

	intervention skills, professional behavior, and current approaches in providing services.	participation, research paper, and site supervisor evaluation.
2.	Conduct assessment and service-planning processes.	Class participation and paper.
3.	Apply critical-thinking, problem-solving, and decision-making skills related to service delivery.	Reflective journals, class participation, and site supervisor evaluation.

VIII. Suggested Text

Selected readings to be provided by the instructor.

IX. Bibliography and Resources

Alle-Corliss, L., & Alle-Corliss R. (2006). *Human service agencies: An orientation to fieldwork (2nd Ed.).* Pacific Grove, CA: Brooks/Cole.

Baird, B. (2008). *The internship, practicum, and field placement handbook: A guide for the helping professions* (5nd ed.). Upper Saddle River, NJ: Prentice-Hall.

Bernstein, G. (1999). *Human services? … that must be so rewarding: A practical guide for professional development.* Baltimore, MD: Paul H. Brooks.

Brew, L., & Kottler, J .A. (2008). *Applied helping skills*. Newbury Park, CA: Sage.

Clark, H. B., & Unruh, D. K. (2009). *Transition of youth and young adults with emotional or behavioral difficulties: An evidence-supported handbook.* Baltimore, MD: Paul H. Brooks.

Fitzsimmons, N. M. (2009). *Combating violence and abuse of people with disabilities: A call to action.* Baltimore, MD: Paul H. Brooks.

Gerig, M. A. (2006). *Foundations for mental health and community counseling: An introduction to the profession*. Upper Saddle River, NJ: Prentice-Hall.

Matthews, J. R., & Walker, C. E. (2006). *Your practicum in psychology: Guide for maximizing knowledge and competence*. Washington, D.C.: American Psychological Association.

Moxley, D. (1989). *The practice of case management.** Newbury Park, CA: Sage.

Thomas-Presswood, T. N., & Presswood, D. (2008*). Meeting the needs of students and families from poverty: A handbook for school and mental health professionals.* Baltimore, MD: Paul H. Brooks.

Rosenzweig, J. M., & Brennan, E. M. (2008). *Work, life, and the mental health system of care: A guide for professionals supporting families of children with emotional or behavioral disorders.* Baltimore, MD: Paul H. Brooks.

*classic text

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College	1b. Department
AS CAS	PSY

2. Complete Program Title/Prefix
Psychology/PSY

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: Bachelor of Science or Graduate: CHOOSE ONE

This program is a Gainful Employment Program: ☐ Yes or ☒ No

4. Type of Action:

PROGRAM	PREFIX
☐ Add	☐ Add
☒ Change	☐ Change
☐ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2013 To: Fall/9999

6a. Coordination with Affected Units Department, School, or College: PSY

Initiator Name (typed): Gwen Lupfer Initiator Signed Initials: _____
Date:_____

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 11-30-12

6c. Coordination with Library Liaison Date: 11-30-12

7. Title and Program Description - Please attach the following:

☒ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action

Revision of degree requirements to delete PSY A368 (Personality) and increase electives from 9 to 12 credit hours; addition of student learning outcomes for this degree and for honors in Psychology; restrict the number of times a student can repeat a course for degree credit; change the minimum GPA for students wishing to declare this major.

Initiator (faculty only) Date	☐ Approved ☐ Disapproved Dean/Director of School/College Date
Gwen Johnson Initiator (TYPE NAME)	
☐ Approved ☐ Disapproved Department Chair Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chair Date
☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date	☐ Approved ☐ Disapproved Provost or Designee Date

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College	1b. Department
AS CAS	PSY

2. Complete Program Title/Prefix
Psychology/PSY

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: Bachelor of Arts or Graduate: CHOOSE ONE

This program is a Gainful Employment Program: ☐ Yes or ☒ No

4. Type of Action:

PROGRAM	PREFIX
☐ Add	☐ Add
☒ Change	☐ Change
☐ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2013 To: Fall/9999

6a. Coordination with Affected Units Department, School, or College: PSY

Initiator Name (typed): Gwen Lupfer Initiator Signed Initials: _____
Date:_____

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 11-30-12

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☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date	☐ Approved ☐ Disapproved Provost or Designee Date

PSYCHOLOGY

Social Sciences Building (SSB), Room 214, (907) 786-1711
www.uaa.alaska.edu/psych

The undergraduate Psychology program offers mentorship and high-quality training in the science of behavior and mental processes and, in so doing, enriches the lives of our students, citizens of Alaska, and the field of psychology. In service of this mission, the faculty provides effective instruction, academic and career advising, research training, professional skill development, service opportunities, preparation for graduate school, and employment in the human service field.

The Psychology major requirements are flexible and are designed to serve a variety of career goals. Both the Bachelor of Arts and the Bachelor of Science degrees are available. The student majoring in psychology pursuing a general interest in human nature will probably take a different sequence of Psychology courses than a student who is preparing for advanced work in psychology. All students are encouraged to plan undergraduate work carefully. Early and frequent consultation with an advisor is helpful in selecting courses which will provide a solid foundation in psychology and a good general education.

Program Student Learning Outcomes

Students graduating with a Bachelor of Arts or Bachelor of Science in Psychology will:

1. Possess a broad knowledge of contemporary psychology.
2. Have experience conducting psychological research.
3. Be able to demonstrate skills in research design and data analysis.
4. Be prepared for advanced study in psychology and related disciplines.

Honors in Psychology

The Department of Psychology recognizes exceptional undergraduate students by awarding them Departmental Honors in Psychology. To graduate with departmental honors, the student must be a declared Psychology major and meet the following requirements:

1. Satisfy all requirements for a BA or BS degree in Psychology.
2. Maintain a cumulative GPA of 3.50.
3. Take PSY A412 Foundations of Modern Psychology.
4. Take PSY A420 Conducting Research in Psychology.
5. Complete PSY A499 Senior Thesis. The thesis project must be approved in advance by the Undergraduate Studies Committee and carried out by following applicable departmental guidelines.

6. Students intending to graduate with departmental honors must notify the Departmental Honors Committee in writing on or before the date they file their Application for Graduation with the Office of the Registrar.

Honors Student Learning Outcomes

Students graduating with Departmental Honors in Psychology will possess:

1. An advanced understanding and application of descriptive and inferential statistics and use of statistical software in data analysis.
2. A broad knowledge of psychology's historical foundation.
3. The ability to conduct a critical review and analysis of existing psychological literature.
4. The ability to design and execute empirical research that tests clearly stated hypotheses or addresses clearly articulated research questions.
5. A clear understanding of research ethics and the responsible conduct of research in the field of psychology.

6. The ability to communicate effectively in writing, in poster format, and in oral presentations, including mastery of APA style.
7. The ability to draw conclusions from research findings, including recognition of the limitations, applications, and implications of the data, and a discussion of alternative explanations of the results.

Bachelor of Arts, Psychology
Bachelor of Science, Psychology

Admission Requirements

Complete the admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations. In addition, students wishing to declare Psychology as a major must have earned a minimum GPA of 2.5.

Academic Progress

All prerequisites for required Psychology courses must be completed with a grade of C or better. Students who audit, or are unable to earn a grade of C or better in, a lower-division (100 or 200 level) course in the Department of Psychology (PSY) may repeat the course two additional times on a space available basis. Students who audit, or wish to repeat an upper-division (300 or 400 level) course in the Psychology Department may repeat the course one additional time on a space available basis. Students repeating a course are required to complete all components of that course during the semester in which the course is retaken. When repeating a course with a lecture and laboratory component, both components must be repeated.

Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees listed at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements listed at the beginning of this chapter.

C. College of Arts and Sciences Requirements

Complete the College of Arts and Sciences Requirements listed at the beginning of this chapter.

D. Major Requirements

1. Psychology Core Requirements (27 Credits)

PSY A111	General Psychology	3
PSY A150	Lifespan Development	3
PSY A260	Statistics for Psychology	3
PSY A260L	Statistics for Psychology Lab	1
PSY A261	Research Methods in Psychology	4
PSY A345	Abnormal Psychology	3
PSY A355	Learning and Cognition	4
PSY A370	Behavioral Neuroscience	3
PSY A375	Social Psychology	3

2. Psychology Capstone Requirement (3 Credits)

   A capstone course is required of all Psychology majors (BA or BS). Each capstone option is designed to synthesize and apply material from the Psychology major. Choice of a capstone should be based, at least in part, on the student's future career plans. Students planning to work in human service jobs following their baccalaureate degree should consider taking PSY A427.

Students planning on graduate work in Psychology should consider taking PSY A412, PSY A420 or PSY A499. Students may elect to take all of these courses as upper division electives.

PSY A412	Foundations of Modern Psychology (3)
	or
PSY A420	Conducting Research in Psychology (3)
	or
PSY A427	Field Experience in Psychology (3)
	or
PSY A428	Evolutionary Psychology (3)
	or
PSY A499	Senior Thesis (3)

Note: All of the above psychology capstone courses have rigorous prerequisites, including grades of C or higher in six credits of English composition, and grades of C or higher in PSY A111, PSY A150, PSY A260, PSY A260L, and PSY A261. Although Ds are passing grades for capstone prerequisites, Cs or higher in these prerequisites are required for admission into psychology's capstone courses. Additional prerequisites may apply to each capstone course. See course descriptions of each capstone course for more details.

3. Psychology Electives (12 Credits)

   Take an additional 12 credits of Psychology, 9 of which must be upper division.

4. Psychology Exit Examination

   All Psychology majors are required to take the exit examination, a standardized test of knowledge of psychology approved by the Psychology Department. There is no minimum score required for graduation.

5. A total of 120 credits is required for this degree, of which 42 credits must be upper division.

Minor, Psychology

Students majoring in another subject who wish to minor in Psychology must complete a total of 18 credits of Psychology, of which 6 must be upper division.

Requirements include the following:

1. PSY A111 General Psychology
2. Three additional courses required in the core above (see list D.1).
3. Two additional Psychology courses

FACULTY

Robert Boeckmann, Associate Professor, rjboeckmann@uaa.alaska.edu
Rebecca Bosek, Term Assistant Professor, rlbosek@uaa.alaska.edu
Christiane Brems, Professor, cbrems@uaa.alaska.edu
Eric John David, Assistant Professor, edavid8@uaa.alaska.edu
Patrick Dulin, Assistant Professor, afpld@uaa.alaska.edu
Gloria Eldridge, Associate Professor/CTC Coordinator, gdeldridge@uaa.alaska.edu
Jim Fitterling, PhD Program Director/Assistant Professor, jfitterling@uaa.alaska.edu
Karen Gibson, Term Instructor, kgibson3@uaa.alaska.edu
Vivian Gonzalez, Assistant Professor, vmgonzalez@uaa.alaska.edu
Maria Ippolito, Associate Professor, mfippolito@uaa.alaska.edu
Mark Johnson, Professor, mejohnson@uaa.alaska.edu
Phil Jordan, Term Instructor, pajordan@uaa.alaska.edu
Bruno Kappes, Professor, bmkappes@uaa.alaska.edu
Claudia Lampman, Chair/Professor, cblampman@uaa.alaska.edu

Gwen Lupfer, Associate Professor/USC Coordinator, gjlupfer@uaa.alaska.edu
Robert Madigan, Professor Emeritus, rmadigan2@uaa.alaska.edu
Eric Murphy, Associate Professor, esmurphy@uaa.alaska.edu
Yasuhiro Ozuru, Assistant Professor, yozuru@uaa.alaska.edu
John Petraitis, Professor, jmpetraitis@uaa.alaska.edu
Rosellen Rosich, Professor, rmrosich@uaa.alaska.edu
Patricia Sandberg, Associate Professor/PSC Director, prsandberg@uaa.alaska.edu
Joshua Swift, Assistant Professor/Intern Coordinator, jkswift@uaa.alaska.edu
Karen Ward, Professor/Director CHD, kmw@uaa.alaska.edu
Vickie Wesolowski, Term Instructor, vlwesolowski@uaa.alaska.edu

PSYCHOLOGY

Social Sciences Building (SSB), Room 214, (907) 786-1711
www.uaa.alaska.edu/psych

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5. Complete PSY A499 Senior Thesis. The thesis project must be approved in advance by the Undergraduate Studies Committee and carried out by following applicable departmental guidelines.
6. Students intending to graduate with departmental honors must notify the Departmental Honors Committee in writing on or before the date they file their Application for Graduation with the Office of the Registrar.

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Honors Student Learning Outcomes

Students graduating with Departmental Honors in Psychology will possess:

1. An advanced understanding and application of descriptive and inferential statistics~~,~~ and use of statistical software ~~(SPSS and EXCEL)~~ in data analysis.
2. A broad knowledge of psychology's historical foundation.
3. The ability to conduct a critical review and analysis of existing psychological literature.
4. The ability to design and execute empirical research that tests clearly stated hypotheses or addresses clearly articulated research questions.
5. A clear understanding of research ethics and the responsible conduct of research in the field of psychology.
6. The ability to communicate effectively in writing, in poster format, and in oral presentations, including mastery of APA style.
7. The ability to draw conclusions from research findings, including recognition of the limitations, applications, and implications of the data, and a discussion of alternative explanations of the results.

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~~Occupational Endorsement Certificate, Community Mental-Health Services~~

~~Students can earn on their transcript an Occupational Endorsement Certificate in Community Mental Health Services. This transcripted certificate is available to any student – not just Psychology majors – who receive grades of C or higher in the following five courses designed to provide some of the knowledge and skills appropriate for a variety of entry-level jobs in community mental-health settings. Taken together, the five courses (and their two prerequisites) introduce students to mental health problems, communication skills, consumer empowerment, assessment, professional networking, service facilitation, behavior change processes, advocacy, crisis intervention, organizational settings, documentation, ethics, and professional behavior. Mental health problems common to Alaska receive special emphasis. Two semesters of community placement allow skills to be practiced in mental health settings.~~

~~Occupational Endorsement Certificate Requirements~~

~~*Admission*~~

~~Complete the admission requirements for Occupational Endorsement Certificates found in Chapter 7, Academic Standards and Regulations.~~

~~*Graduation Requirements*~~

1. ~~Satisfy General University Requirements for Occupational Endorsement Certificates found in the beginning of this chapter.~~
2. ~~Complete PSY A327 with a grade of B or higher.~~
3. ~~Complete each of the following courses with a grade of C or higher (12 credits)~~

~~PSY A372~~	~~Community Psychology*~~	~~3~~
~~PSY A427~~	~~Field Experience in Psychology II~~	~~3~~
~~PSY A445~~	~~Strategies of Behavior Change~~	~~3~~
~~PSY A455~~	~~Mental Health Services in Alaska**~~	~~3~~

~~** Prerequisite: PSY A111 (General Psychology)*~~

~~*** Prerequisite: PSY A345 (Abnormal Psychology)*~~

~~4. In addition to the prerequisite courses, a total of 15 credits is required for the Occupational Endorsement Certificate in Community Mental Health Services.~~

Bachelor of Arts, Psychology

Bachelor of Science, Psychology

Admission Requirements

Complete the admission to Baccalaureate Programs Requirements in Chapter 7, Academic Standards and Regulations. In addition, students wishing to declare Psychology as a major must have earned a minimum GPA of 2.5.

Academic Progress

~~To graduate with a BA or BS in Psychology, the student must complete all courses covered under Major Requirements with a grade of C or better.~~ All prerequisites for required Psychology courses must be completed with a grade of C or better. Students who audit, or are unable to earn a grade of C or better in, a lower-division (100 or 200 level) course in the Department of Psychology (PSY) may repeat the course two additional times on a space available basis. Students who audit, or wish to repeat an upper-division (300 or 400 level) course in the Psychology Department may repeat the course one additional time on a space available basis. Students repeating a course are required to complete all components of that course during the semester in which the course is retaken. When repeating a course with a lecture and laboratory component, both components must be repeated.

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Graduation Requirements

Students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees listed at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements listed at the beginning of this chapter.

C. College of Arts and Sciences Requirements

Complete the College of Arts and Sciences Requirements listed at the beginning of this chapter.

D. Major Requirements

1. Psychology Core Requirements (~~30~~ 27 Credits)

PSY A111	General Psychology	3
PSY A150	Lifespan Development	3
PSY A260	Statistics for Psychology	3
PSY A260L	Statistics for Psychology Lab	1
PSY A261	Research Methods in Psychology	4
PSY A345	Abnormal Psychology	3
PSY A355	Learning and Cognition	4
~~PSY A368~~	~~Personality~~	~~3~~
PSY A370	Behavioral Neuroscience	3
PSY A375	Social Psychology	3

2. Psychology Capstone Requirement (3 Credits)

   A capstone course is required of all Psychology majors (BA or BS). Each capstone option is designed to synthesize and apply material from the Psychology major. Choice of a capstone should be based, at least in part, on the student's future career plans.

Students planning to work in human service jobs following their baccalaureate degree should consider taking PSY A427. Students planning on graduate work in Psychology should consider taking PSY A412, PSY A420 or PSY A499. Students may elect to take all of these courses as upper division electives.

PSY A412	Foundations of Modern Psychology (3)
	or
PSY A420	Conducting Research in Psychology (3)
	or
PSY A427	Field Experience in Psychology ~~II~~ (3)
	or
PSY A428	Evolutionary Psychology (3)
	or
PSY A499	Senior Thesis (3)

Note: All of the above psychology capstone courses have rigorous prerequisites, including grades of C or higher in six credits of English composition, and grades of C or higher in PSY A111, PSY A150, PSY A260, PSY A260L, and PSY A261. Although Ds are passing grades for capstone prerequisites, Cs or higher in these prerequisites are required for admission into psychology's capstone courses. Additional prerequisites may apply to each capstone course. See course descriptions of each capstone course for more details.

3. Psychology Electives (~~9~~ 12 Credits)

   Take an additional ~~9~~ 12 credits of Psychology, ~~6~~ 9 of which must be upper division.

4. Psychology Exit Examination

   All Psychology majors are required to take the exit examination, a standardized test of knowledge of psychology approved by the Psychology Department. There is no minimum score required for graduation.

5. A total of 120 credits is required for this degree, of which 42 credits must be upper division.

Minor, Psychology

Students majoring in another subject who wish to minor in Psychology must complete a total of 18 credits of Psychology, of which 6 must be upper division.

Requirements include the following:

1. PSY A111 General Psychology
2. Three additional courses required in the core above (see list D.1).
3. Two additional Psychology courses

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Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College	1b. Department
EN SOENGR	Civil Engineering

2. Complete Program Title/Prefix
Minor, Civil Engineering

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: Minor or Graduate: CHOOSE ONE

This program is a Gainful Employment Program: ☐ Yes or ☐ No

4. Type of Action:

PROGRAM	PREFIX
☐ Add	☐ Add
☒ Change	☐ Change
☐ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2013 To: 99/9999

6a. Coordination with Affected Units Department, School, or College:

Initiator Name (typed): Scott Hamel Initiator Signed Initials: _____
Date:_____

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 3/18/2013

6c. Coordination with Library Liaison Date: 3/11/2013

7. Title and Program Description - Please attach the following:

☐ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
Recommended courses have been revised to better reflect and appropriate minor in Civil Engineering.

Initiator (faculty only) Date	☐ Approved ☐ Disapproved Dean/Director of School/College Date
Scott Hamel Initiator (TYPE NAME)	
☐ Approved ☐ Disapproved Department Chair Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chair Date
☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date	☐ Approved ☐ Disapproved Provost or Designee Date

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College	1b. Department
EN SOENGR	Civil Engineering

2. Complete Program Title/Prefix
Bachelors of Science, Civil Engineering

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: Bachelor of Science or Graduate: CHOOSE ONE

This program is a Gainful Employment Program: ☐ Yes or ☐ No

4. Type of Action:

	PROGRAM	**PREFIX**
	☐ Add	☐ Add
	☒ Change	☐ Change
	☐ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: Fall/2013 To: 99/9999

6a. Coordination with Affected Units Department, School, or College:

Initiator Name (typed): Scott Hamel Initiator Signed Initials: _____
Date:_____

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 3/18/2013

6c. Coordination with Library Liaison Date: 3/11/2013

7. Title and Program Description - Please attach the following:

☐ Cover Memo ☒ Catalog Copy in Word using the track changes function

8. Justification for Action
Editorial changes to make program requirements more clear to students

Initiator (faculty only) Date	☐ Approved ☐ Disapproved Dean/Director of School/College Date
Scott Hamel Initiator (TYPE NAME)	
☐ Approved ☐ Disapproved Department Chair Date	☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chair Date
☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date	☐ Approved ☐ Disapproved Provost or Designee Date

CIVIL ENGINEERING

Engineering Building (ENGR), Room 201, (907) 786-1900
www.uaa.alaska.edu/schoolofengineering

Civil engineering is a professional discipline recognized by licensure in each of the 50 states and many other countries. Civil engineering is a broad branch of engineering dedicated to providing civilization with essential infrastructure and services, including bridges, buildings, ports, water resource development, waste disposal, dams, water power, irrigation and drainage works, roads, airports, railways, construction and management services, surveying, and providing city management and developmental planning. Civil Engineering students are introduced to principles of mathematics, chemistry and physics during their first two years of study. The third year of study is largely devoted to courses in applied extensions of the basic sciences to form the foundation for more advanced engineering analysis and design. Students draw upon previous learning in their senior year to focus their studies on sophisticated analyses and creative designs. Throughout the four-year engineering program students take courses in communication, humanities, social sciences and fine arts to improve their communication skills and to become more aware of their roles and responsibilities in modern society. The UAA Civil Engineering program emphasizes northern region design considerations and provides specialized training appropriate for an engineering career in Alaska and other cold regions of the world.

Civil Engineering Department Mission

The mission of the Civil Engineering Department, through its undergraduate and graduate education programs, its professional development programs, its research, and its service, is to advance the civil engineering profession in Alaska and elsewhere for building a sustainable civilization with utmost respect for the well-being of its peoples and the environment.

Bachelor of Science, Civil Engineering

The Department of Civil Engineering offers an undergraduate curriculum leading to a Bachelor of Science in Civil Engineering. The first two years of the program have application to most other branches of engineering.

Program Objectives

The curriculum of the UAA CE program is designed to produce graduates who, within five years of graduation, will:

1. Practice with "responsible charge" in the civil engineering sub-disciplines of water resources, geotechnical, structural, transportation, and environmental engineering; with emphasis on cold region issues. "Responsible charge" is as defined by the Alaska Professional Engineering licensing regulations.
2. Make contributions in project planning, preparation, implementation, design, and presentation in a team environment in sub-discipline areas.
3. Demonstrate and update their competency via professional registration, continuing education, graduate study, and professional service to their communities.
4. Exemplify the ethical standards of the profession.

Student Learning Outcomes

In keeping with the above objectives, it is expected that graduates of the UAA Civil Engineering program will have:

1. An ability to apply knowledge of mathematics through differential equations, probability and statistics, calculus-based physics, and general chemistry;
2. An ability to apply knowledge in a minimum of four recognized major civil engineering areas;
3. An ability to design and conduct experiments, as well as to analyze and interpret data, in more than one of the recognized major civil engineering areas;
4. An ability to design a civil engineering system, component, or process to meet desired needs;
5. An ability to function on multidisciplinary teams;
6. An ability to identify, formulate, and solve engineering problems;

7. An understanding of professional and ethical responsibility;
8. An ability to communicate effectively;
9. The broad education necessary to understand the impact of engineering solutions in a global and societal context;
10. A recognition of the need for, and an ability to engage in, lifelong learning;
11. A knowledge of contemporary issues in professional practice; and
12. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Honors in Civil Engineering

Undergraduate Civil Engineering students may be recognized for exceptional performance by earning Departmental Honors in Civil Engineering. In order to receive honors in Civil Engineering, a student must meet each of the following requirements:

1. Complete all requirements for a BS degree in Civil Engineering. A minimum of 30 credits applicable to the Civil Engineering degree must be completed at UAA.
2. Be an active member for at least one year of both a national and an on-campus student chapter of a professional engineering society that addresses issues relevant to the civil engineering profession.
3. Have a GPA of 3.30 or higher in courses applicable to the Bachelor of Science in Civil Engineering degree.
4. Gain approval for a departmental honors design or research project prior to applying for graduation. Present an oral presentation and written report of project results eight weeks prior to scheduled graduation. The project proposal and final written report must be approved by the student's academic advisor and the chair of Civil Engineering Department.
5. Pass the Fundamentals of Engineering Examination in or prior to the fall semester of the senior year.
6. Document a minimum of eight weeks work experience in an engineering or engineering-related position.

Preparation

While in high school, students can prepare for entering and succeeding in the university engineering program. In order to be the best prepared, students should complete the following high school courses with grades of C or better:

Algebra	2 years
Chemistry	1 year
English	3 years
Physics	1 year
Trigonometry	1/2 year

Students successfully completing the above courses will be prepared to enroll in the first year of courses that count toward the engineering degree. Students without the above preparatory courses will need to take equivalent university courses before taking some of the first-year courses that count toward the engineering degree. Students are encouraged to work with their faculty advisors for developing a course plan.

Admission Requirements

Complete the Admission to Baccalaureate Degree Program requirements described in Chapter 7 of this catalog.

Admission to the Bachelor of Science in Engineering program is to one of two levels: Pre- Engineering or Engineering. Students admitted to either of the two levels are considered to be degree-seeking civil engineering students.

Pre-Engineering Level

Applicants for admission who have completed only the general Baccalaureate Programs requirements in Chapter 7 of this catalog are admitted to the Civil Engineering program at the Pre-Engineering level.

Civil Engineering Level

Applicants for admission who, in addition to the general Baccalaureate Programs requirements, have completed the high school Preparation courses listed above (or their university equivalents) with grades of C or better will be admitted to the Civil Engineering program at the Civil Engineering level.

Advancement

Pre-Engineering to Civil Engineering

Pre-Engineering students must work with their assigned advisor to develop a course plan to make up the high school course requirements for advancement to the Civil Engineering level. Once the Pre-Engineering coursework outlined in the student's course plan is completed, students must meet with their advisor to apply for advancement to the Civil Engineering level.

Advising

All undergraduate students, as a part of the mandatory advising plan of the department, must meet with their faculty advisor at least once in an academic year to review their academic progress, future course plan and to advance within the program. It is particularly important for students to meet with their faculty advisor whenever academic difficulties arise.

Academic Progress

Any given CE or ES course may only be taken when prerequisites for the course are met with a grade of C or higher. A student who is unable to earn a grade of C or better in a CE or ES prerequisite course may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt may result in removal from the Civil Engineering program.

A student who has a semester GPA in engineering courses below 2.00 will be placed on academic warning by the School of Engineering. A student on academic warning that receives a semester GPA in engineering courses of at least 2.00 will be removed from academic warning status by the school. Otherwise, he or she will be removed from the Civil Engineering program and will not be permitted to enroll in CE and ES courses.

Graduation Requirements

In order to receive the Bachelor of Science in Civil Engineering, students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees listed at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements (GER) for Baccalaureate Degrees listed at the beginning of this chapter.

C. Civil Engineering Requirements

1. Complete the following courses with a minimum GPA of 2.00. Courses with an asterisk (*) must be completed with a minimum grade of C (102 credits):

CE A152	Introduction to Civil Engineering	1
CE A334*	Properties of Materials	3
CE A344	Water Resources Engineering	3
CE A403	Arctic Engineering	3
CE A405	Transportation Engineering I	3
CE A406	Transportation Engineering II	3
CE A422	Foundation Engineering	3
CE A431*	Structural Analysis	4
CE A432	Steel Design (3)	3
	or	
CE A433	Reinforced Concrete Design (3)	
CE A435*	Soil Mechanics	3
CE A437*	Project Planning	1
CE A438	Design of Civil Engineering Systems	3

CE A441*	Fundamentals of Environmental Engineering and Applied Environmental Science	3
CE A442	Environmental Systems Design	3
CHEM A105*	General Chemistry I	3
CHEM A105L*	General Chemistry I Laboratory	1
CHEM A106*	General Chemistry II	3
CHEM A106L*	General Chemistry II Laboratory	1
ENGL A212	Technical Writing	3
ENGR A151*	Introduction to Engineering	1
ENGR A161*	Engineering Practices II	3
ES A103	Engineering Graphics	3
ES A209*	Engineering Statics	3
ES A210*	Engineering Dynamics	3
ES A302*	Engineering Data Analysis	3
ES A331*	Mechanics of Materials	3
ES A341*	Fluid Mechanics	3
ES A341L	Fluid Mechanics Laboratory	1
ESM A450*	Economic Analysis and Operations	3
GEO A155*	Fundamentals of Surveying	3
MATH A200*	Calculus I	4
MATH A201*	Calculus II	4
MATH A202*	Calculus III	4
MATH A302*	Ordinary Differential Equations	3
PHYS A211*	General Physics I	3
PHYS A211L*	General Physics I Laboratory	1
PHYS A212*	General Physics II	3
PHYS A212L*	General Physics II Laboratory	1

2. Complete a basic science elective (minimum 3 credits) from the following list: 3

BIOL A115	Fundamentals of Biology I (4)
BIOL/ GEOL A178	Fundamentals of Oceanography (3)
BIOL A271	Principles of Ecology (4)
GEOL A111	Physical Geology (4)
GEOL A115	Environmental Geology (3)

3. Complete six credits of technical elective courses from the following list. Graduate courses may not be applied to both a baccalaureate and master's degree. 6

Note: Students are encouraged to take 6 credits from a single discipline.

Environmental Engineering

AEST A601	Aquatic Process Chemistry (3)
CE A445	Chemical and Physical Water and Wastewater Treatment Processes (3)
CE A446	Biological Treatment Processes (3)
CE A447	Advanced Unit Processes (3)

Water Resources Engineering

CE A462	Surface Water Dynamics (3)
CE A475	Design of Ports and Harbors (3)
CE A476	Coastal Engineering (3)
CE A479	Sediment Transport and Coastal Processes (3)
CE A663	Ground Water Dynamics (3)
CE A674	Waves, Tides, and Ocean Processes for Engineers (3)

Transportation Engineering

CE A423	Traffic Engineering (3)
CE A424	Pavement Design (3)
CE A425	Highway Engineering (3)
CE A426	Traffic Modeling and Simulation (3)

Geotechnical Engineering

CE A414	Soil Strength and Slope Stability (3)
CE A611	Geotechnical Earthquake Engineering (3)
CE A612	Advanced Foundation Design (3)

Structural Engineering

CE A432	Steel Design (3)
	or
CE A433	Reinforced Concrete Design (3)

Either CE A432 or CE A433 may be chosen as a technical elective if not applied to satisfy the requirements described above.

CE A451	Advanced Structural Analysis (3)
CE A452	Advanced Steel Design (3)
CE A454	Timber Design (3)
CE A631	Structural Finite Elements (3)
CE A639	Loads on Structures (3)

Note: A total of 132 credits are required for the degree, of which 42 credits must be upper division (300-, 400-, or 600-level).

Minor, Civil Engineering

Students majoring in a non-Civil Engineering baccalaureate degree can enroll in the minor in Civil Engineering. Students must satisfy all prerequisite requirements for the courses required for the minor. A minor in Civil Engineering consists of a minimum of 18 credits, at least 6 credits of which must be upper division. For general information about the minor requirements, see the Minors section at the beginning of this chapter.

Complete at least 18 credits from the following courses with a minimum GPA of 2.00. Courses with an asterisk (*) indicate a set of recommended courses for the minor: 18

CE A334*	Properties of Materials (3)
CE A344*	Water Resources Engineering (3)
CE A405*	Transportation Engineering I (3)
CE A422	Foundation Engineering (3)
CE A425	Highway Engineering (3)
CE A431*	Structural Analysis (4)
CE A432	Steel Design (3)
CE A433	Reinforced Concrete Design (3)

CE A435*	Soil Mechanics (3)
CE A441*	Fundamentals of Environmental Engineering and Applied Environmental Science (3)
CE A442	Environmental Systems Design (3)

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CIVIL ENGINEERING

Engineering Building (ENGR), Room 201, (907) 786-1900
www.uaa.alaska.edu/schoolofengineering

Civil engineering is a professional discipline recognized by licensure in each of the 50 states and many other countries. Civil engineering is a broad branch of engineering dedicated to providing civilization with essential infrastructure and services, including bridges, buildings, ports, water resource development, waste disposal, dams, water power, irrigation and drainage works, roads, airports, railways, construction and management services, surveying, and providing city management and developmental planning. Civil Engineering students are introduced to principles of mathematics, chemistry and physics during their first two years of study. The third year of study is largely devoted to courses in applied extensions of the basic sciences to form the foundation for more advanced engineering analysis and design. Students draw upon previous learning in their senior year to focus their studies on sophisticated analyses and creative designs. Throughout the four-year engineering program students take courses in communication, humanities, social sciences and fine arts to improve their communication skills and to become more aware of their roles and responsibilities in modern society. The UAA Civil Engineering program emphasizes northern region design considerations and provides specialized training appropriate for an engineering career in Alaska and other cold regions of the world.

Civil Engineering Department Mission

The mission of the Civil Engineering Department, through its undergraduate and graduate education programs, its professional development programs, its research, and its service, is to advance the civil engineering profession in Alaska and elsewhere for building a sustainable civilization with utmost respect for the well-being of its peoples and the environment.

Bachelor of Science, Civil Engineering

The Department of Civil Engineering offers an undergraduate curriculum leading to a Bachelor of Science in Civil Engineering. The first two years of the program have application to most other branches of engineering.

Program Objectives

The curriculum of the UAA CE program is designed to produce graduates who, within five years of graduation, will:

1. Practice with "responsible charge" in the civil engineering sub-disciplines of water resources, geotechnical, structural, transportation, and environmental engineering; with emphasis on cold region issues. "Responsible charge" is as defined by the Alaska Professional Engineering licensing regulations.
2. Make contributions in project planning, preparation, implementation, design, and presentation in a team environment in sub-discipline areas.
3. Demonstrate and update their competency via professional registration, continuing education, graduate study, and professional service to their communities.
4. Exemplify the ethical standards of the profession.

Student Learning Outcomes

In keeping with the above objectives, it is expected that graduates of the UAA Civil Engineering program will have:

1. An ability to apply knowledge of mathematics through differential equations, probability and statistics, calculus-based physics, and general chemistry;
2. An ability to apply knowledge in a minimum of four recognized major civil engineering areas;
3. An ability to design and conduct experiments, as well as to analyze and interpret data, in more than one of the recognized major civil engineering areas;
4. An ability to design a civil engineering system, component, or process to meet desired needs;
5. An ability to function on multidisciplinary teams;
6. An ability to identify, formulate, and solve engineering problems;

7. An understanding of professional and ethical responsibility;
8. An ability to communicate effectively;
9. The broad education necessary to understand the impact of engineering solutions in a global and societal context;
10. A recognition of the need for, and an ability to engage in, lifelong learning;
11. A knowledge of contemporary issues in professional practice; and
12. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Honors in Civil Engineering

Undergraduate Civil Engineering students may be recognized for exceptional performance by earning Departmental Honors in Civil Engineering. In order to receive honors in Civil Engineering, a student must meet each of the following requirements:

1. Complete all requirements for a BS degree in Civil Engineering. A minimum of 30 credits applicable to the Civil Engineering degree must be completed at UAA.
2. Be an active member for at least one year of both a national and an on-campus student chapter of a professional engineering society that addresses issues relevant to the civil engineering profession.
3. Have a GPA of 3.30 or higher in courses applicable to the Bachelor of Science in Civil Engineering degree.
4. Gain approval for a departmental honors design or research project prior to applying for graduation. Present an oral presentation and written report of project results eight weeks prior to scheduled graduation. The project proposal and final written report must be approved by the student's academic advisor and the chair of Civil Engineering Department.
5. Pass the Fundamentals of Engineering Examination in or prior to the fall semester of the senior year.
6. Document a minimum of eight weeks work experience in an engineering or engineering-related position.

Preparation

While in high school, students can prepare for entering and succeeding in the university engineering program. In order to be the best prepared, students should complete the following high school courses with grades of C or better:

Algebra	2 years
Chemistry	1 year
English	3 years
Physics	1 year
Trigonometry	1/2 year

Students successfully completing the above courses will be prepared to enroll in the first year of courses that count toward the engineering degree. Students without the above preparatory courses will need to take equivalent university courses before taking some of the first-year courses that count toward the engineering degree. Students are encouraged to work with their faculty advisors for developing a course plan.

Admission Requirements

Complete the Admission to Baccalaureate Degree Program requirements described in Chapter 7 of this catalog.

Admission to the Bachelor of Science in Engineering program is to one of two levels: Pre- Engineering or Engineering. Students admitted to either of the two levels are considered to be degree-seeking civil engineering students.

Pre-Engineering Level

Applicants for admission who have completed only the general Baccalaureate Programs requirements in Chapter 7 of this catalog are admitted to the Civil Engineering program at the Pre-Engineering level.

Civil Engineering Level

Applicants for admission who, in addition to the general Baccalaureate Programs requirements, have completed the high school Preparation courses listed above (or their university equivalents) with grades of C or better will be admitted to the Civil Engineering program at the Civil Engineering level.

Advancement

Pre-Engineering to Civil Engineering

Pre-Engineering students must work with their assigned advisor to develop a course plan to make up the high school course requirements for advancement to the Civil Engineering level. Once the Pre-Engineering coursework outlined in the student's course plan is completed, students must meet with their advisor to apply for advancement to the Civil Engineering level.

Advising

All undergraduate students, as a part of the mandatory advising plan of the department, must meet with their faculty advisor at least once in an academic year to review their academic progress, future course plan and to advance within the program. It is particularly important for students to meet with their faculty advisor whenever academic difficulties arise.

Academic Progress

Any given CE or ES course may only be taken when prerequisites for the course are met with a grade of C or higher. A student who is unable to earn a grade of C or better in a CE or ES prerequisite course may attempt to earn a satisfactory grade one additional time, on a space-available basis. Failure to earn a grade of C or better on the second attempt may result in removal from the Civil Engineering program.

A student who has a semester GPA in engineering courses below 2.00 will be placed on academic warning by the School of Engineering. A student on academic warning that receives a semester GPA in engineering courses of at least 2.00 will be removed from academic warning status by the school. Otherwise, he or she will be removed from the Civil Engineering program and will not be permitted to enroll in CE and ES courses.

Graduation Requirements

In order to receive the Bachelor of Science in Civil Engineering, students must complete the following graduation requirements:

A. General University Requirements

Complete the General University Requirements for All Baccalaureate Degrees listed at the beginning of this chapter.

B. General Education Requirements

Complete the General Education Requirements (GER) for Baccalaureate Degrees listed at the beginning of this chapter.

C. Civil Engineering Requirements

1. ~~Satisfactorily~~ C~~e~~omplete the following~~s~~e courses with a minimum GPA of 2.00. Courses with an asterisk (*) must be completed with a minimum grade of C ~~or better~~ (102 credits):

CE A152	Introduction to Civil Engineering	1
CE A334*	Properties of Materials	3
CE A344	Water Resources Engineering	3
CE A403	Arctic Engineering	3
CE A405	Transportation Engineering I	3
CE A406	Transportation Engineering II	3
CE A422	Foundation Engineering	3
CE A431*	Structural Analysis	4
CE A432	Steel Design (3)	3
	or	
CE A433	Reinforced Concrete Design (3)	
CE A435*	Soil Mechanics	3
CE A437*	Project Planning	1
CE A438	Design of Civil Engineering Systems	3

CE A441*	Fundamentals of Environmental Engineering and Applied Environmental Science	3
CE A442	Environmental Systems Design	3
CHEM A105*	General Chemistry I	3
CHEM A105L*	General Chemistry I Laboratory	1
CHEM A106*	General Chemistry II	3
CHEM A106L*	General Chemistry II Laboratory	1
ENGL A212	Technical Writing	3
ENGR A151*	Introduction to Engineering	1
ENGR A161*	Engineering Practices II	3
ES A103	Engineering Graphics	3
ES A209*	Engineering Statics	3
ES A210*	Engineering Dynamics	3
ES A302-*	Engineering Data Analysis	3
ES A331*	Mechanics of Materials	3
ES A341*	Fluid Mechanics	3
ES A341L	Fluid Mechanics Laboratory	1
ESM A450*	Economic Analysis and Operations	3
GEO A155*	Fundamentals of Surveying	3
MATH A200*	Calculus I	4
MATH A201*	Calculus II	4
MATH A202*	Calculus III	4
MATH A302*	Ordinary Differential Equations	3
PHYS A211*	General Physics I	3
PHYS A211L*	General Physics I Laboratory	1
PHYS A212*	General Physics II	3
PHYS A212L*	General Physics II Laboratory	1

2. Complete a~~A~~ basic science elective (minimum 3 credits) ~~must be taken~~ from the following list: 3

BIOL A115	Fundamentals of Biology I (4)
BIOL/ GEOL A178	Fundamentals of Oceanography (3)
BIOL A271	Principles of Ecology (4)
GEOL A111	Physical Geology (4)
GEOL A115	Environmental Geology (3)

3. Complete s~~S~~ix credits of technical elective courses ~~are required for graduation. The technical elective must be chosen from~~ from t~~t~~he following list ~~of courses. or as approved by the academic advisor and the department chair. These electives are intended to improve students' knowledge and skills relating to site characterization, problem identification, criteria development, and project design in the civil engineering sub-disciplines of water resources, geotechnical, structural, transportation, and environmental engineering.~~ Graduate courses may not be applied to both a baccalaureate and master's degree. 6

Note: Students are encouraged to take 6 credits from a single ~~sub~~discipline.

Environmental Engineering

AEST A601	Aquatic Process Chemistry (3)
CE A445	Chemical and Physical Water and Wastewater Treatment Processes (3)
CE A446	Biological Treatment Processes (3)
CE A447	Advanced Unit Processes (3)

Water Resources Engineering

CE A462	Surface Water Dynamics (3)
CE A475	Design of Ports and Harbors (3)
CE A476	Coastal Engineering (3)
CE A479	Sediment Transport and Coastal Processes (3)
CE A663	Ground Water Dynamics (3)
CE A674	Waves, Tides, and Ocean Processes for Engineers (3)

Transportation Engineering

CE A423	Traffic Engineering (3)
CE A424	Pavement Design (3)
CE A425	Highway Engineering (3)
CE A426	Traffic Modeling and Simulation (3)
~~CE A675~~	~~Design of Ports and Harbors (3)~~

Geotechnical Engineering

CE A414	Soil Strength and Slope Stability (3)
CE A611	Geotechnical Earthquake Engineering (3)
CE A612	Advanced Foundation Design (3)
~~CE A681~~	~~Frozen Ground Engineering (3)~~

Structural Engineering

CE A432	Steel Design (3)
	or
CE A433	Reinforced Concrete Design (3)

Either CE A432 or CE A433 may be chosen as a technical elective if not applied to satisfy the ~~Civil Engineering~~ requirements described above.

CE A451	Advanced Structural Analysis (3)
CE A452	Advanced Steel Design (3)
CE A454	Timber Design (3)
CE A631	Structural Finite Elements (3)
CE A639	Loads on Structures (3)

~~*Transportation Engineering*~~

~~*CE A423 Traffic Engineering (3)*~~
~~*CE A424 Pavement Design (3)*~~
~~*CE A425 Highway Engineering (3)*~~
~~*CE A675 Design of Ports and Harbors (3)*~~

~~*Environmental Engineering*~~

~~*AEST A601 Aquatic Process Chemistry (3)*~~
~~*CE A445 Chemical and Physical Water and Wastewater Treatment Processes (3)*~~
~~*CE A446 Biological Treatment Processes (3)*~~
~~*CE A447 Advanced Unit Processes (3)*~~

Note: ~~4.~~ A total of 132 credits are~~is~~ required for the degree, of which 42 credits must be upper division (300-, 400-, or 600-level).

~~*5.All Civil Engineering students are strongly encouraged to take the Fundamentals of Engineering Examination in their senior year as an initial step toward professional registration. Civil Engineering students are also encouraged to consider minors in Mathematics or Physics or Chemistry and graduation with departmental honors.*~~

Minor, Civil Engineering

Students majoring in a non-Civil Engineering baccalaureate degree can enroll in the minor in Civil Engineering. Students must satisfy all prerequisite requirements for the courses required for the minor. A minor in Civil Engineering consists of a minimum of 18 credits, ~~. A~~at least 6 credits of which must be upper division. ~~Students must earn a cumulative GPA of at least a 2.00 in the minor.~~ For general information about the minor requirements, see the Minors section at the beginning of this chapter.

Complete at least 18 credits from the following courses with a minimum GPA of 2.00. Courses with an asterisk (*) indicate a set of recommended courses for the minor:~~1.A minimum of 18 credits must be selected from:~~ 18

CE A334*	Properties of Materials (3)
CE A344*	Water Resources Engineering (3)
CE A405*	Transportation Engineering I (3)
CE A422~~*~~	Foundation Engineering (3)
CE A425	Highway Engineering (3)
CE A431*	Structural Analysis (4)
CE A432~~*~~	Steel Design (3)
CE A433~~*~~	Reinforced Concrete Design (3)
CE A435*	Soil Mechanics (3)
CE A441-*	Fundamentals of Environmental Engineering and Applied Environmental Science (3)
CE A442	Environmental Systems Design (3)
~~CE A454~~	~~Timber Design (3)~~

~~*Note: An * indicates a set of recommended courses for the minor*~~

FACULTY

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M E M O R A N D U M

To: UAA Undergraduate Academic Board

From: Carol Swartz

Date: April 13, 2013

Re: Request for Prefix

Attached is PAR requesting a prefix, FT, for the development of curriculum in Fisheries Technology. Several years ago there was such a prefix, but the initial classes using it were discontinued. There is now need to offer such courses.

The new prefix also is consistent with other MAU's course descriptors. Courses in UAS's A.A.S. in Fisheries Technology utilize this prefix.

We have checked with UAA Publications and FT is available for use as a prefix.

Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

1a. School or College	1b. Department
KP KPC	KBC

2. Complete Program Title/Prefix
Fisheries Technology/FT

3. Type of Program

Choose one from the appropriate drop down menu: Undergraduate: Associate of Applied Science or Graduate: CHOOSE ONE

This program is a Gainful Employment Program: ☐ Yes or ☒ No

4. Type of Action:

PROGRAM	PREFIX
☐ Add	☒ Add
☐ Change	☐ Change
☐ Delete	☐ Inactivate

5. Implementation Date (semester/year)
From: Fall /2013 To: /9999

6a. Coordination with Affected Units
Department, School, or College: KBC-KPC, CTC
Initiator Name (typed): DT
Initiator Signed Initials: _____ Date:_____

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 2/13/13

6c. Coordination with Library Liaison Date: 1/30/13

7. Title and Program Description - Please attach the following:
☒ Cover Memo ☐ Catalog Copy in Word using the track changes function

8. Justification for Action
In partnership with UAS Ketchikan Fisheries Technology AAS, KBC-KPC is developing a FT course specific to the fisheries of the southcentral Alaska region and this prefix is needed.

Initiator (faculty only) Date
DT
Initiator (TYPE NAME)

☐ Approved ☐ Disapproved Department Chair Date

☐ Approved ☐ Disapproved College/School Curriculum Committee Chair Date

☐ Approved ☐ Disapproved Dean/Director of School/College Date

☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chair Date

☐ Approved ☐ Disapproved Provost or Designee Date

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
KP KPC	No Division Code	Business & Industry

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
PRT	A101	None	3.0	(3+0)

6. Complete Course Title
Introduction to Process Technology
Intro to Process Tech
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☒ Other Fees (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2013 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Process Technology A.A.S.	229	1/8/2013	Henry W. Haney
2. Petroleum Technology Undergraduate Certificate	227	1/8/2013	Henry W. Haney
3. PRT A130 Process technology I: Equipment	229	1/8/2013	Henry W. Haney

Initiator Name (typed): Henry W. Haney Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 1/8/2013
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/8/2013

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduction to industrial process operations through an overview of general information, processes, procedures, and equipment.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
None	None	None

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
None

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update curriculum to reflect current technology, add course fees and coordinate course with other courses within the program..

Initiator (faculty only) Date
Henry W. Haney
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chairperson Date

☐ Approved
☐ Disapproved
Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved
Provost or Designee Date

University of Alaska Anchorage
Kenai Peninsula College
Course Content Guide

I. Initiation Date: January 8, 2013

II. Course Information

A.	College:	Kenai Peninsula College
B.	Course Title:	Introduction to Process Technology
C.	Course Subject/Number:	PRT A101
D.	Credit:	3.0 credits
E.	Contact Time:	3+0
F.	Grading Information:	A-F
G.	Course Description:	Introduction to industrial process operation through an overview of general information, processes, procedures, and equipment.
H.	Status of course relative to degree or certificate programs:	Required for Process Technology A.A.S. Required for Petroleum Technology Undergraduate Certificate.
I.	Lab Fee:	Yes
J.	Coordination:	UAA Faculty Listserv, Process Technology and Petroleum Technology.
K.	Course Prerequisite:	None
L.	Registration Restrictions:	None

III. Course Level Justification

This course introduces the basic concept of process operations, develops basic skills and provides a foundation for further study of process technology.

IV. Instructional Goals

The instructor will:

A. Provide an overview of the process industry.
B. Introduce students to the basic process principles as they relate to process operations, responsibilities, and required skills.
D. Explain the classification and function of basic equipment used in the process industry.

V. Student Learning Outcomes

The student will be able to:	**One or more of the following assessment methods will be used:**
A. Define what process industries do.	Homework and tests
B. Describe what a process technician does.	Homework and tests
C. Define what process technology is.	Homework
D. Explain the different segments of the oil and gas industry.	Homework and tests

E. Write cover letter and resume.	Written assignment
F. Explain the growth and development of the process industries.	Homework
G. Discuss how physics and chemistry are applied in process industries.	Homework
H. State process industry safety, health, environment, and security issues.	Homework and tests
I. Discuss quality in process industries.	Homework
J. Identify team member characteristics.	Homework
K. Identify drawings used in process industries.	Homework and tests
L. Explain the purpose of equipment used in process industries.	Homework and tests
M. Discuss supportive process systems.	Homework and tests

VI. Course Content Outline

A. Process technology: an overview
   1. Oil and gas industry
   2. Chemical industry
   3. Mining Industry
   4. Power generation industry
   5. Pulp and paper industry
   6. Water and wastewater treatment industry
   7. Food and beverage industry
   8. Pharmaceutical Industry

B. Cover letter and resume preparation

C. Basic physics

D. Basic chemistry

E. Safety, health, environment and security

F. Quality

G. Teams

H. Process drawings

I. Process equipment
   1. Piping and valves
   2. Vessels
   3. Pumps
   4. Compressors
   5. Turbines
   6. Electricity and motors
   7. Shell and tube and fin-fan exchangers
   8. Cooling towers
   9. Furnaces, reformers and fired heaters
   10. Boilers
   11. Distillation

J. Process utilities
K. Process auxiliaries
L. Instrumentation
M. Process facility tour

VII. Suggested Text

(CAPT) Center for the Advancement of Process Technology (2009). *Introduction to Process Technology* (1st ed.). Upper Saddle River, NJ: Prentice Hall.

VIII. Bibliography

Napier-Munn, T., and Wills, B., and revised by Staff of Julius Kruttshnitt Mineral Research Centre (2006). *Wills' Mineral Processing Technology Seventh Edition: An Introduction to the Practical Aspects of Ore Treatment and Mineral Recovery* (7th ed.). Oxford; Boston: Butterworth-Heinemann.

Singh, R.P., and Heldman, D.R. (2008). *Introduction to Food Engineering* (4th ed.). San Diego, CA: Academic Press.

Speegle, M. (2007). *Process Technology Systems* (1st ed.). Clifton Park, NY: Delmar Cengage Learning.

Thomas, C. E. (2009). *Introduction to Process Technology* (3rd ed.). Clifton Park, NY: Delmar Cengage Learning.

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
KP KPC	No Division Code	Business & Industry

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
PRT	A110	None	3.0	(3+0)

6. Complete Course Title
Introduction to Process Safety/Health/Environmental Awareness
Intro Process SHE Awareness
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☒ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☐ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2013 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Process Technology A.A.S.	228	1/8/2013	Henry W. Haney
2.			
3.			

Initiator Name (typed): Henry W. Haney Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: 1/8/2013
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/8/2013

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduction to safety, health, and environmental awareness within the process industry. Examines types of hazards, applicable government regulations, plus current industry standards and practices. Analyzes the potential for harm to an individual and to the environment due to unsafe conditions. Covers various types of preventative procedures, systems and equipment.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
None	None	None

16d. Other Restriction(s)
☐ College ☐ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
None

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update curriculum to reflect current technology and to coordinate course with other courses in the program.

Initiator (faculty only) Date
Henry W. Haney
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chairperson Date

☐ Approved
☐ Disapproved
Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved
Provost or Designee Date

University of Alaska Anchorage
Kenai Peninsula College
Course Content Guide

I. Initiation Date: January 8, 2013

II. Course Information

A.	College:	Kenai Peninsula College
B.	Course Title:	Introduction to Process Safety/Health/Environmental Awareness
C.	Course Subject/Number:	PRT A110
D.	Credit:	3.0 credits
E.	Contact Time:	3+0
F.	Grading Information:	A-F
G.	Course Description:	Introduction to safety, health, and environmental awareness within the process industry. Examines types of hazards, applicable government regulations, plus current industry standards and practices. Analyzes the potential for harm to an individual and to the environment due to unsafe conditions. Covers various types of preventative procedures, systems and equipment.
H.	Status of course relative to degree or certificate programs:	Required for Process Technology A.A.S.
I.	Lab Fee:	No
J.	Coordination:	UAA Faculty Listserv and Process Technology.
K.	Course Prerequisite:	None
L.	Registration Restrictions:	None

III. Course Level Justification

This course introduces the basic concepts of safety, health and environmental awareness in industrial process operations.

IV. Instructional Goals

The instructor will:

A. Explain the health and safety issues associated with the process industry and the potential implications for individuals and the environment.
B. Explain the preventative procedures, systems, and controls used in the process industry.
D. Explain and demonstrate the use of the personal protective equipment used in the process industry.
D. Explain and demonstrate the safe use of various hand-tools commonly used in the process industry.
E. Discuss the applicable government regulations and industry standards.

V. Student Learning Outcomes

The student will be able to:	One or more of the following assessment methods will be used:
A. Demonstrate behaviors that are critical to avoid personal injury, injury to others, damage to equipment, or harm to the environment.	Homework and tests
B. Identify agents and conditions that can present potential safety and health hazards in process industries.	Homework and tests
C. Identify specific hazards found in the process industries and the potential safety and health hazards posed by them.	Homework
D. Explain routes for hazardous chemicals to enter the human body. Describe acute and chronic effects on individual health.	Homework and tests
E. Use MSDS and other resources to obtain key health, safety and environmental information regarding materials used in process industries.	Homework, group projects and tests
F. Identify the selection, use, care and maintenance of personal protective and testing equipment.	Homework, group projects and tests
G. Describe permitting systems found in process industrial operations.	Homework and tests
H. Select and employ labels and placards to identify the contents of process vessels, piping, and miscellaneous containers.	Homework, group projects and tests
I. Describe analysis techniques to identify potential unsafe work practices and hazards in order to ensure the safety of the workplace.	Homework and tests
J. Identify factors that can lead to leaks, spills, and releases; describe the potential dangers to worker safety and the impact on the environment.	Homework and tests
K. Identify and describe engineering and administrative controls used by process industries to eliminate and to minimize threats to safety, health, and the environment.	Homework and tests
L. Describe the correct use of equipment and systems used to prevent, contain or control emergencies that may occur in process industries.	Homework and tests

M. Identify and discuss federal, state, and local regulations as well as industry standards that impact process industries.	Homework and tests

VI. Course Content Outline

A. Basic safety principles
B. Introduction to regulatory history
C. Safety laws that affect process industries
    1. OSHA
    2. EPA
D. Administrative controls and programs
    1. Process safety management
    2. Hazard communication
    3. HAZWOPER
    4. Other programs and agencies that regulate industries
E. Introduction to hazard types
    1. Identification and classification of hazards
    2. Material Safety Data Sheets
    3. Routes of entry
    4. Exposure
    5. Potential effects of chemical agents
    6. Hazards associated with pressure and pressurized equipment
F. Personal protective equipment
    1. General: hearing, hand, eye, head, skin
    2. Respiratory
G. Equipment and maintenance safety
    1. Types of equipment hazards
    2. Tools
    3. Material handling: process fluids, chemicals, and pressure devices
    4. Machinery
H. Personal safety
    1. Electrical safety and protection
    2. Falls and fall protection
    3. Vapors, gases and solvents
    4. Other factors that can result in hazards
I. Administrative controls- practices
    1. Permit systems
    2. Lock-out/tag-out
    3. Safe work practices
J. Engineering controls
    1. Alarms and indication systems
    2. Process containment and control systems
    3. Process upset control systems
    4. Mobile testing equipment

C. Fire prevention, protection and control
D. Spill response practices and equipment
E. Environmental standards

VII. Suggested Text

(CAPT) Center for the Advancement of Process Technology (2009). *Safety, Health, and Environment* (1st ed.). Upper Saddle River, NJ: Prentice Hall

VIII. Bibliography

* Burgess, W. (1995). *Recognition of Health Hazards in Industry: A Review of Materials Processes* (2nd ed.). Hoboken, NJ: Wiley-Interscience

Center for Chemical Process Safety (CCPS) (2008). *Incidents That Define Process Safety (CCPS Concept Books)* (1st ed.). Hoboken, NJ: Wiley-AIChE

Speegle, M. (2012). *Safety, Health, and Environmental Concepts for the Process Industry* (2nd ed.). Clifton Park, NY: Delmar, Cengage Learning

Thomas, C. (2006). *Process Technology Safety, Health, and Environment* (2nd ed.). Clifton Park, NY: Delmar, Cengage Learning.

U.S. Department of Labor (2012). *Process Safety Management*. North Charleston, SC: CreateSpace

*Classic text in field

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
KP KPC	No Division Code	Business & Industry

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
PRT	A130	None	4.0	(4+0)

6. Complete Course Title
Process Technology I: Equipment
Process Tech I: Equipment
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☒ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2013 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. See attached table.			
2.			
3.			

Initiator Name (typed): Henry W. Haney Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 1/8/2013
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/8/2013

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Examines various types of process equipment through an in-depth analysis of construction, components, and operation. Covers process flows, piping diagrams, economic impact, plus safety and environmental aspects. Surveys preventative maintenance and troubleshooting procedures.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
PRT A101 and MATH A105 or concurrent enrollment	None	None

16d. Other Restriction(s)
☐ College ☒ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Admitted students in Process Technology A.A.S. major, Industrial Process Instrumentation A.A.S. major, Petroleum Technology Undergraduate Certificate program or Mechanical Technology Undergraduate Certificate program.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update curriculum to reflect current technology, update prerequisites, update major restriction, update registration restrictions and coordinate course with other courses within the program.

Initiator (faculty only)	Date	☐ Approved ☐ Disapproved	Dean/Director of School/College	Date
Henry W. Haney Initiator (TYPE NAME)				
☐ Approved ☐ Disapproved	Department Chairperson	Date	☐ Approved ☐ Disapproved	Undergraduate/Graduate Academic Board Chairperson	Date
☐ Approved ☐ Disapproved	Curriculum Committee Chairperson	Date	☐ Approved ☐ Disapproved	Provost or Designee	Date

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Process Technology A.A.S.	229	1/8/2013	Henry W. Haney
2. Petroleum Technology Undergraduate Certificate	227	1/8/2013	Henry W. Haney
3. Industrial Process Instrumentation A.A.S	224	1/8/2013	Henry W. Haney
4. Mechanical Technology Undergraduate Certificate	224	1/8/2013	Tom Dalrymple
5. PRT A230 Process Technology II: Systems	229	1/8/2013	Henry W. Haney

Initiator Name (typed): Henry W. Haney Initiator Signed Initials: _____ Date:_____

University of Alaska Anchorage
Kenai Peninsula College
Course Content Guide

I. Initiation Date: January 8, 2013

II. Course Information

A.	College:	Kenai Peninsula College
B.	Course Title:	Process Technology I: Equipment
C.	Course Subject/Number:	PRT A130
D.	Credit:	4.0 credits
E.	Contact Time:	4+0
F.	Grading Information:	A-F
G.	Course Description:	Examines various types of process equipment through an in-depth analysis of construction, components, and operation. Covers process flows, piping diagrams, economic impact, and safety and environmental aspects. Surveys preventative maintenance and troubleshooting procedures.
H.	Status of course relative to degree or certificate programs:	Required for Process Technology A.A.S. Required for Industrial Process Instrumentation A.A.S. Required for Petroleum Technology Certificate. Required for Mechanical Technology Certificate.
I.	Lab Fee:	Yes
J.	Coordination:	UAA Faculty Listserv, Process Technology, Petroleum Technology, Industrial Process Instrumentation and Mechanical Technology.
K.	Course Prerequisite:	PRT A101 and MATH A105 or concurrent enrollment.
L.	Registration Restrictions:	Admitted students in Process Technology A.A.S. major, Industrial Process Instrumentation A.A.S. major, Petroleum Technology Undergraduate Certificate program, Mechanical Technology Undergraduate Certificate program or Instructor permission.

III. Course Level Justification

This course introduces basic knowledge through an overview of various types of process equipment and provides a foundation for further study of process technology. This is the first course of a three semester sequence of process technology courses.

IV. Instructional Goals

The instructor will:

A. Explain the purpose and application of various types of equipment used within the process industry.

B. Examine individual design characteristics of various types of equipment used in the process industry.
C. Cover piping, tanks and vessels.
D. Cover pumps and compressors.
E. Cover valve designs and applications, including hand valves, automatic valves, safety valves and relief valves.
F. Cover exchangers and cooling towers.
G. Cover tubing, hoses, hose fittings, and explain the use of each as they are used in a process.
H. Use process and piping diagrams to explain process flows through a unit or complete system.
I. Introduce various types of equipment into the classroom for hands-on demonstrations, disassembly and reassembly where applicable to facilitate student familiarity with process equipment and enable them to identify equipment components.

V. Student Learning Outcomes

The student will be able to:	**One or more of the following assessment methods will be used:**
A. Identify and describe the equipment using appropriate terminology.	Homework, tests and class presentation
B. Identify the equipment components and use appropriate terminology to describe.	Homework, tests and class presentation
C. Describe the basic theory of operation of the equipment.	Homework, tests and class presentation
D. Describe safe operation of the equipment.	Homework, tests and class presentation
E. Describe minor maintenance required for effective operation of the equipment.	Homework and tests
F. Describe the economic impact of effective equipment operation and maintenance.	Homework
G. Explain basic troubleshooting concepts.	Homework and tests
H. Describe environmentally responsible operation of the equipment.	Homework and tests

VI. Course Content Outline

A. Tools and introduction to equipment
    1. Overview of equipment common to process industry
    2. Hand tools
    3. Power tools
    4. Lifting equipment
B. Piping, tubing, hoses and fittings
    1. Types and uses
    2. Pressure and temperature limitations

3. Types of materials used
4. Selection and sizing criteria
5. Equipment tests
6. Symbols

C. Valves
1. Types and purpose
2. Operating principles
3. Components and function
4. Process technician's responsibility in maintenance and repair
5. Safe operation
6. Common operating problems

D. Motors and engines
1. Types and purposes
2. Components
3. Theory of operation
4. Safety hazards and environmental concerns
5. Typical procedures
6. Process technician's role in maintenance
7. Common operating problems

E. Turbines
1. Types and applications
2. Components
3. Theory of operation
4. Safety hazards and environmental concerns
5. Typical procedures
6. Process technician's role in operation and maintenance
7. Common operating problems

F. Pumps
1. Types and application
2. Components
3. Theory of operation
4. Seals
5. Safety hazards and environmental concerns
6. Typical procedures
7. Process technician's role in operation and maintenance
8. Common operating problems

G. Compressors
1. Types and application
2. Components
3. Theory of operation
4. Safety hazards and environmental concerns
5. Typical procedures
6. Process technician's role in operation and maintenance
7. Common operating problems

H. Special equipment
    1. Purpose and application of each
    2. Major components
    3. Safety hazards and environmental concerns
    4. Typical procedures
    5. Process technician's role in operation and maintenance
    6. Common operating problems

I. Process diagrams

VII. Suggested Text

Thomas, C. (2011). *Process Technology Equipment and Systems* (3rd ed.). Clifton Park, NY: Delmar, Cengage Learning

* No Author Listed (1992). *Piping Systems #736*. Buffalo Grove, IL: Schoolcraft

* No Author Listed (1998). *Bulk Handling Conveyors #331*. Buffalo Grove, IL: Schoolcraft

VIII. Bibliography

* Bloch, H., and Soares, C. (1998). *Process Plant Machinery* (2nd ed.). Oxford, UK: Butterworth-Heinemann.

Holloway, M., Nwaoha, C. and Onyewuenyi, O. (2012). *Process Plant Equipment: Operation, Control, and Reliability* (1st ed.). Hoboken, NJ: Wiley.

Wong, W. (2004). *Keep It Running, Keep It Safe: Process Machinery Safety and Reliability* (1st ed.). Bury St. Edmonds, Suffolk, UK: Professional Engineering Publishing.

*Classic Text in Field

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
KP KPC	No Division Code	Business & Industry

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
PRT	A160	None	3.0	(3+0)

6. Complete Course Title
Oil & Gas Exploration and Production I
Oil & Gas Expl & Prodn I
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☒ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☐ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2013 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Petroleum Technology Undergraduate Certificate	227	1/8/2013	Henry W. Haney
2. Process Technology	229	1/8/2013	Henry W. Haney
3.			

Initiator Name (typed): Henry W. Haney Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: 1/8/2013
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/8/2013

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Surveys oil & gas exploration, reservoir geology and aspects of petroleum mineral leasing. Covers drilling and production technologies, completion systems and methods of crude delivery. Surveys emulsion hazards and treatment. Covers natural gas production and tar sands production. Examines current marketing strategies and reviews the theory of peak oil.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
None	None	None

16d. Other Restriction(s)
☐ College ☒ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Admitted students in Petroleum Technology Undergraduate Certificate program or Process Technology A.A.S. major.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update curriculum to reflect current technology, update major restriction, update registration restrictions and coordinate course with other courses within the program.

Initiator (faculty only) Date
Henry W. Haney
Initiator (TYPE NAME)

☐ Approved ☐ Disapproved Department Chairperson Date

☐ Approved ☐ Disapproved Curriculum Committee Chairperson Date

☐ Approved ☐ Disapproved Dean/Director of School/College Date

☐ Approved ☐ Disapproved Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved ☐ Disapproved Provost or Designee Date

University of Alaska Anchorage
Kenai Peninsula College
Course Content Guide

I. Initiation Date: January 8, 2013

II. Course Information

A.	College:	Kenai Peninsula College
B.	Course Title:	Oil and Gas Exploration and Production I
C.	Course Subject/Number:	PRT A160
D.	Credit:	3.0 credits
E.	Contact Time:	3+0
F.	Grading Information	A-F
G.	Course Description:	Surveys oil and gas exploration, reservoir geology and aspects of petroleum mineral leasing. Covers drilling and production technologies, completion systems and methods of crude delivery. Surveys emulsion hazards and treatment. Covers natural gas production and tar sands production. Examines current marketing strategies and reviews the theory of peak oil.
H.	Status of course relative to degree or certificate programs:	Required for Petroleum Technology Certificate.
I.	Lab Fee:	None
J.	Coordination:	UAA Faculty Listserv, Petroleum Technology and Process Technology.
K.	Course Prerequisite:	None
L.	Registration Restrictions:	Admitted students in Petroleum Technology Undergraduate Certificate program, Process Technology A.A.S. major or Instructor permission.

III. Course Level Justification

Introduces a field of knowledge and develops basic skills.

IV. Instructional Goals

The instructor will:

A. Provide an overview of the history of oil and gas, its position as an energy resource today and in the future.
B. Discuss petroleum geology, exploration and mineral leasing.
D. Cover drilling operations; on-shore and off-shore; equipment, systems and terminology.
E. Examine well completion, work-over, well service and secondary enhancement methods.
F. Cover production and transportation operations, on-shore and off-shore; equipment, systems and terminology.
G. Survey natural gas drilling techniques, completion methods, production and treatment.

H. Discuss emulsion; its formation and treatment, and its effects on oil production.
I. Analyze aspects of the changing world of oil and gas.

V. Student Learning Outcomes

The student will be able to:	One or more of the following assessment methods will be used:
1. Identify the different types of oil and gas resource ownership and legal issues associated with each.	Homework and tests
2. Cover the history of oil and gas and explain current changes and their effect on the Oil and Gas Industry.	Homework and tests
3. Enumerate the primary safety, health and environmental considerations associated with oil and gas exploration and production.	Homework
4. Sketch and describe the function of modern drilling equipment.	Homework, diagrams and tests
5. Describe oil and gas well completion methods, plus secondary and tertiary well enhancement procedures.	Homework, diagrams and tests
6. Identify and explain well servicing and well workover techniques including coil tubing, wireline and slickline operations.	Homework and tests
7. Sketch and describe the function of production well equipment.	Homework, diagrams and tests
8. Sketch and describe common techniques used to separate and treat produced fluids (emulsion).	Homework, diagrams and tests
9. Define applicable “upstream” hydrocarbon nomenclature.	Homework and tests

VI. Course Content Outline

A. History
   1. Oil and gas: prior to the 1840’s
   2. Oil and gas: 1840’s to 1900
   3. Oil and gas: 1900 to present
   4. Overview of Alaska oil and gas development

B. Petroleum geology
   1. Basic concepts of oil and gas geology
   2. Origin, migration and accumulation of oil and gas deposits
   3. Various types of oil and gas traps
   4. Fluid and gas flow characteristics within the geological formations
   5. Reservoir pressure variables

C. Petroleum exploration
    1. Types of oil and gas mineral rights
    2. Private oil and gas leases
    3. Public oil and gas leases
    4. Lease bidding and bonus payments
    5. Surface oil and gas mineral exploration
    6. Seismic oil and gas mineral exploration methods and equipment
    7. Seismic oil and gas data resources: public and private
D. Drilling operations
    1. Drilling rigs; cable tool and rotary type
    2. Drive methods: Kelly-Turntable and Top-Drive
    3. Drilling mud system
    4. Drilling techniques: vertical, deviated and horizontal
    5. Blow-out preventer systems
    6. Drill bit designs and operation
    7. Environmental and safety considerations
E. Well completion
    1. Christmas trees: single and dual completion
    2. Wellheads: tubing head and casing head
    3. Casing and associated equipment
    4. Tubing string and associated equipment
    5. Perforation equipment and operation
    6. Fracturing equipment and operation
    7. Cementing equipment and operation
    8. Coiled tubing methods
    9. Nitrogen displacement procedures
    10. Environmental and safety considerations
F. Production
    1. Surface safety valves and sub-surface safety valves
    2. Two phase separator, three phase separator, FWKO and coalescer
    3. Pigging operations
    4. Primary, secondary and tertiary recovery
    5. Test separators
    6. Chokes, well flow and overproduction hazards
    7. Environmental and safety considerations
G. Well servicing and well workover
    1. Wireline and slickline operations
    2. Well logging
    3. Setting gas lift valves, packers and electrical submersible pumps
    4. Coiled tubing and well stimulation

H. Off-shore
    1. History of offshore drilling and production
    2. Platform types; exploration, drilling and production
    3. Undersea remote drilling and production systems
    4. Environmental and safety considerations
I. Transportation
    1. On-shore: tankage, pipeline systems, railroad, truck and inland barge
    2. Off-shore: pipeline, Hub, FSPO, ship
    3. Environmental and safety considerations
J. Economics
    1. Exploration costs: USA and world regions
    2. Production Costs: USA and world regions
    3. Crude prices: USA and world regions
K. Emulsion
    1. Formation
    2. Components
    3. Prevention and treatment
L. Natural Gas
    1. Exploration and production
    2. Hydrates
    3. Condensate and natural gas liquids
    4. Gas transportation
    5. Environmental and safety considerations
M. Tar sand, shale and other difficult crude oil sources
    1. Production methods
N. Peak oil and the changing energy market

VII. Suggested Text

*Baker, R. (1990). *Treating Oilfield Emulsions* (4th ed.). Austin, TX: The University of Texas at Austin - Petroleum Extension Service

Denehy, D. (2011). *Fundamentals of Petroleum* (5th ed.). Austin, TX: The University of Texas at Austin - Petroleum Extension Service

*Leecraft, J. (1987). *Field Handling of Natural Gas* (4th ed.). Austin, TX: The University of Texas at Austin - Petroleum Extension Service

VIII. Bibliography

Baker, R. (2008). *Primer of Oil Well Drilling* (7th ed.). Austin, TX: The University of Texas at Austin - Petroleum Extension Service

Downey, M. (2009). *Oil 101* (1st ed.). New York, NY: Wooden Table Press

Hyne, N. (2012). *Nontechnical Guide to Petroleum Geology, Exploration, Drilling & Produ*ction (3rd ed.).Tulsa, OK: PennWell Corporation

Miesner, T. and Leffler, W. (2006). *Oil & Gas Pipelines in Nontechnical Language* (1st ed.). Tulsa, OK: PennWell Corporation

Leffler, W., Pattarozzi, R. and Sterling, G (2011). *Deepwater Petroleum Exploration & Production: A Nontechnical Guide* (2nd ed.). Tulsa, OK: PennWell Corporation

Stewart, M. and Arnold, K. (2007). *Design of Oil Handling Systems and Facilities* (3rd ed.). Houston, TX: Gulf Professional Publishing

*Stoneley, R. (1995). *Introduction to Petroleum Exploration for Non Geologis*ts (1st ed.). Oxford, UK: Oxford University Press

*Classic Text in Field

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
KP KPC	No Division Code	Business & Industry

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
PRT	A230	None	4.0	(3+2)

6. Complete Course Title
Process Technology II: Systems

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☒ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2013 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. See attached table.			
2.			
3.			

Initiator Name (typed): Henry W. Haney Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: 1/8/2013
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/8/2013

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Examines how individual components interact as part of a specific process system. Covers how specific process systems integrate and function within a process facility. Reviews the scientific principles incorporated in the proper working of process systems. Surveys a selection of process industries with emphasis directed toward those located in Alaska.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
PRT A130 and PRT A140	None	None

16d. Other Restriction(s)
☐ College ☒ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Admitted students in Process Technology A.A.S. major, Industrial Process Instrumentation A.A.S. major or Petroleum Technology Undergraduate Certificate program.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update curriculum to reflect current technology, update prerequisites, update major restriction, update registration restrictions and coordinate course with other courses within the program.

Initiator (faculty only) Date
Henry W. Haney
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chairperson Date

☐ Approved
☐ Disapproved
Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved
Provost or Designee Date

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Process Technology A.A.S.	229	1/8/2013	Henry W. Haney
2. Petroleum Technology Undergraduate Certificate	227	1/8/2013	Henry W. Haney
3. Industrial Process Instrumentation A.A.S	224	1/8/2013	Henry W. Haney
5. PRT A231 Process Technology III: Operations	229	1/8/2013	Henry W. Haney

Initiator Name (typed): Henry W. Haney Initiator Signed Initials: _____ Date:_____

University of Alaska Anchorage
Kenai Peninsula College
Course Content Guide

I. Initiation Date: January 8, 2013

II. Course Information

A.	College:	Kenai Peninsula College
B.	Course Title:	Process Technology II: Systems
C.	Course Subject/Number:	PRT A230
D.	Credit:	4.0 credits
E.	Contact Time:	3+2
F.	Grading Information:	A-F
G.	Course Description:	Examines how individual components interact as part of a specific process system. Covers how specific process systems integrate and function within a process facility. Reviews the scientific principles incorporated in the proper working of process systems. Surveys a selection of process industries with emphasis directed toward those located in Alaska.
H.	Status of course relative to degree or certificate programs:	Required for Process Technology A.A.S. Required for Petroleum Technology Certificate.
I.	Lab Fee:	Yes
J.	Coordination:	UAA Faculty Listserv, Process Technology, Petroleum Technology and Industrial Process Instrumentation.
K.	Course Prerequisite:	PRT A130 and PRT A140
L.	Registration Restrictions:	Admitted students in Process Technology A.A.S. major, Industrial Process Instrumentation A.A.S. major, Petroleum Technology Undergraduate Certificate program or Instructor permission.

III. Course Level Justification

This course introduces basic knowledge through an overview of various equipment systems found within the process industry. The course additionally builds on foundational knowledge obtained in prior course. This is the second course in a three semester course sequence.

IV. Instructional Goals

The instructor will:

A. Identify various systems commonly used in process industries.
B. Examine each systems basic design, operation and functional purpose.
C. Explain each systems working relationship with other systems and overall economic impact within a larger process.
D. Describe common operating problems and safety factors affecting systems operation.
E. Introduce scientific principles incorporated in the proper working of process systems.

V. Student Learning Outcomes

The student will be able to:	One or more of the following assessment methods will be used:
1. Identify and describe various process systems.	Homework, tests and P&ID drawing
2. Describe the basic equipment components of a process system.	Homework, tests and P&ID drawing
3. Explain the operation, design and equipment relationship of a process system.	Homework and tests
4. Explain the functional purpose of a process system, what the system produces and why it is necessary within a process unit.	Homework
5. Describe the basic scientific principles associated with a process system.	Homework and tests
6. Discuss factors affecting system operation: feed, level, flow, pressure and ambient conditions.	Homework and tests
7. Identify process industries using similar equipment and systems.	Homework
8. Illustrate the purpose of the various components using a process flow diagram.	Homework, tests and P&ID drawing
9. Describe common operating problems that may occur within a system.	Homework and tests
10. Explain safe procedures one should use when operating a process system.	Homework and tests
11. Relate operation of the systems to impacts on process unit economics; operating costs, process optimization, and efficient control.	Homework

VI. Course Content Outline

A. Utilities
   1. Fuel systems
   2. Water: potable, cooling, process and fire
   3. Plant air: instrument and utility
   4. Nitrogen systems
   5. HVAC systems
   6. Chemical injection
   7. Wastewater treatment

B. Filtration Types
   1. Particulate
   2. Charcoal
   3. Lube oil

C. Distillation and reaction
    1. Fractionation process methods
    2. Reaction process types
D. Extraction and separation
    1. Absorption
    2. Adsorption
    3. Extraction
E. Steam boiler systems
    1. Fire tube boilers
    2. Water tube boiler systems
    3. Water treatment
    4. Deaerator system
    5. Super-heated steam
F. Furnaces, heaters and reformers
    1. Heat transfer
    2. Exhaust: draft, O_2, NOX, CO and particulates
    3. Energy economics
    4. Hot oil systems
G. Power generation and distribution
    1. Power generation types
    2. Power synchronization and grid input
    3. Emergency power generation
    4. Batteries and uninterrupted power supplies
H. Upstream oil and gas systems
    1. Crude: primary, secondary and tertiary lift systems
    2. Crude: wellheads, flow lines and manifolds
    3. Crude: two phase and three-phase separation, coalescer and free-water knockout
    4. Gas-liquids separation and compression
    5. Gas dehydration systems
H. Mining systems
    1. Methods: underground and open pit
    2. Ore processing systems
I. Food processing systems
    1. Flash freezing
    2. Canning and retorting
    3. Vacuum packaging
    4. Bacteria and contamination
J. Communication systems for process control and operation
    1. Radio
    2. Computers
    2. SCADA systems
    4. Remote television

I. Fire and safety systems
    1. Pressure relief and flare systems
    2. Emergency and operation shutdown systems
    3. Fire systems: detection and suppression

VII. Suggested Text

Thomas, C. (2011). *Process Technology Equipment and Systems* (3rd ed.). Clifton Park, NY: Delmar, Cengage Learning

VIII. Bibliography

Ewen, D. (2008). *Applied Physics* (9th ed.). Upper Saddle River, NJ: Prentice Hall

Granata, L, Flick, G. and Martin, R. (2012). *The Seafood Industry: Species, Products, Processing, and Safety* (2nd ed.). Hoboken, NJ: Wiley-Blackwell

Incropera, F., DeWitt, D., Bergman, T. and Lavine, A. (2006). *Fundamentals of Heat and Mass Transfer* (6th ed.). Hoboken, NJ: John Wiley & Sons

Kiameh, P. (2011). *Power Generation Handbook* (2nd ed.). Columbus, OH: McGraw-Hill Professional

Leffler, W. (2008). *Petroleum Refining in Nontechnical Language* (4th ed.). Tulsa, OK: Pennwell Corporation

Napier-Munn, T., and Wills, B., and revised by Staff of Julius Kruttshnitt Mineral Research Centre (2006). *Wills' Mineral Processing Technology Seventh Edition: An Introduction to the Practical Aspects of Ore Treatment and Mineral Recovery* (7th ed.). Oxford; Boston: Butterworth-Heinemann.

Saravanamuttoo, H., Rogers, G., Cohen, H. and Straznicky, P. (2008). *Gas Turbine Theory* (6th ed.). Don Mills, ON, CA: Pearson Education Canada

Speegle, M. (2007). *Process Technology Systems* (1st ed.). Clifton Park, NY: Delmar, Cengage Learning

Stultz, S and Kitto, J. (2005). *Steam: Its Generation and Use* (40th ed.). Charlotte, NC: Babcock & Wilcox

Raymond, M. and Leffler, W. (2005). *Oil & Gas Production in Nontechnical Language* (1st ed.). Tulsa, OK: Pennwell Corporation

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
KP KPC	No Division Code	Business & Industry

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
PRT	A231	None	4.0	(3+2)

6. Complete Course Title
Process Technology III: Operations
Process Tech III: Operations
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☒ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2013 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.
Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. See attached table.			
2.			
3.			

Initiator Name (typed): Henry W. Haney Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 1/12/13
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/12/13

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Analyzes the operator duties and responsibilities that occur in a process operation with emphasis focused on the unit (outside) operator position. Examines the different operational phases found in a process operation. Covers the operation of a variety of Alaska Process Industries and an overview of their operator duties.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
PRT 250 or concurrent enrollment, PRT A230 and PRT A144	None	None

16d. Other Restriction(s)
☐ College ☒ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Admitted students in Process Technology A.A.S. major or Petroleum Technology Undergraduate Certificate program.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update curriculum to reflect current technology, update prerequisites, update major restriction, update registration restrictions and coordinate course with other courses within the program.

Initiator (faculty only) Date
Henry W Haney
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chairperson Date

☐ Approved
☐ Disapproved
Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved
Provost or Designee Date

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Process Technology A.A.S.	229	1/8/2013	Henry W. Haney
2. Petroleum Technology Undergraduate Certificate	227	1/8/2013	Henry W. Haney
3. PRT A250 Process Troubleshooting	229	1/8/2013	Henry W. Haney
5. PRT A255 Quality Concepts	229	1/8/2013	Henry W. Haney

Initiator Name (typed): Henry W. Haney Initiator Signed Initials: _____ Date:_____

University of Alaska Anchorage
Kenai Peninsula College
Course Content Guide

I. Initiation Date: January 12, 2013

II. Course Information

A.	College:	Kenai Peninsula College
B.	Course Title:	Process Technology III: Operations
C.	Course Subject/Number:	PRT A231
D.	Credit:	4.0 credits
E.	Contact Time:	3+2
F.	Grading Information	A-F
G.	Course Description:	Analyzes the operator duties and responsibilities that occur in a process operation with emphasis focused on the unit (outside) operator position. Examines the different operational phases found in a process operation. Covers the operation of a variety of Alaska Process Industries and an overview of their operator duties.
H.	Status of course relative to degree or certificate programs:	Required for Process Technology A.A.S. Required for Petroleum Technology Undergraduate Certificate.
I.	Lab Fee:	Yes
J.	Coordination:	UAA Faculty Listserv, Process Technology and Petroleum Technology.
K.	Course Prerequisite:	PRT A250 or concurrent enrollment, PRT A230 and PRT A144
L.	Registration Restrictions:	Admitted students in Process Technology A.A.S. major, Petroleum Technology Undergraduate Certificate program or Instructor permission.

III. Course Level Justification

This is the third course in a three semester course sequence. This course specifically integrates prior knowledge obtained in PRT A130 and PRT A230, plus it incorporates the knowledge base obtained in PRT A144 and PRT A250, and shows students how to use and apply such knowledge in an efficient, safe and environmentally secure manner as a process operator.

IV. Instructional Goals

The instructor will:

A. Describe the various operational phases of a process facility.
   1. Cover the operational characteristics for each phase.
   2. Present an overview of the operator's role in each phase.
   3. Analyze the unit (outside) operator position in each phase.
   4. Address the health, safety, and environmental aspects associated with each phase.

B. Cover the operator's role in upstream oil production with emphasis on unit (outside) operations.
C. Cover the operator's role in pipeline and marine terminal operation with emphasis on unit (outside) operations.
D. Cover the operator's role in downstream oil and chemical processing; emphasis on unit (outside) operations.
E. Cover the operator's role in natural gas production, and processing; emphasis on unit (outside) operations.
F. Cover the operator's role in a variety of Alaska Process Industries such as: water and wastewater operations, power production, mining and ore processing, plus fish processing (retort canning and flash-freezing specific).
G. Facilitate a variety of Process Industry tours.

V. Student Learning Outcomes

The student will be able to:	**One or more of the following assessment methods will be used:**
1. Describe the operator's role in all phases of a process facility operation.	Homework, tests and drawings
2. Explain the typical duties of a unit (outside) operator during normal and other phases of operation.	Homework, tests, and "Big Blue" simulator operation
3. Explain the operator's role in upstream oil production.	Homework and tests
4. Explain the operator's role in pipeline and marine terminal operation.	Homework and tests
5. Explain the operator's role in downstream oil and chemical processing.	Homework, tests, and "Big Blue" simulator operation
6. Describe the operator's role in natural gas production, and processing.	Homework, tests, and "Big Blue" simulator operation
7. Give an overview of an operator's role in water and wastewater operations, power production, mining and ore processing, plus fish processing including both retort canning and flash-freezing.	Homework and tests

VI. Course Content Outline

A. General operations
   1. Safety minute
   2. Shift change
   3. Procedure writing
   4. The operator and process economics
   5. Drug and alcohol testing
   6. Special assignments: haz-ops team, accident investigation, turnaround planning

B. Phases of a process operation
   1. Commissioning and decommissioning
   2. Start-up and shutdown

3. Normal operations
4. Abnormal and emergency
5. Turnaround

C. Concept of how to learn a process
1. Single primary flow process
2. Multiple primary flows process
3. Multi-plant operations process

D. Board operations overview
1. Visualizing the process operation
2. SOCL's (standard operating conditions and limits) and alarm response
3. Multi-tasking
4. Crew supervision
5. Maintenance and contractor's
6. Safety and environmental

E. The unit (outside) operator
1. Making a "round"
2. Effective communications; in-plant and effective turnover's
3. Readings, other data collection, record keeping and writing work orders
4. Alarm response and corrective actions
5. Permitting
6. Operator "light maintenance"
7. On-site contractors
8. Sampling and sampling types: stream, grab and final
9. Housekeeping
10. Safety equipment checks

F. Preparing equipment and systems for maintenance.
1. Permitting, permit types, tags, and documentation
2. The JSA (job safety analysis)
3. Equipment isolation in active operations: start-up, shut-down, and bypassing procedures
4. Lock-out/tag-out general procedures
5. Specific types of equipment isolation methods, blinds, double block and bleed, spool pieces
6. Hazardous atmosphere testing, procedures and equipment
7. Purging methods and hazards
8. Venting and draining: environmental and safety considerations
9. In-plant crane operations

G. Tank field and pipeline operations
1. Transfers: start-up, shut-down, line-packs, displacements and flow-rates
2. Tank blending, mixing, gauging and sampling procedures
3. Product movement calculations
4. Pig launching and receiving procedures
5. API gravity and blend calculations
6. Truck and railcar loading

H. Turbine and compressor operation
    1. Gas and steam turbines
    2. Positive displacement compressor
    3. Dynamic compressor
I. Overview of downstream operation
    1. Refinery and distillation process operations
    2. Chemical and reaction process operations
    3. Liquefied natural gas process operation
J. Overview of upstream oil and gas operations
    1. Production pads and platform leg-rooms
    2. Christmas trees, chokes, production manifolds, test separators
    3. Surface safety valve and sub-surface safety valve operation
    4. Gas lift, gas injection, waterflood and miscible injection
    5. Electrical submersible pump and hydraulic actuated pump
    6. Wireline, hardline, well shut-in
    7. Production facilities: two and three phase separation, coalescer and free water knock-outs
    8. Waste water treatment and grind and inject wells
K. Natural gas production processing overview
    1. Well production and pipeline
    2. Gas condensate, natural gas liquids and water removal
    3. Amine units, dehydration units, sulfur removal unit
L. Alaska "non-oil and gas" process operations and operator duties
    1. Water and wastewater operations
    2. Power production
    3. Mining and ore processing
    4. Fish processing; retort canning and flash-freezing
M. Operate process simulator
N. Field trips to process facilities.

VII. Suggested Text

*No Author (1997). *Alpha Oil Company Operations Manual* (revised 8/2002). Soldotna, AK: Kenai Peninsula College

*No Author (1997). *Alpha Oil Company P&ID* (revised 9/2001). Soldotna, AK: Kenai Peninsula College

VIII. Bibliography

Aamodt, M. (2009). *Industrial/Organizational Psychology* (6th ed.). Clifton Park, NY: Wadsworth Publishing

Bartelt, T. (2006). *Instrumentation and Process Control* (1st ed.). Clifton Park, NY: Delmar Cengage Learning

* Bloch, H., and Soares, C. (1998). *Process Plant Machinery* (2nd ed.). Oxford, UK: Butterworth-Heinemann

Fuerstenau, M. and Han, K. (2003). *Principles of Mineral Proc*essing (1st ed.). Englewood, CO: Society for Mining Metallurgy & Exploration

Gary, J., Handwerk, G. and Kaiser, M. (2007). *Petroleum Refining: Technology and Economics* (5th ed.). Boca Raton, FL: CRC Press

Granata, L, Flick, G. and Martin, R. (2012). *The Seafood Industry: Species, Products, Processing, and Safety* (2nd ed.). Hoboken, NJ: Wiley-Blackwell

Holloway, M. and Nwaoha, C. and Onyewuenyi, O. (2012*). Process Plant Equipment: Operation, Control, and Reliability* (1st ed.). Hoboken, NJ: Wiley

Incropera, F., DeWitt, D., Bergman, T. and Lavine, A. (2006). *Fundamentals of Heat and Mass Transfer* (6th ed.). Hoboken, NJ: John Wiley & Sons

Johnson, C. (2005). *Process Control Instrumentation Technology* (8th ed.). Upper Saddle River, NJ: Prentice Hall

Kiameh, P. (2011). *Power Generation Handbook* (2nd ed.). Columbus, OH: McGraw-Hill Professional

Spellman, F. (2008). *Handbook of Water and Wastewater Treatment Plant Operations* (2nd ed.). Boca Raton, FL: CRC Press

Speegle, M. (2006). *Process Technology Plant Operations* (1st ed.). Clifton Park, NY: Delmar, Cengage Learning

Leffler, W. (2008). *Petroleum Refining in Nontechnical Language* (4th ed.). Tulsa, OK: Pennwell Corporation

Napier-Munn, T., Wills, B., and revised by Staff of Julius Kruttshnitt Mineral Research Centre (2006). *Wills' Mineral Processing Technology Seventh Edition: An Introduction to the Practical Aspects of Ore Treatment and Mineral Recovery* (7th ed.). Oxford; Boston: Butterworth-Heinemann.

Raymond, M. and Leffler, W. (2005). *Oil & Gas Production in Nontechnical Language* (1st ed.). Tulsa, OK: Pennwell Corporation

Saravanamuttoo, H., Rogers, G., Cohen, H. and Straznicky, P. (2008). *Gas Turbine Theory* (6th ed.). Don Mills, ON, CA: Pearson Education Canada

Stultz, S. and Kitto, J. (2005). *Steam: Its Generation and Use* (40th ed.). Charlotte, NC: Babcock & Wilcox

(CAPT) Center for the Advancement of Process Tech (2011). *Process Operations* (1st ed.). Upper Saddle River, NJ: Prentice Hall

*Classic Text in Field

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
KP KPC	No Division Code	Business & Industry

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
PRT	A250	None	3.0	(3+0)

6. Complete Course Title
Process Troubleshooting

Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☒ Major
- ☐ Other Fees (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall /2013 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Process Technology A.A.S.	229	1/8/2013	Henry W. Haney
2. Petroleum Technology Undergraduate Certificate	227	1/8/2013	Henry W. Haney
3. Industrial Process Instrumentation A.A.S	224	1/8/2013	Henry W Haney

Initiator Name (typed): Henry W. Haney Initiator Signed Initials: _____ Date:_____

13b. Coordination Email Date: 1/8/2013
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/8/2013

14. General Education Requirement *Mark appropriate box:*
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Introduces the concept of troubleshooting, analyzes how instrumentation such as indicators, variables, and controllers can be used effectively in troubleshooting procedures and develops troubleshooting skills that can be used effectively throughout the process industry.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
PRT A230 and PRT A144 or con-current enrollment	None	None

16d. Other Restriction(s)
☐ College ☒ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Admitted students in Process Technology A.A.S. major, Petroleum Technology Undergraduate Certificate program or Industrial Process Instrumentation A.A.S. major.

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update curriculum to reflect current technology, update prerequisites, update major restriction, update registration restrictions and coordinate course with other courses within the program.

Initiator (faculty only) Date
Henry W. Haney
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chairperson Date

☐ Approved
☐ Disapproved
Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved
Provost or Designee Date

University of Alaska Anchorage
Kenai Peninsula College
Course Content Guide

I. Initiation Date: January 8, 2013

II. Course Information

A.	College:	Kenai Peninsula College
B.	Course Title:	Process Troubleshooting
C.	Course Subject/Number:	PRT A250
D.	Credit:	3.0 credits
E.	Contact Time:	3+0
F.	Grading Information:	A-F
G.	Course Description:	Introduces the concept of troubleshooting, analyzes how instrumentation such as indicators, variables, and controllers can be used effectively in troubleshooting procedures and develops troubleshooting skills that can be used effectively throughout the process industry.
H.	Status of course relative to degree or certificate programs:	Required for Process Technology A.A.S. Required for Petroleum Technology Undergraduate Certificate.
I.	Lab Fee:	Yes
J.	Coordination:	UAA Faculty Listserv, Process Technology, Petroleum Technology and Industrial Process Instrumentation.
K.	Course Prerequisite:	PRT A230 and PRT A144 or con-current enrollment
L.	Registration Restrictions:	Admitted students in Process Technology A.A.S. major, Petroleum Technology Undergraduate Certificate program or Industrial Process Instrumentation A.A.S. major or Instructor permission.

III. Course Level Justification

This course teaches specific troubleshooting procedures, tools and methods commonly understood to be most effective within the overall process industry.

IV. Instructional Goals

The instructor will:

A. Explain effective process troubleshooting procedures.
B. Define the types of tools and methods used in process troubleshooting.
C. Discuss the function of process variables, the interrelationship between them, and the meaning of the measured value of each.
D. Discuss process indicators and control loops; identifying their function, components and their role in troubleshooting.
E. Describe how process troubleshooting is applied in a variety of control systems.

V. Student Learning Outcomes

The student will be able to:	One or more of the following assessment methods will be used:
A. Use appropriate troubleshooting tools and procedures.	Homework and tests
B. Establish the operating parameters of each piece of equipment.	Simtronics simulator, homework and tests
C. Establish the function and operating parameters of all controls and control loops.	Simtronics simulator, homework and tests
D. Describe the potential outcome for a change in operating parameters.	Simtronics simulator, homework and tests
E. Describe a combination of operating parameters that would give rise to the abnormal results observed in a problem situation.	Homework and tests
F. Apply the troubleshooting process to solve operational problems in a variety of process systems.	Simtronics simulator, homework and tests

VI. Course Content Outline

A. Process variables
   1. Definitions and examples
   2. Interrelationship between variables
   3. Measured value or values

B. Process indicators
   1. Function
   2. Components

C. Control Loop
   1. Components
   2. Function of components

D. The role of indicators and controllers in troubleshooting

E. Troubleshooting tools
   1. List and define
   2. Explain uses

F. Troubleshooting process
   1. Explanation of each step
   2. Use of tools at each step
   3. Relationship of parameters between steps
   4. Relevant process data

G. Application of troubleshooting process to given situations selected from the following Simtronics Simulator Models:
   1. Pump
   2. Compressor

3. Heat Exchanger
4. Cooling Tower
5. Boiler
6. Furnace
7. Distillation
8. Reactor
9. Separation
10. Multivariable
11. Glycol Dehydration
12. Amine

VII. Suggested Text

Thomas, C. (2008). *Process Technology Troubleshooting* (1st ed.). Clifton Park, NY: Delmar Cengage Learning

VIII. Bibliography

Garrett, L. (2003*). Process Technology Troubleshooting* (1st ed.). Upper Saddle River, NJ: Prentice Hall

Lieberman, N. (2009). *Troubleshooting Process Operations* (4th ed.). Tulsa, OK: PennWell Corporation

Smith, C. (2009). *Practical Process Control: Tuning and Troubleshooting* (1st ed.). Hoboken, NJ: Wiley-AIChE

Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College	1b. Division	1c. Department
KP KPC	No Division Code	Business & Industry

2. Course Prefix	3. Course Number	4. Previous Course Prefix & Number	5a. Credits/CEUs	5b. Contact Hours (Lecture + Lab)
PRT	A255	None	1	(1+0)

6. Complete Course Title
Quality Concepts for the Process Industry
Qual Concepts for Process Ind
Abbreviated Title for Transcript (30 character)

7. Type of Course ☒ Academic ☐ Preparatory/Development ☐ Non-credit ☐ CEU ☐ Professional Development

8. Type of Action: ☐ Add *or* ☒ Change *or* ☐ Delete

If a change, mark appropriate boxes:

- ☐ Prefix
- ☐ Credits
- ☐ Title
- ☐ Grading Basis
- ☒ Course Description
- ☐ Test Score Prerequisites
- ☐ Other Restrictions
  - ☐ Class ☐ Level
  - ☐ College ☐ Major
- ☐ Other (please specify)
- ☐ Course Number
- ☐ Contact Hours
- ☐ Repeat Status
- ☐ Cross-Listed/Stacked
- ☒ Course Prerequisites
- ☐ Co-requisites
- ☒ Registration Restrictions

9. Repeat Status No # of Repeats Max Credits

10. Grading Basis ☒ A-F ☐ P/NP ☐ NG

11. Implementation Date semester/year
From: Fall/2013 To: /9999

12. ☐ Cross Listed with
☐ Stacked with
Cross-Listed Coordination Signature

13a. Impacted Courses or Programs: List any programs or college requirements that require this course.

Please type into fields provided in table. If more than three entries, submit a separate table. A template is available at www.uaa.alaska.edu/governance.

Impacted Program/Course	*Catalog Page(s) Impacted*	*Date of Coordination*	*Chair/Coordinator Contacted*
1. Process Technology AAS	229	1/8/2013	Henry W Haney
2.			
3.			

Initiator Name (typed): Henry W Haney Initiator Signed Initials: _____ Date: _____

13b. Coordination Email Date: 1/8/2013
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison Date: 1/8/2013

14. General Education Requirement
Mark appropriate box:
☐ Oral Communication ☐ Written Communication ☐ Quantitative Skills ☐ Humanities
☐ Fine Arts ☐ Social Sciences ☐ Natural Sciences ☐ Integrative Capstone

15. Course Description *(suggested length 20 to 50 words)*
Examines quality concepts, tools, and methods used in the process industry and covers the effectiveness of their implementation and continued use. Investigates root cause analysis problem solving techniques. Examines methods necessary to facilitate effective teams and teamwork interaction.

16a. Course Prerequisite(s) *(list prefix and number)*	16b. Test Score(s)	16c. Co-requisite(s) *(concurrent enrollment required)*
PRT A230 or concurrent enrollment	None	None

16d. Other Restriction(s)
☐ College ☒ Major ☐ Class ☐ Level

16e. Registration Restriction(s) *(non-codable)*
Admitted students in Process Technology A.A.S. major.

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
Update curriculum to reflect current use within the process industry, update prerequisites, update registration restrictions and coordinate course with other courses within the program.

Initiator (faculty only) Date
Henry W Haney
Initiator (TYPE NAME)

☐ Approved
☐ Disapproved
Department Chairperson Date

☐ Approved
☐ Disapproved
Curriculum Committee Chairperson Date

☐ Approved
☐ Disapproved
Dean/Director of School/College Date

☐ Approved
☐ Disapproved
Undergraduate/Graduate Academic Board Chairperson Date

☐ Approved
☐ Disapproved
Provost or Designee Date

University of Alaska Anchorage
Kenai Peninsula College
Course Content Guide

I. Initiation Date: January 8, 2013

II. Course Information

A.	College:	Kenai Peninsula College
B.	Course Title:	Quality Concepts for the Process Industry
C.	Course Subject/Number:	PRT A255
D.	Credit:	1.0 credits
E.	Contact Time:	1+0
F.	Grading Information:	A-F
G.	Course Description:	Examines quality concepts, tools, and methods used in the process industry and covers the effectiveness of their implementation and continued use. Investigates root cause analysis problem solving techniques. Examines methods necessary to facilitate effective teams and teamwork interaction.
H.	Status of course relative to degree or certificate programs:	Required for Process Technology A.A.S.
I.	Lab Fee:	No
J.	Coordination:	UAA Faculty Listserv, Process Technology.
K.	Course Prerequisite:	PRT A230 or concurrent enrollment.
L.	Registration Restrictions:	Admitted students in Process Technology A.A.S. major or Instructor permission.

III. Course Level Justification

This course teaches both effective and practical use of quality concepts, teamwork techniques and root cause analysis procedures used in the process industry.

IV. Instructional Goals

The instructor will:

A. Discuss the history of the quality movement and its place in the process industry today.
B. Discuss the economic cost of quality.
C. Explain the concept and importance of external and internal customers.
D. Describe the concept of process variability in relation to process capability.
E. Cover quality tools; their effectiveness and use in the process industry.
F. Review Statistical Process Control and its use in process variation reduction.
G. Examine methods of root cause analysis.
H. Discuss teams and team dynamics that produce quality results.
I. Describe quality methods for organizing people and projects.

V. Student Learning Outcomes

The student will be able to:	One or more of the following assessment methods will be used:
A. Explain how economic performance is affected by quality.	Homework and tests
B. Explain the relationship between variability and capability within a process operation.	Homework and in-class workshop
C. Identify external and internal customers and their importance in a quality operation.	Homework and tests
D. Explain how to function as an effective member of a team.	Homework and in-class workshop
E. Identify types of organizational tools and charts that can be used effectively to increase quality in the process industry.	Research Paper and tests
F. Identify variation through statistical measurement.	Research Paper and tests
G. Explain root cause analysis techniques.	Homework and tests

VI. Course Content Outline

A. The history of the quality movement
B. External and internal customers
C. Quality: people, safety and process operations
D. Economic cost of quality
E. Variability and it's relation to capability
F. Quality tools and controls
    1. TQM (total quality management)
    2. PDCA – (plan, do, check, act)
    3. Histograms
    4. Pareto chart
    5. Brainstorming
    6. Ishigawa (Fishbone) chart
    7. Flow chart
    8. Trend chart
    9. Scatter chart
G. SPC (statistical process control)
    1. Concept of Six Sigma
H. Quality organizational tools
    1. Gantt Charts
    2. RACI Charts
    3. PERT Diagrams

I. Root cause analysis
    1. Fishbone Chart
    2. Kepner-Tregoe Basic
    3. Five Why's
    4. Apollo system
    5. Digraph interrelationship
    6. Process tree
    7. Time line analysis
J. Quality teams and team dynamics
    1. Hazard Operability Study

VII. Suggested Text

Speegle, M. (2010). *Quality Concepts for the Process industry* (2nd ed.). Clifton Park, NY: Delmar Cengage Learning.

Brassard, M. and Ritter, D. (2010). *Memory Jogger 2* (2nd ed.). Salem, NH: Goal/QPC

VIII. Bibliography

Floyd, R. (2010). *Liquid Lean: Developing Lean Culture in the Process Industries* (1st ed.). Abingdon, Oxon, UK: Productivity Press

Fryman, M. (2001). *Quality and Process Improvement* (1st ed.). Clifton Park, NY: Delmar Cengage Learning

(CAPT) Center for the Advancement of Process Tech (2010). *Process Quality* (1st ed.). Upper Saddle River, NJ: Prentice Hall