I. Roll
() Alberta Harder (FS)  () Vacant (CBPP)  () Kevin Keating (LIB)
() Utpal Dutta (FS)  () Vacant (COH)  () Rick Adams (KPC)
() Francisco Miranda (Chair)  () Vacant (COH)  () Sheri Denison (Mat-su)
() Barbara Harville (CAS)  () Irasema Ortega (COE)  () Jared Griffin (Kod)
( ) Vacant (CAS)  () Carrie King (CTC)  () Christina Stuive (ADV)
( ) Vacant (CAS)  () Jeff Hoffman (SOE)

Ex-Officio Members
() Susan Kalina
() Lora Volden
() Scheduling and Publications

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- Francisco Miranda
B. GERC

VI. Program/Course Action Request- Second Readings

VII. Program/Course Action Request- First Readings
Chg  Associate of Applied Science, Process Technology (pg. 5-15)
Add  Bachelor of Science, Mechanical Engineering (pg. 16-33)
Add  Bachelor of Science, Electrical Engineering (pg. 34-72)
Add  Bachelor of Science, Computer Systems Engineering (pg. 73-87)
Chg  EDEL A205 Becoming an Elementary Teacher (3 cr)(2.5+1.5)(pg. 88-93)
Chg  EDEL A206 Introduction to Assessment in Elementary Education
(2 cr)(2+0)(pg. 94-99)
Chg  EDEL A327 Teaching Social Studies in Elementary Schools
(3 cr)(3+0)(pg. 100-105)
Chg  EDEL A428 Teaching Science in Elementary Schools (3 cr)(3+0)(pg. 106-111)
Chg  Bachelor of Arts in Elementary Education (BAEL)(pg. 112-130)
Add COHI A478 Interdisciplinary Exploration of Alaska’s Critical Behavioral Health Issues (stacked with COHI A678)(3 cr)(3+0)(pg. 131-144)

VIII. Old Business

IX. New Business

X. Informational Items and Adjournment:
I. Roll
(x) Alberta Harder (FS)  ( ) Vacant (CBPP)  (x) Kevin Keating (LIB)
(x) Utpal Dutta (FS)  ( ) Vacant (COH)  (x) Rick Adams (KPC)
(x) Francisco Miranda (Chair)  ( ) Vacant (COH)  (x) Sheri Denison (Mat-su)
(x) Barbara Harville (CAS)  (x) Irasema Ortega (COE)  (x) Jared Griffin (Kod)
( ) Vacant (CAS)  ( ) Carrie King (CTC)  (x) Christina Stuive (ADV)
( ) Vacant (CAS)  (x) Jeff Hoffman (SOE)

Ex-Officio Members
(e) Susan Kalina
(x) Lora Volden
(x) Scheduling and Publications

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

III. Approval of Meeting Summary (pg. 2-3)
Approved

IV. Administrative Report
A. Vice Provost for Undergraduate Academic Affairs Susan Kalina

B. University Registrar Lora Volden
New federal regulations which are tied into federal funding and student financial aid have come forward. Non-term and non-standard term courses in relation to courses that do not fit into the standard 15 week semesters. In regards to offering condensed courses if course can be used to meet program requirements, then it makes it non-standard and these courses will need to be repackaged. Ramifications could include not being able to offer financial aid for those courses.

V. Chair’s Report
A. UAB Chair- Francisco Miranda

B. GERC
Sandy presented a Faculty Senate approved document to the committee which clearly states that GER courses cannot fall in two categories (the document was the Integrative Capstone Proposal that was approved at Faculty Senate in April 2004). Will send out a blanket statement to the faculty listserv to gain feedback.

VI. Program/Course Action Request- Second Readings
VII. Program/Course Action Request - First Readings
Chg BA A462 Strategic Management (3 cr)(3+0)(pg. 4-10)
Waive first, approved for second

VIII. Old Business
A. Motion: The UAB moves to support the GERC in adopting the GELO outcomes as overall general education values that are supported by UAA’s General Education outcomes.
Incorporating this concept into the catalog, as well as other modifications to the general education catalog copy, will be worked on by Sandy and Susan Kalina in the coming months in an effort to make the information more user-friendly
Motion to approve: Utpal Dutta
2nd: Kevin Keating
Unanimously Approved

IX. New Business
A. Registration Requirements for MATH A430 (pg. 11)
Please see the attached memo for approval signatures
Due to an error during the curriculum process, our MATH A430 course, Concepts of Topology, now requires a prerequisite course (MATH A324) with a co-requisite course (MATH A303). The intended preparation is:
- MATH A324 as prerequisite
- MATH A303 either as a prerequisite or as a co-requisite

We request this change be permitted to increase the number of students eligible to take the class before graduation. Our registrar requests your approval of this change to the catalog before any update is made.

Motion to approve: Alberta Harder
2nd: Kevin Keating
Unanimously Approved

X. Informational Items and Adjournment: 2:41pm
TO: Elisha Baker, Provost and Vice Chancellor of Academic Affairs
THRU: Francisco Miranda, Chairperson, Undergraduate Academic Board
THRU: Gary Turner, Director, Kenai Peninsula College
THRU: Jane Fuerstenau, Chairperson, Academic Review Board, KPC
FROM: Henry W. Haney, Co-Chair, Business & Industry Department, KPC
DATE: November 20, 2014
RE: Program Action Request (PAR) – AAS Process Technology

Provost Baker;

I am initiating a Program Action Request to establish a Pre-Major for the Associate of Applied Science Process Technology degree offered through the Kenai Peninsula College.

This is being done for the following reasons:
   1. In response to enrollment pressure;
   2. In response to an inadequate and/or inconsistent knowledge base necessary for program success;
   3. In response to students who are being placed in "pending status" for admission due to low test scores or academic standing, and are as a consequence denied financial aid.

The Pre-Major will identify required pre-requisites, set minimum grade parameters for those pre-requisites, establish requirements for full program admission status, and allow students who are pursuing the AAS-PRT to receive financial aid while they are qualifying for full admission to the PRT program. The following is a justification for this action.

Henry

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The following changes are proposed to establish a Pre-Major for AAS Process Technology

Proposed Program Admission Requirements:
   1. **Unchanged** → Satisfy the Application and Admission Requirements for Associate Degree Programs
   2. **Add** → Completion of an advising session with PRT faculty advisor

   **Rationale** → The advising session as presently listed in the current catalog is not a part of the overall requirements for admission. The advising session specifically requires students to meet with a faculty advisor in the Process Technology program prior to registering for Process Technology courses. With the Pre-Major, the advising session would become one of the overall admission requirements. Students would be required to meet with a faculty advisor in the Process Technology program prior to application for admission in pre-major or major status. This will facilitate the following:
      a. Assignment of a PRT advisor
      b. Review of student’s academic record
      c. Overview of proposed academic strategy and what is necessary for student success to complete an AAS Process Technology degree
3. The following courses must be completed with a grade of “C” or better
   a. ENGL A111 Introduction to Composition or any course fulfilling Written
      Communication Skills for the AAS General Course Requirement.
   b. MATH A105 Intermediate Algebra or any higher level GER mathematics course.
   c. PRT A101 Introduction to Process Technology.
   d. PHYS A115/L Physical Science, or PHYS A123/L Basic Physics I or completion of
      higher level Physics.

Rationale → Current English pre-requisite for admission is listed as “Placement for reading at
the ENGL A111 level or above.” This current pre-requisite is weak and does not consider
necessary foundational writing knowledge and skills. Such training is especially important with
consideration given to the increasing complexity of such written material as safety and
environmental instructions and reports, equipment operating instructions, and incident
investigations. Accurate understandable writing skills are becoming increasingly important in
the Process Industry. A pre-major requirement of “completion of ENGL A111, with a minimum
grade of C or better” would establish a student knowledge base necessary for the second
required English course, and the required PRT core courses.

Rationale → The current Math pre-requisite for admission is “Placement at the MATH A105
level or above, equivalent course, or appropriate ACT/SAT scores.” Requiring as a minimum
only placement at the MATH A105 level is not as strong as it should be for a pre-requisite. It is
necessary for students to have completed MATH 105 with a “C” or better grade so as to verify
experiential base knowledge and computational ability. This especially becomes important
when recognizing that Math concepts permeate Process Technology at all levels, and that
proven Math knowledge and ability is assumed by instructors when teaching Process
Technology core classes. A pre-major requirement of “completion of MATH A105, or a higher
level MATH, or placement at a higher level” would establish a solid student knowledge base
necessary for demonstrated success when taking the required PRT core courses.

Rationale → Introduction to Process Technology provides a basic broad overview of what
Process Technology is. This course shows students what PRT is, and what they are entering
into. Completion of this course will enable students to decide if they are going to continue
pursuing the AAS-PRT degree.

Rationale → The Pre-major requirement of Physical Science, or Basic Physics would provide
the foundational scientific concepts necessary for students who will be entering into PRT core
courses. These concepts are a necessity for a student to achieve success in the PRT field of
study. The majority of students entering the PRT program demonstrate a weakness in Physics
and Physics concepts. This is universal whether a student is recently graduated or is returning
to school in middle-age. Physics consequently can be intimidating and is frequently avoided
and not taken until the very last semester of a student’s course of study. This needs to be
rectified especially with consideration that Physics concepts are in all aspects of Process
Technology. A pre-major requirement of “completion of PHYS A115/L Physical Science, or
PHYS A123/L Basic Physics I or completion of higher level Physics” will ensure students are
adequately prepared to learn the core concepts of PRT

4. (required form) Completion of Change of Major from Pre-Major to Major status
   signed by PRT faculty advisor

++++++++++++++++++++++--------------------------------------------
Below is a very basic example of a typical schedule incorporating the proposed Pre-Major. Note: additional semester(s) would be necessary for students who are unable to meet placement requirements for ENG A111 or MATH A105.

**Admission to Pre-Major status program**

On an as needed basis – requiring one or more semesters
Selected courses PRPE A82, PRPE A86, PRPE A108 to obtain placement into ENG A111
Selected courses MATH A054 and MATH A055 to obtain placement into Math A105

**1st year Fall Semester**
- MATH A105 Intermediate Algebra with a minimum of grade of “C” (3 credits)
- ENGL A111 Methods of Written Communication with a minimum of grade of “C” (3 credits)
- PRT A101 Introduction to Process Technology with a minimum of grade of “C” (3 credits)
- PHYS A115/L Physical Science or PHYS A123/L Basic Physics I with a minimum of grade of “C” (4 credits)
- PRT A110 – Intro to Occupational Safety, Health & Environmental Awareness (3 credits)
Total - 16 credits

**Admission to Major status program**

**1st year Spring Semester**
- ENGL A212 - Technical Writing (3 credits)
- PRT A130 – Process Technology I: Equipment (4 credits)
- CIS A105 (or A110) Introduction to PC Computers Applications (3 credits)
- PRT A140 – Industrial Process Instrumentation I (3 credits)
- Applied Elective (3 credits)
Total - 16 credits

**2nd year Fall Semester**
- COMM A111 - Fundamentals of Oral Communication (3 credits)
- PRT A144 - Industrial Process Instrumentation II (3 credits)
- PRT A230/L – Process Technology II: Systems + Lab (4 credits)
- CHEM A103/L – Survey of Chemistry + Lab (4 credits)
Total - 14 credits

**2nd year Spring Semester**
- PRT A231/L – Process Technology III: Operations (4 credits)
- PRT A250 - Process Troubleshooting (3 credits)
- PRT A255 – Quality Concepts for the Process Industry (1 credit)
- Applied Elective (3 credits)
- Applied Elective (3 credits)
Total - 14 credits
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  
KP KPC  

1b. Department  
Business and Industry  

2. Complete Program Title/Prefix  
Process Technology AAS  

3. Type of Program  
Choose one from the appropriate drop down menu:  
Undergraduate:  
Associate of Applied Science  
Graduate:  
CHOOSE ONE  

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

4. Type of Action:  
PROGRAM  
☐ Add  
☒ Change  
☐ Delete  

PREFIX  
☐ Add  
☐ Change  
☐ Inactivate  

5. Implementation Date (semester/year)  
From: Fall/2015  
To: 20999  

6a. Coordination with Affected Units  
Department, School, or College: CTC  
Initiator Name (typed): Henry W Haney  
Initiator Signed Initials:  
Date:  

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu)  
Date: 9-3-14  

6c. Coordination with Library Liaison  
Date: 9-3-14  

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

8. Justification for Action  
To manage admissions and improve student success rate in program.  

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

Date  

☐ Approved  
Dean/Director of School/College  
Date  

☐ Disapproved  

☐ Approved  
Undergraduate/Graduate Academic Board Chair  
Date  

☐ Disapproved  

☐ Approved  
Provost or Designee  
Date  

☐ Disapproved  

☐ Approved  
Department Chair  
Date  

☐ Disapproved  

☐ Approved  
College/School Curriculum Committee Chair  
Date  

☐ Disapproved  

PROCESS TECHNOLOGY

Kenai Peninsula College (KPC), KRC (Kenai River Campus)
156 College Road, Soldotna, Alaska 99669, (907) 262-0300, (877) 262-0330
www.kpc.alaska.edu

Anchorage Extension Site (AES)
University Center (UC), Room 118, 3901 Old Seward Highway
Anchorage, AK 99503, (907) 786-6413

Advising for this program is only available from the Process Technology faculty at Kenai Peninsula College. For the Kenai River Campus, please call (907) 262-0344 or (877) 262-0330 for more information. For the KPC Anchorage Extension Site, call 786-6413.

The Associate of Applied Science degree in Process Technology is coordinated by Kenai Peninsula College and is delivered collaboratively through UAA and UAF.

This degree is designed to provide education/training that will enable individuals to obtain employment in the industries that use and control mechanical, physical or chemical processes to produce a final product. In Alaska this includes the process industries of oil and gas production, chemical manufacturing, petroleum refining; power generation and utilities, water and wastewater treatment, and seafood and other food processing.

Associate of Applied Science, Process Technology

The Process Technology program is offered only at Kenai Peninsula College KRC (Kenai River Campus) and AES (Anchorage Extension site).

The graduates of the UAA Process Technology program will have the ability to:

1. Maintain a safe work area: enforce safety regulations, follow safe operating procedures, maintain effective communications with personnel and identify workplace hazards.
2. Monitor area operations: to monitor equipment for efficiency and integrity, identify process problems and perform trend analyses.
3. Maintain process parameters: perform process adjustments, start up process equipment, shut down process equipment.
5. Maintain regulatory compliance: to report recordable incidents, record discharge reports, record regulatory data, maintain current licensing, participate in internal/external audits and comply with HAZCOM requirements.
6. Coordinate maintenance activities: generate work requests, develop safe out procedures, schedule maintenance activities, prepare equipment for maintenance activity and issue work permits.
7. Perform administrative activities: produce required reports, record logbook entries and perform personnel evaluations.
8. Assess and recognize the need for continued professional development: participate in job related training and utilize self-study resources.

Admission Requirements

Students who apply to the Process Technology AAS are admitted in a pre-major status. The process for advancement to major status requires completion of the following steps:

1. Complete an advising session with a PRT faculty advisor.
2. Complete the following courses with a grade of “C” or better:
   a. ENGL A111 Introduction to Composition (3) or any course fulfilling Written Communication Skills (3) for the AAS General Course Requirement.
   b. MATH A105 Intermediate Algebra (3) or any higher level GER mathematics course (3–4).
   c. PRT A101 Introduction to Process Technology (3).
   d. PHYS A115/L Physical Science with Lab (4) or PHYS A123/L Basic Physics I with Lab (4).
3. Completion of Change of Major Form from Pre-Major to Major status, signed by PRT faculty advisor.
Advising

Students are encouraged to meet with a faculty advisor in the Process Technology program prior to registering for Process Technology courses. Advising is required to move to major status and to complete the AAS in Process Technology.

Graduation Requirement

In order to receive the AAS in Process Technology, students must achieve a grade of “C” or better in all courses required for the degree.

General University Requirements

Complete the General University and the Associate of Applied Science Degree Course Requirements located at the beginning of this chapter.

General Course Requirements

Complete the Associate of Applied Science General Course Requirements (15 credits) located at the beginning of this chapter. (Completion of Math A105 or A107 and PHYS A115 or A123 fulfill the requirement of 6 credits of mathematics, humanities, social science, or natural sciences)

General Requirements

1. **Math:**
   - MATH A105* Intermediate Algebra (3)
   - MATH A107* College Algebra (4)
   *Or any MATH course for which MATH A105 or MATH A107 is a prerequisite.

2. **Computer Literacy:**
   - CIS A105 Introduction to Personal Computers and Application Software (3)
   - CIS A110 Computer Concepts in Business (3)

3. **Chemistry:**
   - CHEM A103/L Survey of Chemistry (or higher level chemistry) with laboratory (4)

4. **Physics:**
   - PHYS A115/L Physical Science with Laboratory (4)
   - PHYS A123/L Basic Physics I with Laboratory (4)

Major Requirements

1. Complete the following courses (28 credits):
   - PRT A101 Introduction to Process Technology 3
   - PRT A110 Introduction to Process Safety, Health and Environmental Awareness 3
   - PRT A130 Process Technology I: Equipment 4
   - PRT A140 Industrial Process Instrumentation I 3
   - PRT A144 Industrial Process Instrumentation II 3
   - PRT A230/L Process Technology II: Systems 4
   - PRT A231/L Process Technology III: Operations 4
   - PRT A250 Process Troubleshooting 3
   - PRT A255 Quality Concepts for the Process Industry 1
2. Approved Applied Technology Electives:

All 9 credits must be chosen with advisor approval. For example, they may be chosen from:

- Electronics
- Environmental Technology
- Industrial Technology
- Industrial Instrumentation
- Mining Technology
- Occupational Safety and Health
- Petroleum Technology
- Process Technology
- Power Generation
- Wastewater Technology
- Technical Internship

3. A total of 60 credits is required for the degree.

FACULTY

Rick Adams, Assistant Professor, rhadams@kpc.alaska.edu
Henry Haney, Assistant Professor, hwhaney@kpc.alaska.edu
Jeff Laube, Assistant Professor, jdaube@kpc.alaska.edu
Darrell Ellis, Assistant Professor, dwellis@kpc.alaska.edu
Tammy Farrell, Assistant Professor, tfarre3@kpc.alaska.edu
Rich Kochis, Assistant Professor, rkochis@kpc.alaska.edu
PROCESS TECHNOLOGY

Kenai Peninsula College (KPC), KRC (Kenai River Campus)
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This degree is designed to provide education/training that will enable individuals to obtain employment in the industries that use and control mechanical, physical or chemical processes to produce a final product. In Alaska this includes the process industries of oil and gas production, chemical manufacturing, petroleum refining; power generation and utilities, water and wastewater treatment, and seafood and other food processing.

Associate of Applied Science, Process Technology

The Process Technology program is offered only at Kenai Peninsula College KRC (Kenai River Campus) and AES (Anchorage Extension site).

The graduates of the UAA Process Technology program will have the ability to:

1. Maintain a safe work area and enforce safety regulations, follow safe operating procedures, maintain effective communications with personnel and identify workplace hazards;
2. Monitor area operations: monitor equipment for efficiency and integrity, identify process problems and perform trend analyses;
3. Maintain process parameters: perform process adjustments, start up process equipment and shut down process equipment;
4. Maintain emergency response preparedness: respond to emergencies, effectively participate in emergency response drills and conduct periodic review of emergency response procedures;
5. Maintain regulatory compliance: report recordable incidents, record discharge reports, record regulatory data, maintain current licensing, participate in internal/external audits and comply with HAZCOM requirements;
6. Coordinate maintenance activities: generate work requests, develop safe-out procedures, schedule maintenance activities, prepare equipment for maintenance activity and issue work permits;
7. Perform administrative activities: produce required reports, record logbook entries and perform personal evaluations;
8. Prepare for and understand Assess and recognize the need for continued professional development; participate in job related training and utilize self-study resources.

Admission Requirements

Students who apply to the Process Technology AAS are admitted in a pre-major status. The process for advancement to major status requires completion of the following steps:

1. Complete an advising session with a PRT faculty advisor;
2. Complete university Admissions Requirements for Associate’s Degrees found in Chapter 2 the following courses with a grade of “C” or better:
   a. ENGL A111 Introduction to Composition (3) or any course fulfilling Written Communication Skills (3) for the AAS
   General Course Requirement
   b. MATH A105 Intermediate Algebra (3), or any higher level mathematics, (3-4).
3. Communication and General Requirements

1. General University Requirements

Students must ensure to meet with a faculty advisor in the Process Technology program prior to registering for Process Technology courses. Advising is required to move to major status and to complete the AAS in Process Technology.

2. Graduation Requirements

In order to receive the AAS in Process Technology, students must achieve a grade of “C” or better in all courses required for the degree.

3. General Course Requirements

Complete the Associate of Applied Science General Course Requirements (15 credits) located at the beginning of this chapter.

4. Communication and General Requirements

1. Oral Communication Skills (One of the following)
   - COMM A111 Fundamentals of Oral Communication (3)
   - COMM A233 Small Group Communication (3)
   - COMM A237 Interpersonal Communication (3)
   - COMM A241 Public Speaking (3)

2. Written Communication Skills
   - ENGL A111 Introduction to Composition (3)
   - ENGL A211 Academic Writing About Literature (3)
   - ENGL A212 Technical Writing (3)
   - ENGL A213 Writing in the Social and Natural Sciences (3)
   - ENGL A214 Expository Writing (3)
   - CIOS A260A Business Communications (3)

3. Support Courses
   - MATH A105 Intermediate Algebra (3)
   - MATH A107 College Algebra (4)
   - *Or any MATH course for which MATH A105 or MATH A107 is a prerequisite.

4. Computer Literacy
   - CIS A105 Introduction to Personal Computers
and Application Software (3)

or

CIS A110 Computer Concepts in Business (3)

5. Chemistry 
   CHEM A103/L Survey of Chemistry (or higher level chemistry) with laboratory (4)

6. Physics 
   PHYS A115/L Physical Science with Laboratory I for Technicians (4)
   CHEM A103/L Survey of Chemistry (or higher level) (4)
   PHYS A123/L Basic Physics I with Laboratory (4)

6.7. Social Sciences or Humanities 
   Elective (3)

Major Requirements

1. Complete the following courses (28 credits):

   PRT A101 Introduction to Process Technology 3
   PRT A110 Introduction to Process Safety, Health and Environmental Awareness 3
   PRT A130 Process Technology I: Equipment 4
   PRT A140 Industrial Process Instrumentation I 3
   PRT A144 Industrial Process Instrumentation II 3
   PRT A230/L Process Technology II: Systems 4
   PRT A231/L Process Technology III: Operations 4
   PRT A250 Process Troubleshooting 3
   PRT A255 Quality Concepts for the Process Industry 1

2. Approved Applied Technology Electives 9

   All 9 credits must be chosen with advisor approval. For example, they may be chosen from:
   - Electronics
   - Environmental Technology (Wastewater) Mining Technology
   - Industrial Process Technology
   - Instrumentation
   - Mining Technology
   - Occupational Safety and Health
   - Petroleum Technology
   - Process Technology
   - Power Generation
   - Technical Internship

3. A total of 60 credits is required for the degree.

FACULTY

Rick Adams, Assistant Professor, rrick.adams@uaa.alaska.edu
Allen Houtz, Professor, afinchu@uaa.alaska.edu
12 November 2014

Dear Provost Baker:

The Mechanical Engineering Department faculty is proposing that our current baccalaureate degree offering, the Bachelor of Science in Engineering, concentration Mechanical (BSE/ME) degree, be replaced with a Bachelor of Science in Mechanical Engineering (BSME) degree. Two other concentrations are offered under the BSE degree, one in Electrical Engineering and one in Computer Systems Engineering. The ME, EE and CSE concentrations offer separate curricula with few common courses, are administered by faculty in three separate departments and are separately accredited by our external accrediting body ABET.

The rationale for the proposed change is administrative difficulties and confusion caused by the BSE/ME designation. For example, since the ME Department does not have its own bachelor’s degree program, its students are difficult to track on Banner. This proposal is not for a program that will be new to UA, nor will it involve making substantive changes to anything other than the title of the degree conferred to students at the completion of an established course of study. Changes are not being proposed to the curriculum, student learning outcomes, faculty or staff workloads, number of faculty and staff, or the level of resourcing currently provided to the ME Department.

Thank you for your consideration. Please feel free to contact me at any time if you have any questions.

Sincerely,

Dr. Jennifer McFerran Brock
Associate Professor and Chair
Department of Mechanical Engineering
jmcferran@uaa.alaska.edu
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
EN SOENGR

1b. Department
ME

2. Complete Program Title/Prefix
Mechanical 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
☒ Add
☐ Change
☐ Delete

PREFIX
☐ Add
☐ Change
☒ Inactivate

5. Implementation Date (semester/year)
From: Fall/2015 To: 9/9999

6a. Coordination with Affected Units
Department, School, or College: ME
Initiator Name (typed): Jennifer Brock
Initiator Signed Initials: __________ Date: __________

6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) Date: 11/12/2014

6c. Coordination with Library Liaison Date: 11/12/2014

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

8. Justification for Action
The Bachelor of Science in Engineering program is being split into three separate degree programs. By doing so, the College of Engineering is eliminating confusion on the part of students, parents, and employers. Students who complete the Mechanical Engineering program will earn a Bachelor of Science in Mechanical Engineering degree.

Initiator (faculty only)
Jennifer Brock
Initiator (TYPE NAME)

Approved Disapproved
Date
Dean/Director of School/College

Approved Disapproved
Department Chair

Approved Disapproved
Undergraduate/Graduate Academic Board Chair

Approved Disapproved
College/School Curriculum Committee Chair

Approved Disapproved
Provost or Designee
Mechanical Engineering

The Department of Mechanical Engineering offers a Bachelor of Science in Mechanical Engineering (BSME), and minors in General Engineering and Mechanical Engineering. The program is a fully accredited Bachelor of Science in Mechanical Engineering degree program. Students are introduced to principles of mathematics, chemistry and physics during the first two years of study. The third year of study largely focuses on courses that apply these basic sciences in an engineering context. During the fourth year students take more advanced courses including technical electives that are more focused on mechanical engineering analysis and design. The program focuses on the design of systems related to transfer of thermal and mechanical energies where topics such as machine design and thermal systems, including heating, ventilation, air conditioning, and refrigeration (HVAC&R), are covered in detail. Students have the opportunity for hands-on experience in a state-of-the-art manufacturing lab with rapid prototyping through three dimensional printers and computer numerical control (CNC) machining. Students also take courses on written and oral communication, humanities, social sciences and fine arts to improve their communication skills and to put their profession into a broader societal context.

Accreditation

The Bachelor of Science in Mechanical Engineering program is accredited by the Engineering Accreditation Commission of ABET.

Program Objectives

1. To produce graduates who are able to practice mechanical engineering through design and analysis of mechanical systems in industry, government, and academic settings.
2. To produce graduates who are prepared for graduate-level education, research and development, and other creative endeavors in science and technology.
3. To produce graduates who are able to conduct themselves in a professional and ethical manner.
4. To produce graduates who are able to become contributors and leaders in the economic development and improving the quality of life in the State of Alaska, the nation and the world.

Program Student Learning Outcomes

It is expected that graduates from the program will have:

- An ability to apply knowledge of mathematics, science, and engineering.
- An ability to design and conduct experiments, as well as analyze and interpret data.
- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- An ability to function on multidisciplinary teams.
• An ability to identify, formulate, and solve engineering problems.
• An understanding of professional and ethical responsibility.
• An ability to communicate effectively.
• The broad education necessary to understand the impact of engineering solutions in a
global, economic, environmental, and societal context.
• A recognition of the need for, and the ability to engage in, lifelong learning.
• A knowledge of contemporary issues.
• An ability to use the techniques, skills, and modern engineering tools necessary for
engineering practice.

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:

<table>
<thead>
<tr>
<th>Subject</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algebra</td>
<td>2</td>
</tr>
<tr>
<td>Chemistry</td>
<td>1</td>
</tr>
<tr>
<td>English</td>
<td>3</td>
</tr>
<tr>
<td>Physics</td>
<td>1</td>
</tr>
<tr>
<td>Trigonometry</td>
<td>1/2</td>
</tr>
</tbody>
</table>

Students successfully completing the above courses should 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 of
courses that count toward the engineering degree.

Admission Requirements

Satisfy the Application and Admission Requirements for Baccalaureate Programs.

Pre-Mechanical Engineering and Mechanical Engineering Levels

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

Applicants for admission who have completed only the Application and Admission
Requirements for Baccalaureate Programs are admitted to the program at the pre-mechanical
engineering level.

Applicants for admission who, in addition to the Application and Admission Requirements for
Baccalaureate Programs, have completed the high school preparation courses listed above (or
their university equivalents) with grades of C or better will be admitted to the program at the
mechanical engineering level.
Advancement

To advance from the pre-mechanical engineering level to the mechanical engineering level, students must meet the admission requirements to the engineering level and complete and submit a Change of Major form.

Academic Progress Requirements

All prerequisites for engineering courses must be completed with a grade of C or higher, and all courses listed in the major requirements must be completed with a grade of C or higher. A student who is unable to earn a grade of C or higher in a program course offered by the College of Engineering will be required to meet with a department faculty advisor to develop a plan for improvement of academic performance before continuing in the program. A student who fails to earn a grade of C or higher on the second attempt will be required to meet with an academic advisor and a member of the College of Engineering professional advising staff to develop a plan for improvement of academic performance before continuing in the program. A student who fails to earn a grade of C or higher on the third attempt will be removed from the program. Re-admittance requires a letter of appeal from the student requesting re-admittance with an explanation of any mitigating factors and how these factors have been addressed. Re-admittance is subject to approval by the faculty of the program and is communicated by the department chair.

Academic Integrity

The program requires its students to abide by the principles of academic integrity described in the Student Code of Conduct. Should suspected cases of academic misconduct occur, these cases may be submitted to the UAA Dean of Students Office, where the assistant director of student conduct reviews all allegations of academic misconduct. At the conclusion of the review, the assistant director of student conduct issues a notification of the findings and conclusions to the reporting faculty member, department chair and dean. Should a student from the program be found responsible for a case of academic misconduct by the UAA Dean of Students Office on two separate occasions, that student will be removed from the program. Re-admittance requires a letter of appeal from the student requesting re-admittance with an explanation of any mitigating factors and how these factors have been addressed. Re-admittance is subject to approval by the faculty of the program and is communicated by the department chair.

Graduation Requirements

- Satisfy the General University Requirements for Baccalaureate Degrees.
- Complete the General Education Requirements for Baccalaureate Degrees.
- Complete the Major Requirements below with a grade of C or higher.

Major Requirements
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM A105 &amp; A105L</td>
<td>General Chemistry I and General Chemistry I Laboratory</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>CHEM A106 &amp; A106L</td>
<td>General Chemistry II and General Chemistry II Laboratory</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>ENGL A212</td>
<td>Technical Writing</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ENGR A105A</td>
<td>Engineering Computer-Aided Design I</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>ENGR A105B</td>
<td>Engineering Computer-Aided Design II</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>ENGR A105C</td>
<td>Engineering Computer-Aided Design III</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>ENGR A151</td>
<td>Introduction to Engineering</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>ENGR A161</td>
<td>Engineering Practices II</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ES A209</td>
<td>Engineering Statics</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ES A210</td>
<td>Engineering Dynamics</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ES A302</td>
<td>Engineering Data Analysis</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ES A309</td>
<td>Elements of Electrical Engineering</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ES A331</td>
<td>Mechanics of Materials</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ES A341 &amp; A341L</td>
<td>Fluid Mechanics and Fluid Mechanics Laboratory</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>ES A346</td>
<td>Introduction to Thermodynamics</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ESM A450</td>
<td>Economic Analysis and Operations</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>MATH A200</td>
<td>Calculus I</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>MATH A201</td>
<td>Calculus II</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>MATH A202</td>
<td>Calculus III</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>MATH A302</td>
<td>Ordinary Differential Equations</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ME A280</td>
<td>Solid Modeling for Engineers</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ME/EE A306</td>
<td>Dynamics of Systems</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ME/EE A308</td>
<td>Instrumentation and Measurement</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ME A313</td>
<td>Mechanical Engineering Thermodynamics</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ME A334 &amp; A334L</td>
<td>Materials Science and Materials Science Laboratory</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
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<td></td>
</tr>
<tr>
<td>ME A403</td>
<td>Machine Design</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ME A414</td>
<td>Thermal System Design</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>&amp; A414L</td>
<td>and Thermal System Design Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ME A438</td>
<td>Design of Mechanical Engineering Systems</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ME A441</td>
<td>Heat and Mass Transfer</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>&amp; A441L</td>
<td>and Heat and Mass Transfer Lab</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS A211</td>
<td>General Physics I</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>&amp; A211L</td>
<td>and General Physics I Laboratory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHYS A212</td>
<td>General Physics II</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>&amp; A212L</td>
<td>and General Physics II Laboratory</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Advanced Mathematics Electives

Select one of the following: 3

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH A314</td>
<td>Linear Algebra</td>
</tr>
<tr>
<td>MATH A321</td>
<td>Analysis of Several Variables</td>
</tr>
<tr>
<td>MATH A371</td>
<td>Stochastic Processes</td>
</tr>
<tr>
<td>MATH A407</td>
<td>Mathematical Statistics I</td>
</tr>
<tr>
<td>MATH A410</td>
<td>Introduction to Complex Analysis</td>
</tr>
<tr>
<td>MATH A422</td>
<td>Partial Differential Equations</td>
</tr>
<tr>
<td>MATH A423</td>
<td>Advanced Engineering Mathematics</td>
</tr>
<tr>
<td>MATH A426</td>
<td>Numerical Methods</td>
</tr>
</tbody>
</table>

Advanced Engineering Electives

Complete 12 credits, including at least 6 credits of ME courses, from the following: 12

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEST A608</td>
<td>Fundamentals of Air Pollution</td>
</tr>
<tr>
<td>CE A403</td>
<td>Arctic Engineering **</td>
</tr>
<tr>
<td>or CE A603</td>
<td>Arctic Engineering</td>
</tr>
<tr>
<td>or ES A411</td>
<td>Northern Design</td>
</tr>
<tr>
<td>CE A441</td>
<td>Fundamentals of Environmental Engineering and Applied Environmental Science</td>
</tr>
<tr>
<td>CE A442</td>
<td>Environmental Systems Design</td>
</tr>
<tr>
<td>ME A408</td>
<td>Mechanical Vibrations ***</td>
</tr>
<tr>
<td>or ME A608</td>
<td>Mechanical Vibrations</td>
</tr>
</tbody>
</table>
**ME A415**  Composite Materials  
**or ME A615**  Composite Materials  
**ME A442**  Advanced Fluid Mechanics  
**or ME A642**  Advanced Fluid Mechanics  
**ME A450**  Manufacturing Design  
**ME A453**  Renewable Energy Systems Engineering  
**or ME A653**  Renewable Energy Systems Engineering  
**ME A455**  HVAC Systems Optimization  
**or ME A655**  HVAC Systems Optimization  
**ME A459**  Fracture Mechanics  
**or ME A659**  Fracture Mechanics  
**ME/EE A471**  Automatic Control  
**ME A664**  Corrosion Processes and Engineering  
**ME A685**  Arctic Heat and Mass Transfer  

** Only one of CE A403 or CE A603 or ES A411 can apply to the degree.  
*** Only one course can apply to the degree.  

A total of 132 credits is required for the degree, of which 42 credits must be upper division.  

**Honors in Mechanical Engineering**  
Undergraduate students in the program may be recognized for exceptional performance by earning departmental honors. The award will be noted on their permanent university transcript. In order to receive departmental honors, a student must meet each of the following requirements.  

1. Complete all program requirements.  
2. Earn a GPA of 3.50 or above in the courses required for the major.  
3. Gain approval for, complete and present a design/research project prior to applying for graduation. The project proposal, presentation, and final written report must be approved by the program faculty.  

**Minor in General Engineering**  
Students majoring in a non-engineering subject who wish to minor in General Engineering must complete the following requirements.
ENGR A151  Introduction to Engineering  1
ENGR A161  Engineering Practices II  3
ES A208  Engineering Statics and Dynamics  5

Complete three of the following:  9
EE/ME A308  Instrumentation and Measurement
ES A309  Elements of Electrical Engineering *
ES A331  Mechanics of Materials
ES A341  Fluid Mechanics *
ES A346  Introduction to Thermodynamics *
ESM A450  Economic Analysis and Operations
ME A334  Materials Science

Total Credits  18

Recommended set of courses

*Minor in Mechanical Engineering*

Students majoring in another subject who wish to minor in Mechanical Engineering must complete the following requirements.

A minimum of 18 credits must be selected from:  18
ES A331  Mechanics of Materials *
ES A341  Fluid Mechanics *
ES A341L  Fluid Mechanics Laboratory
ES A346  Introduction to Thermodynamics *
ME/EE A306  Dynamics of Systems *
ME/EE A308  Instrumentation and Measurement
ME A313  Mechanical Engineering Thermodynamics
ME A334  Materials Science *
ME A334L  Materials Science Laboratory
ME A403  Machine Design
ME A414  Thermal System Design
ME A414L  Thermal System Design Lab
ME A441  Heat and Mass Transfer *
ME A441L  Heat and Mass Transfer Lab

*  Recommended set of courses

Faculty

Jennifer Brock, Associate Professor/Chair, jmcferran@uaa.alaska.edu
Matt Cullin, Associate Professor, mculin@uaa.alaska.edu
Getu Hailu, Assistant Professor, ghailu@uaa.alaska.edu
Jeff Hoffman, Associate Professor, jhoffman@uaa.alaska.edu
Nicolae Lobontiu, Professor, nlobontiu@uaa.alaska.edu
Ganhua Lu, Assistant Professor, glu2@uaa.alaska.edu
Anthony Paris, Associate Professor, ajparis@uaa.alaska.edu
Jifeng Peng, Assistant Professor, jpeng@uaa.alaska.edu
Mechanical Engineering

The Department of Mechanical Engineering offers a Bachelor of Science in Engineering with a concentration in Mechanical Engineering (BSE MEBSME), and minors in General Engineering and Mechanical Engineering. The program is a fully accredited Bachelor of Science in Engineering, Mechanical Engineering degree program. Students are introduced to principles of mathematics, chemistry and physics during the first two years of study. The third year of study largely focuses on courses that apply these basic sciences in an engineering context. During the fourth year students take more advanced courses including technical electives that are more focused on mechanical engineering analysis and design. The program focuses on the design of systems related to transfer of thermal and mechanical energies where topics such as machine design and thermal systems, including heating, ventilation, air conditioning, and refrigeration (HVAC&R), are covered in detail. Students have the opportunity for hands-on experience in a state-of-the-art manufacturing lab with rapid prototyping through three dimensional printers and computer numerical control (CNC) machining. Students also take courses on written and oral communication, humanities, social sciences and fine arts to improve their communication skills and to put their profession into a broader societal context.

Accreditation

The Bachelor of Science in Mechanical Engineering program is accredited by the Engineering Accreditation Commission of ABET.

Program Objectives

1. To produce graduates who are able to practice mechanical engineering through design and analysis of mechanical systems in industry, government, and academic settings.
2. To produce graduates who are prepared for graduate-level education, research and development, and other creative endeavors in science and technology.
3. To produce graduates who are able to conduct themselves in a professional and ethical manner.
4. To produce graduates who are able to become contributors and leaders in the economic development and improving the quality of life in the State of Alaska, the nation and the world.

Program Student Learning Outcomes

It is expected that graduates from the program will have:

- An ability to apply knowledge of mathematics, science, and engineering.
- An ability to design and conduct experiments, as well as analyze and interpret data.
- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- An ability to function on multidisciplinary teams.
- An ability to identify, formulate, and solve engineering problems.
- An understanding of professional and ethical responsibility.
- An ability to communicate effectively.
- The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- A recognition of the need for, and the ability to engage in, lifelong learning.
- A knowledge of contemporary issues.
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

**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 should 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 of courses that count toward the engineering degree.

**Admission Requirements**

Satisfy the Application and Admission Requirements for Baccalaureate Programs.

**Pre-Mechanical eEngineering and Mechanical Engineering Levels**

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

Applicants for admission who have completed only the Application and Admission Requirements for Baccalaureate Programs are admitted to the program at the pre-mechanical engineering level.

Applicants for admission who, in addition to the Application and Admission Requirements for Baccalaureate Programs, have completed the high school preparation courses listed above (or
their university equivalents) with grades of C or better will be admitted to the program at the mechanical engineering level.

**Advancement**

To advance from the pre- mechanical engineering level to the mechanical engineering level, students must meet the admission requirements to the engineering level and complete and submit a Change of Major form.

**Academic Progress Requirements**

All prerequisites for engineering courses must be completed with a grade of C or higher, and all courses listed in the major requirements must be completed with a grade of C or higher. A student who is unable to earn a grade of C or higher in an ES, ENGR or ME course offered by the College of Engineering will be required to meet with a department faculty advisor and discuss to develop a plan for improvement of academic performance before continuing in the program. May attempt to earn a satisfactory grade one additional time on a space-available basis. Failure a student who fails to earn a grade of C or higher on the second attempt may result in removal from the program will be required to meet with an academic advisor and a member of the College of Engineering professional advising staff to develop a plan for improvement of academic performance before continuing in the program. A student who fails to earn a grade of C or higher on the third attempt will be removed from the program. Re-admittance requires a letter of appeal from the student requesting re-admittance with an explanation of any mitigating factors and how these factors have been addressed. Re-admittance is subject to approval by the department chair of the program and is communicated by the department chair.

A student who has a semester GPA below 2.00 in the major requirements will be placed on academic warning by the program. If a student on academic warning status receives a semester GPA of at least 2.00 in the major requirements, that student will be removed from academic warning status by the program. Otherwise, if a student on academic warning status receives a semester GPA below 2.00 in the major requirements, the student will be dropped from the program and must reapply in order to continue in the program.

**Academic Integrity**

The program requires its students to abide by the principles of academic integrity described in the Student Code of Conduct. Should suspected cases of academic misconduct occur, these cases may be submitted to the UAA Dean of Students Office, where the assistant director of student conduct reviews all allegations of academic misconduct. At the conclusion of the review, the assistant director of student conduct issues a notification of the findings and conclusions to the reporting faculty member, department chair and dean. Should a student from the program be found responsible for a case of academic misconduct by the UAA Dean of Students Office on two separate occasions, that student will be dropped from the program. Re-admittance requires a letter of appeal from the student requesting re-admittance with an explanation of any mitigating factors and how these factors have been addressed. Re-admittance is subject to
approval by the faculty of the program and is communicated by the department chair. Re-
admittance is subject to approval by the department chair faculty of the student's degree
program.

Graduation Requirements

- Satisfy the [General University Requirements for Baccalaureate Degrees](#).
- Complete the [General Education Requirements for Baccalaureate Degrees](#).
- Complete the Major Requirements below with a grade of C or higher.

Major Requirements

Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM A105</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; A105L</td>
<td>and General Chemistry I Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM A106</td>
<td>General Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>&amp; A106L</td>
<td>and General Chemistry II Laboratory</td>
<td></td>
</tr>
<tr>
<td>ENGL A212</td>
<td>Technical Writing</td>
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</tr>
<tr>
<td>ENGR A105A</td>
<td>Engineering Computer-Aided Design I</td>
<td>1</td>
</tr>
<tr>
<td>ENGR A105B</td>
<td>Engineering Computer-Aided Design II</td>
<td>1</td>
</tr>
<tr>
<td>ENGR A105C</td>
<td>Engineering Computer-Aided Design III</td>
<td>1</td>
</tr>
<tr>
<td>ENGR A151</td>
<td>Introduction to Engineering</td>
<td>1</td>
</tr>
<tr>
<td>ENGR A161</td>
<td>Engineering Practices II</td>
<td>3</td>
</tr>
<tr>
<td>ES A209</td>
<td>Engineering Statics</td>
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</tr>
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<td>3</td>
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<td>Economic Analysis and Operations</td>
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</tr>
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MATH A202  Calculus III  4
MATH A302  Ordinary Differential Equations  3
ME A280  Solid Modeling for Engineers  3
ME/EE A306  Dynamics of Systems  3
ME/EE A308  Instrumentation and Measurement  3
ME A313  Mechanical Engineering Thermodynamics  3
ME A334 & A334L  Materials Science and Materials Science Laboratory  4
ME A403  Machine Design  3
ME A414 & A414L  Thermal System Design and Thermal System Design Lab  4
ME A438  Design of Mechanical Engineering Systems  3
ME A441 & A441L  Heat and Mass Transfer and Heat and Mass Transfer Lab  4
PHYS A211 & A211L  General Physics I and General Physics I Laboratory  4
PHYS A212 & A212L  General Physics II and General Physics II Laboratory  4

Advanced Mathematics Electives
Select one of the following:  3
MATH A314  Linear Algebra
MATH A321  Analysis of Several Variables
MATH A371  Stochastic Processes
MATH A407  Mathematical Statistics I
MATH A410  Introduction to Complex Analysis
MATH A422  Partial Differential Equations
MATH A423  Advanced Engineering Mathematics
MATH A426  Numerical Methods

Advanced Engineering Electives
Complete 12 credits, including at least 6 credits of ME courses, from the following:  12
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
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<tr>
<td>or <strong>ES A411</strong></td>
<td>Northern Design</td>
</tr>
<tr>
<td><strong>CE A441</strong></td>
<td>Fundamentals of Environmental Engineering and Applied Environmental Science</td>
</tr>
<tr>
<td><strong>CE A442</strong></td>
<td>Environmental Systems Design</td>
</tr>
<tr>
<td><strong>ME A408</strong></td>
<td>Mechanical Vibrations ***</td>
</tr>
<tr>
<td>or <strong>ME A608</strong></td>
<td>Mechanical Vibrations</td>
</tr>
<tr>
<td><strong>ME A415</strong></td>
<td>Composite Materials ***</td>
</tr>
<tr>
<td>or <strong>ME A615</strong></td>
<td>Composite Materials</td>
</tr>
<tr>
<td><strong>ME A442</strong></td>
<td>Advanced Fluid Mechanics ***</td>
</tr>
<tr>
<td>or <strong>ME A642</strong></td>
<td>Advanced Fluid Mechanics</td>
</tr>
<tr>
<td><strong>ME A450</strong></td>
<td>Manufacturing Design</td>
</tr>
<tr>
<td><strong>ME A453</strong></td>
<td>Renewable Energy Systems Engineering ***</td>
</tr>
<tr>
<td>or <strong>ME A653</strong></td>
<td>Renewable Energy Systems Engineering</td>
</tr>
<tr>
<td><strong>ME A455</strong></td>
<td>HVAC Systems Optimization ***</td>
</tr>
<tr>
<td>or <strong>ME A655</strong></td>
<td>HVAC Systems Optimization</td>
</tr>
<tr>
<td><strong>ME A459</strong></td>
<td>Fracture Mechanics ***</td>
</tr>
<tr>
<td>or <strong>ME A659</strong></td>
<td>Fracture Mechanics</td>
</tr>
<tr>
<td><strong>ME/EE A471</strong></td>
<td>Automatic Control</td>
</tr>
<tr>
<td><strong>ME A664</strong></td>
<td>Corrosion Processes and Engineering</td>
</tr>
<tr>
<td><strong>ME A685</strong></td>
<td>Arctic Heat and Mass Transfer</td>
</tr>
</tbody>
</table>

** Only one of CE A403 or CE A603 or ES A411 can apply to the degree.

*** Only one course can apply to the degree.

A total of 132 credits is required for the degree, of which 42 credits must be upper division.

**Honors in Mechanical Engineering**
Undergraduate students in the program may be recognized for exceptional performance by earning departmental honors. The award will be noted on their permanent university transcript. In order to receive departmental honors, a student must meet each of the following requirements.

1. Complete all program requirements.
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 engineering profession.
3. Earn a GPA of 3.50 or above in the courses required for the major.
4. Gain approval for, complete and present a design/research project prior to applying for graduation. The project proposal, presentation, and final written report must be approved by the program faculty.

**Minor in General Engineering**

Students majoring in a non-engineering subject who wish to minor in General Engineering must complete the following requirements.

- **ENGR A151** Introduction to Engineering 1
- **ENGR A161** Engineering Practices II 3
- **ES A208** Engineering Statics and Dynamics 5

Complete three of the following:

- **EE/ME A308** Instrumentation and Measurement 3
- **ES A309** Elements of Electrical Engineering *
- **ES A331** Mechanics of Materials
- **ES A341** Fluid Mechanics *
- **ES A346** Introduction to Thermodynamics *
- **ESM A450** Economic Analysis and Operations
- **ME A334** Materials Science

Total Credits 18

**Recommended set of courses**

**Minor in Mechanical Engineering**

Students majoring in another subject who wish to minor in Mechanical Engineering must complete the following requirements.

A minimum of 18 credits must be selected from:

- **ES A331** Mechanics of Materials *
ES A341  Fluid Mechanics *
ES A341L Fluid Mechanics Laboratory
ES A346  Introduction to Thermodynamics *
ME/EE A306 Dynamics of Systems *
ME/EE A308 Instrumentation and Measurement
ME A313 Mechanical Engineering Thermodynamics
ME A334 Materials Science *
ME A334L Materials Science Laboratory
ME A403 Machine Design
ME A414 Thermal System Design
ME A414L Thermal System Design Lab
ME A441 Heat and Mass Transfer *
ME A441L Heat and Mass Transfer Lab

Total Credits 18

* Recommended set of courses

Faculty

Jennifer Brock, Associate Professor/Chair, jmefferran@uaa.alaska.edu
Matt Cullin, Associate Professor, mcullin@uaa.alaska.edu
Getu Hailu, Assistant Professor, ghailu@uaa.alaska.edu
Jeff Hoffman, Associate Professor, ajhoffman@uaa.alaska.edu
Nicolae Lobontiu, Professor, nlobontiu@uaa.alaska.edu
Ganghua Lu, Assistant Professor, glu2@uaa.alaska.edu
Anthony Paris, Associate Professor, aparis@uaa.alaska.edu
Jifeng Peng, Assistant Professor, jpeng@uaa.alaska.edu
November 14, 2014

Dear Provost Baker:

The Electrical Engineering Department faculty is proposing that our current baccalaureate degree offering, the Bachelor of Science in Engineering, concentration Electrical (BSE/EE) degree, be replaced with a Bachelor of Science in Electrical Engineering (BSEE) degree. Two other concentrations are offered under the BSE degree, one in Mechanical Engineering and one in Computer Systems Engineering. The EE, ME and CSE concentrations offer separate curricula with few common courses, are administered by faculty in three separate departments and are separately accredited by our external accrediting body ABET.

The rationale for the proposed change is administrative difficulties and confusion caused by the BSE/EE designation. For example, since the EE Department does not have its own bachelor’s degree program, its students are difficult to track on Banner. This proposal is not for a program that will be new to UA, nor will it involve making substantive changes to anything other than the title of the degree conferred to students at the completion of an established course of study. Changes are not being proposed to the curriculum, student learning outcomes, faculty or staff workloads, number of faculty and staff, or the level of resourcing currently provided to the EE Department.

Thank you for your consideration. Please feel free to contact me at any time if you have any questions.

Sincerely,

Jens Munk
Professor and Chair
Department of Electrical Engineering
Jmunk2@uaa.alaska.edu
Program/Prefix Action Request  
University of Alaska Anchorage  
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>1b. Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>EN SOENGR</td>
<td>EE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Complete Program Title/Prefix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Engineering</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Type of Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose one from the appropriate drop down menu:</td>
</tr>
<tr>
<td>Undergraduate: or Graduate:</td>
</tr>
<tr>
<td>Bachelor of Science</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Type of Action:</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM</td>
</tr>
<tr>
<td>Add</td>
</tr>
<tr>
<td>Change</td>
</tr>
<tr>
<td>Delete</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PREFIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add</td>
</tr>
<tr>
<td>Change</td>
</tr>
<tr>
<td>Inactivate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Implementation Date (semester/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>From: Fall/2015 To: 9/9999</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6a. Coordination with Affected Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department, School, or College: EE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Initiator Name (typed): Jens Munk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiator Signed Initials: _______ Date: ____________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6b. Coordination Email submitted to Faculty Listserv (<a href="mailto:uaa-faculty@lists.uaa.alaska.edu">uaa-faculty@lists.uaa.alaska.edu</a>)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 11/12/2014</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6c. Coordination with Library Liaison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date: 11/12/2014</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7. Title and Program Description - Please attach the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ Cover Memo</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8. Justification for Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Bachelor of Science in Engineering program is being split into three separate degree programs. By doing so, the College of Engineering is eliminating confusion on the part of students, parents, and employers. Students who complete the Electrical Engineering program will earn a Bachelor of Science in Electrical Engineering degree.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Initiator (faculty only)</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jens Munk</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Approve</th>
<th>Disapprove</th>
<th>Dean/Director of School/College</th>
<th>Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Department Chair</th>
<th>Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Approve</th>
<th>Disapprove</th>
<th>Undergraduate/Graduate Academic</th>
<th>Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Board Chair</th>
<th>Date</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Approve</th>
<th>Disapprove</th>
<th>Provost or Designee</th>
<th>Date</th>
</tr>
</thead>
</table>


Electrical Engineering

The Department of Electrical Engineering offers a Bachelor of Science in Electrical Engineering (BSEE), and a minor in Electrical Engineering. The program is a fully-accredited Bachelor of Science in Electrical Engineering degree program. During the first two years of study, students are introduced to principles of mathematics, chemistry and physics, as well as basic circuit theory, digital logic and electrical devices. The third year of study largely focuses on fundamental electrical engineering concepts including courses in signal analysis, electromagnetism, instrumentation and telecommunication. During the fourth year students take more advanced courses including technical electives that are more focused on electrical engineering analysis and design. Upper division electives include courses in computer design, antenna theory, communication theory, power and control systems. Students also take courses on written and oral communication, humanities, social sciences and fine arts to improve their communication skills and to put their profession into a broader societal context.

Accreditation

The Bachelor of Science in Electrical Engineering program is accredited by Engineering Accreditation Commission of ABET.

Program Objectives

1. To produce electrical engineering graduates with the training and skills to enter the job market or to continue their education by attending graduate school.
2. To produce graduates who will become business and community leaders in Alaska and throughout the world.
3. To produce graduates who will, through their training in electrical engineering and their commitment to their continuing education, become the entrepreneurs driving Alaska’s growth in the future.
4. To produce graduates in electrical engineering who conduct themselves and practice their profession with the highest of professional standards.

Program Student Learning Outcomes

It is expected that graduates from the program will have:

- An ability to apply knowledge of mathematics, science, and engineering.
- An ability to design and conduct experiments, as well as analyze and interpret data.
- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- An ability to function on multidisciplinary teams.
- An ability to identify, formulate, and solve engineering problems.
- An understanding of professional and ethical responsibility.
• An ability to communicate effectively.
• The broad education necessary to understand the impact of engineering solutions in a
global, economic, environmental, and societal context.
• A recognition of the need for, and the ability to engage in, lifelong learning.
• A knowledge of contemporary issues.
• An ability to use the techniques, skills, and modern engineering tools necessary for
engineering practice.

**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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algebra</td>
<td>2 years</td>
</tr>
<tr>
<td>Chemistry</td>
<td>1 year</td>
</tr>
<tr>
<td>English</td>
<td>3 years</td>
</tr>
<tr>
<td>Physics</td>
<td>1 year</td>
</tr>
<tr>
<td>Trigonometry</td>
<td>1/2 year</td>
</tr>
</tbody>
</table>

Students successfully completing the above courses should 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 of
courses that count toward the engineering degree.

**Admission Requirements**

Satisfy the [Application and Admission Requirements for Baccalaureate Programs](#).

**Pre-Electrical and Electrical Levels**

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

Applicants for admission who have completed only the [Application and Admission Requirements for Baccalaureate Programs](#) are admitted to the program at the pre-electrical level.

Applicants for admission who, in addition to the [Application and Admission Requirements for Baccalaureate Programs](#), have completed the high school preparation courses listed above (or their university equivalents) with grades of C or better will be admitted to the program at the electrical engineering level.

**Advancement**
To advance from the pre-electrical level to the electrical level, students must meet the admission requirements to the electrical level and complete and submit a Change of Major form.

**Academic Progress Requirements**

All prerequisites for engineering courses must be completed with a grade of C or higher, and all courses listed in the major requirements must be completed with a grade of C or higher. A student who is unable to earn a grade of C or higher in any course offered by the college may attempt to earn a satisfactory grade one additional time on a space-available basis. Failure to earn a grade of C or higher on the second attempt may result in removal from the program. Re-admittance requires a letter of appeal from the student requesting re-admittance with an explanation of any mitigating factors and how these factors have been addressed. Re-admittance is subject to approval by the department chair of the program.

A student who has a semester GPA below 2.00 in the major requirements will be placed on academic warning by the program. If a student on academic warning status receives a semester GPA of at least 2.00 in the major requirements, that student will be removed from academic warning status by the program. Otherwise, if a student on academic warning status receives a semester GPA below 2.00 in the major requirements, the student will be dropped from the program and must reapply in order to continue in the program.

**Academic Integrity**

The program requires its students to abide by the principles of academic integrity described in the Student Code of Conduct. Should suspected cases of academic misconduct occur, these cases may be submitted to the UAA Dean of Students Office, where the assistant director of student conduct reviews all allegations of academic misconduct. At the conclusion of the review, the assistant director of student conduct issues a notification of the findings and conclusions to the reporting faculty member, department chair and dean. Should a student from the program be found responsible for a case of academic misconduct by the UAA Dean of Students Office on two separate occasions, that student will be dropped from the program. Re-admittance requires a letter of appeal from the student requesting re-admittance with an explanation of any mitigating factors and how these factors have been addressed. Re-admittance is subject to approval by the department chair of the student’s degree program.

**Graduation Requirements**

- Satisfy the [General University Requirements for Baccalaureate Degrees](#).
- Complete the [General Education Requirements for Baccalaureate Degrees](#).
- Complete the Major Requirements below with a grade of C or higher.

**Major Requirements**

**Core Courses**
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM A105 &amp; A105L</td>
<td>General Chemistry I and General Chemistry I Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>CSE A205</td>
<td>Introduction to C Programming for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>CSCE A248</td>
<td>Computer Organization and Assembly Language Programming</td>
<td>3</td>
</tr>
<tr>
<td>EE A203</td>
<td>Fundamentals of Electrical Engineering I</td>
<td>4</td>
</tr>
<tr>
<td>EE/CSE A241</td>
<td>Computer Hardware Concepts</td>
<td>4</td>
</tr>
<tr>
<td>EE A261</td>
<td>MATLAB for Electrical Engineers</td>
<td>1</td>
</tr>
<tr>
<td>EE A307</td>
<td>Introduction to Power Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE/ME A308</td>
<td>Instrumentation and Measurement</td>
<td>3</td>
</tr>
<tr>
<td>EE/PHYS A314</td>
<td>Electromagnetics</td>
<td>3</td>
</tr>
<tr>
<td>EE/PHYS A324</td>
<td>Electromagnetics II</td>
<td>3</td>
</tr>
<tr>
<td>EE A324L</td>
<td>Electromagnetics Laboratory II</td>
<td>1</td>
</tr>
<tr>
<td>EE A333</td>
<td>Electronic Devices</td>
<td>4</td>
</tr>
<tr>
<td>EE A353 &amp; A353L</td>
<td>Circuit Theory and Circuit Theory Lab</td>
<td>4</td>
</tr>
<tr>
<td>EE A354</td>
<td>Engineering Signal Analysis</td>
<td>3</td>
</tr>
<tr>
<td>EE A438</td>
<td>Design of Electrical Engineering Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE A441</td>
<td>Integrated Circuit Design</td>
<td>3</td>
</tr>
<tr>
<td>EE A465</td>
<td>Telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>EE/ME A471</td>
<td>Automatic Control</td>
<td>3</td>
</tr>
<tr>
<td>ENGL A212</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGR A105A</td>
<td>Engineering Computer-Aided Design I</td>
<td>1</td>
</tr>
<tr>
<td>ENGR A105B</td>
<td>Engineering Computer-Aided Design II</td>
<td>1</td>
</tr>
<tr>
<td>ENGR A151</td>
<td>Introduction to Engineering</td>
<td>1</td>
</tr>
<tr>
<td>ES A208</td>
<td>Engineering Statics and Dynamics</td>
<td>5</td>
</tr>
<tr>
<td>ES A302</td>
<td>Engineering Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ESM A450</td>
<td>Economic Analysis and Operations</td>
<td>3</td>
</tr>
<tr>
<td>MATH A200</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH A201</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH A202</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>MATH A302</td>
<td>Ordinary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>PHYS A211</td>
<td>General Physics I</td>
<td>3</td>
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<tr>
<td>&amp; A211L</td>
<td>and General Physics I Laboratory</td>
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</tr>
<tr>
<td>PHYS A212</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>&amp; A212L</td>
<td>and General Physics II Laboratory</td>
<td></td>
</tr>
</tbody>
</table>

Advanced Mathematics Electives

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH A314</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH A321</td>
<td>Analysis of Several Variables</td>
<td></td>
</tr>
<tr>
<td>MATH A371</td>
<td>Stochastic Processes</td>
<td></td>
</tr>
<tr>
<td>MATH A407</td>
<td>Mathematical Statistics I</td>
<td></td>
</tr>
<tr>
<td>MATH A410</td>
<td>Introduction to Complex Analysis</td>
<td></td>
</tr>
<tr>
<td>MATH A422</td>
<td>Partial Differential Equations</td>
<td></td>
</tr>
<tr>
<td>MATH A423</td>
<td>Advanced Engineering Mathematics</td>
<td></td>
</tr>
<tr>
<td>MATH A426</td>
<td>Numerical Methods</td>
<td></td>
</tr>
</tbody>
</table>

Advanced Engineering Electives

Complete 12 credits, including at least 6 credits of EE courses, from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE A403</td>
<td>Arctic Engineering</td>
<td></td>
</tr>
<tr>
<td>or CE A603</td>
<td>Arctic Engineering</td>
<td></td>
</tr>
<tr>
<td>or ES A411</td>
<td>Northern Design</td>
<td></td>
</tr>
<tr>
<td>CSCE A365</td>
<td>Computer Networks</td>
<td></td>
</tr>
<tr>
<td>CSCE A445</td>
<td>Computer Design and Simulation</td>
<td></td>
</tr>
<tr>
<td>CSCE A465</td>
<td>Computer and Network Security</td>
<td></td>
</tr>
<tr>
<td>EE/ME A306</td>
<td>Dynamics of Systems</td>
<td></td>
</tr>
<tr>
<td>EE A407</td>
<td>Power Distribution</td>
<td></td>
</tr>
<tr>
<td>EE A451</td>
<td>Digital Signal Processing</td>
<td></td>
</tr>
<tr>
<td>EE A458</td>
<td>Antenna Theory</td>
<td></td>
</tr>
<tr>
<td>EE A462</td>
<td>Communication Systems</td>
<td></td>
</tr>
<tr>
<td>PHYS A303</td>
<td>Modern Physics</td>
<td></td>
</tr>
</tbody>
</table>
** Only one of CE A403 or CE A603 or ES A411 can apply to the degree.

A total of 131 credits is required for the degree, of which 42 credits must be upper division.

**Honors in Electrical Engineering**

Undergraduate students in the program may be recognized for exceptional performance by earning departmental honors. The award will be noted on their permanent university transcript. In order to receive departmental honors, a student must meet each of the following requirements.

1. Complete all program requirements.
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 engineering profession.
3. Earn a GPA of 3.50 or above in the courses required for the major.
4. Gain approval for, complete and present a design/research project prior to applying for graduation. The project proposal, presentation, and final written report must be approved by the program faculty.

**Minor in Electrical Engineering**

Students majoring in another subject who wish to minor in Electrical Engineering must complete the following requirements.

A minimum of 18 credits must be selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>EE A203</td>
<td>Fundamentals of Electrical Engineering I *</td>
</tr>
<tr>
<td>EE/CSCE A241</td>
<td>Computer Hardware Concepts</td>
</tr>
<tr>
<td>EE A307</td>
<td>Introduction to Power Systems</td>
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<tr>
<td>EE/ME A308</td>
<td>Instrumentation and Measurement</td>
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<tr>
<td>EE/PHYS A314</td>
<td>Electromagnetics *</td>
</tr>
<tr>
<td>EE/PHYS A324</td>
<td>Electromagnetics II</td>
</tr>
<tr>
<td>EE A324L</td>
<td>Electromagnetics Laboratory II *</td>
</tr>
<tr>
<td>EE A333</td>
<td>Electronic Devices *</td>
</tr>
<tr>
<td>EE A353</td>
<td>Circuit Theory *</td>
</tr>
<tr>
<td>EE A407</td>
<td>Power Distribution</td>
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<tr>
<td>EE A441</td>
<td>Integrated Circuit Design</td>
</tr>
<tr>
<td>EE A451</td>
<td>Digital Signal Processing</td>
</tr>
</tbody>
</table>
EE A458  Antenna Theory
EE A462  Communication Systems
EE A465  Telecommunications *
EE/ME A471  Automatic Control

Total Credits 18

*Recommended set of courses for the minor.

Faculty

Matthew Kupilik, Assistant Professor, mkupilik@uaa.alaska.edu
Joe Mixsell, Associate Professor, jcmixselljr@uaa.alaska.edu
Jens Munk, Professor/Chair, jmunk2@uaa.alaska.edu
Todd Petersen, Assistant Professor, thpetersen@uaa.alaska.edu
Engineering: Computer Systems, Electrical and Mechanical Engineering

Computer Systems Engineering

The Department of Computer Science and Engineering offers a Bachelor of Science in Engineering with a concentration in Computer Systems Engineering (BSE CSE), and a minor in Computer Systems Engineering. The program is a fully-accredited Bachelor of Science in Engineering, Computer Systems Engineering degree program. Students are introduced to principles of mathematics and physics during the first two years of study along with introductory courses in fundamentals of computer hardware and programming. The third and fourth years consist of upper division courses applicable to computer systems along with computer systems engineering electives in the area of the students' interests. Students complete a project-oriented capstone course where they will apply their knowledge in computer systems engineering to solve challenging problems. Students also take courses on written and oral communication, humanities, social sciences and fine arts to improve their communication skills and to put their profession into a broader societal context.

Electrical Engineering

The Department of Electrical Engineering offers a Bachelor of Science in Engineering with a concentration in Electrical Engineering (BSE EE), and a minor in Electrical Engineering. The program is a fully-accredited Bachelor of Science in Engineering, Electrical Engineering degree program. During the first two years of study, students are introduced to principles of mathematics, chemistry and physics, as well as basic circuit theory, digital logic and electrical devices. The third year of study largely focuses on fundamental electrical engineering concepts including courses in signal analysis, electromagnetism, instrumentation and telecommunication. During the fourth year students take more advanced courses including technical electives that are more focused on electrical engineering analysis and design. Upper division electives include courses in computer design, antenna theory, communication theory, power distribution and control systems. Students also take courses on written and oral communication, humanities, social sciences and fine arts to improve their communication skills and to put their profession into a broader societal context.

Mechanical Engineering
The Department of Mechanical Engineering offers a Bachelor of Science in Engineering with a concentration in Mechanical Engineering (BSE ME), and minors in General Engineering and Mechanical Engineering. The program is a fully accredited Bachelor of Science in Engineering, Mechanical Engineering degree program. Students are introduced to principles of mathematics, chemistry and physics during the first two years of study. The third year of study largely focuses on courses that apply these basic sciences in an engineering context. During the fourth year students take more advanced courses including technical electives that are more focused on mechanical engineering analysis and design. The program focuses on the design of systems related to transfer of thermal and mechanical energies where topics such as machine design and thermal systems, including heating, ventilation, air conditioning, and refrigeration (HVAC&R), are covered in detail. Students have the opportunity for hands-on experience in a state-of-the-art manufacturing lab with rapid prototyping through three dimensional printers and CNC machining. Students also take courses on written and oral communication, humanities, social sciences and fine arts to improve their communication skills and to put their profession into a broader societal context.

Accreditation

Computer Systems Engineering

The Bachelor of Science in Engineering, Computer Systems Engineering program is accredited by the Engineering Accreditation Commission of ABET.

Electrical Engineering

The Bachelor of Science in Engineering, Electrical Engineering program is accredited by Engineering Accreditation Commission of ABET.

Mechanical Engineering

The Bachelor of Science in Engineering, Mechanical Engineering program is accredited by Engineering Accreditation Commission of ABET.

Program Objectives

Computer Systems Engineering

1. Graduates are successful practitioners of computer engineering in a variety of industries, government agencies and research/academic institutions, serving the State of Alaska as well as national/international needs.
2. Graduates exhibit high standards regarding ethical behavior and social responsibility.
3. Graduates successfully engage in life-long learning experiences such as graduate education, short courses, technical talks, conferences, training program, community groups, and writing and/or publishing papers.
Electrical Engineering

1. To produce electrical engineering graduates with the training and skills to enter the job market or to continue their education by attending graduate school.
2. To produce graduates who will become business and community leaders in Alaska and throughout the world.
3. To produce graduates who will, through their training in electrical engineering and their commitment to their continuing education, become the entrepreneurs driving Alaska’s growth in the future.
4. To produce graduates in electrical engineering who conduct themselves and practice their profession with the highest of professional standards.

Mechanical Engineering

1. To produce graduates who are able to practice mechanical engineering through design and analysis of mechanical systems in industry, government, and academic settings.
2. To produce graduates who are prepared for graduate level education, research and development, and other creative endeavors in science and technology.
3. To produce graduates who are able to conduct themselves in a professional and ethical manner.
4. To produce graduates who are able to become contributors and leaders in the economic development and improving the quality of life in the State of Alaska, the nation and the world.

Program Student Learning Outcomes

It is expected that graduates from the program will have:

- An ability to apply knowledge of mathematics, science, and engineering.
- An ability to design and conduct experiments, as well as analyze and interpret data.
- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- An ability to function on multidisciplinary teams.
- An ability to identify, formulate, and solve engineering problems.
- An understanding of professional and ethical responsibility.
- An ability to communicate effectively.
- The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- A recognition of the need for, and the ability to engage in, lifelong learning.
- A knowledge of contemporary issues.
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

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 should 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 of courses that count toward the engineering degree.

Admission Requirements

Satisfy the Application and Admission Requirements for Baccalaureate Programs.

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 should 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 of courses that count toward the engineering degree.

Pre-engineering and Engineering Levels

Admission to the Bachelor of Science in Computer Systems 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 students majoring in Engineeringcomputer systems engineering students.
Applicants for admission who have completed only the Application and Admission Requirements for Baccalaureate Programs are admitted to the program at the pre-engineering level.

Applicants for admission who, in addition to the Application and Admission Requirements for Baccalaureate Programs, have completed the high school preparation courses listed above (or their university equivalents) with grades of C or better will be admitted to the program at the computer systems engineering level.

Advancement

To advance from the pre-engineering level to the engineering level, students must meet the admission requirements to the engineering level and complete and submit a Change of Major form.

Academic Progress Requirements

All prerequisites for engineering courses must be completed with a grade of C or higher, and all courses listed in the major requirements must be completed with a grade of C or higher. A student who is unable to earn a grade of C or higher in a CSE, EE, ES, or ENGR or ME course may attempt to earn a satisfactory grade one additional time on a space-available basis. Failure to earn a grade of C or higher on the second attempt may result in removal from the program. Re-admittance requires a letter of appeal from the student requesting re-admittance with an explanation of any mitigating factors and how these factors have been addressed. Re-admittance is subject to approval by the department chair of the program.

A student who has a semester GPA below 2.00 in the major requirements will be placed on academic warning by the program. If a student on academic warning status receives a semester GPA of at least 2.00 in the major requirements, that student will be removed from academic warning status by the program. Otherwise, if a student on academic warning status receives a semester GPA below 2.00 in the major requirements, the student will be dropped from the program and must reapply in order to continue in the program.

Academic Integrity

The program requires its students to abide by the principles of academic integrity described in the Student Code of Conduct. Should suspected cases of academic misconduct occur, these cases may be submitted to the UAA Dean of Students Office, where the assistant director of student conduct reviews all allegations of academic misconduct. At the conclusion of the review, the assistant director of student conduct issues a notification of the findings and conclusions to the reporting faculty member, department chair and dean. Should a student from the program be found responsible for a case of academic misconduct by the UAA Dean of Students Office on two separate occasions, that student will be dropped from the program. Re-admittance requires a letter of appeal from the student requesting re-admittance with an explanation of any mitigating factors and how these factors have been addressed. Re-admittance is subject to approval by the department chair of the student’s degree program.
Graduation Requirements

- Satisfy the General University Requirements for Baccalaureate Degrees.
- Complete the General Education Requirements for Baccalaureate Degrees.
- Complete the Major Requirements below with a grade of C or higher.

Major Requirements

Students must choose Computer Systems Engineering, Electrical Engineering or Mechanical Engineering.

Computer Systems Engineering Option

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCE A201</td>
<td>Computer Programming I</td>
<td>4</td>
</tr>
<tr>
<td>CSCE A211</td>
<td>Computer Programming II</td>
<td>4</td>
</tr>
<tr>
<td>CSCE/EE A241</td>
<td>Computer Hardware Concepts</td>
<td>4</td>
</tr>
<tr>
<td>CSCE A248</td>
<td>Computer Organization and Assembly Language Programming</td>
<td>2</td>
</tr>
<tr>
<td>CSCE A311</td>
<td>Data Structures and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CSCE A320</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSCE A342</td>
<td>Digital Circuits Design</td>
<td>3</td>
</tr>
<tr>
<td>CSCE A365</td>
<td>Computer Networks</td>
<td>3</td>
</tr>
<tr>
<td>CSCE A448</td>
<td>Computer Architecture</td>
<td>3</td>
</tr>
<tr>
<td>CSCE A465</td>
<td>Computer and Network Security</td>
<td>3</td>
</tr>
<tr>
<td>CSCE A470</td>
<td>Computer Science and Engineering Capstone Project</td>
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<tr>
<td>EE A203</td>
<td>Fundamentals of Electrical Engineering I</td>
<td>4</td>
</tr>
<tr>
<td>EE A333</td>
<td>Electronic Devices</td>
<td>4</td>
</tr>
<tr>
<td>EE A353</td>
<td>Circuit Theory</td>
<td>3</td>
</tr>
<tr>
<td>ENGL A212</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>ESM A450</td>
<td>Economic Analysis and Operations</td>
<td>3</td>
</tr>
</tbody>
</table>

MATH A200 Calculus I 4
MATH A201 Calculus II 4
MATH A202 Calculus III 4
MATH A231  Introduction to Discrete Mathematics  2
MATH A302  Ordinary Differential Equations  3
PHIL A305  Professional Ethics  3
PHYS A211  General Physics I  4
 & A211L  and General Physics I Laboratory  4
PHYS A212  General Physics II  4
 & A212L  and General Physics II Laboratory  4
STAT A307  Probability and Statistics  4

Advanced Engineering Electives:
Complete 15 credits from the following:  15

Any upper division elective with a CSCE prefix
EE/PHYS A314  Electromagnetics
EE/PHYS A324  Electromagnetics II
EE A324L  Electromagnetics Laboratory II
EE A354  Engineering Signal Analysis
EE A441  Integrated Circuit Design
EE A451  Digital Signal Processing
EE A462  Communication Systems
EE A465  Telecommunications

Of the 15 credits of advanced engineering electives, at least 6 credits must be from CSCE courses. A maximum of 3 credits from CSCE A395, a maximum of 3 credits from CSCE A495 and a maximum of 6 credits from CSCE A498 may be applied toward this degree requirement. Other relevant courses may be accepted by approved petition.

A total of 120 credits are required for the degree, of which 42 credits must be upper division.

Electrical Engineering Option

Core Courses

CHEM A105  General Chemistry I  4
 & A105L  and General Chemistry I Laboratory
CSE A205  Introduction to C Programming for Engineers  3
CSCE A248  Computer Organization and Assembly Language Programming  3
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE-A203</td>
<td>Fundamentals of Electrical Engineering I</td>
<td>4</td>
</tr>
<tr>
<td>EE/CSCE-A241</td>
<td>Computer Hardware Concepts</td>
<td>4</td>
</tr>
<tr>
<td>EE-A261</td>
<td>MATLAB for Electrical Engineers</td>
<td>1</td>
</tr>
<tr>
<td>EE-A307</td>
<td>Introduction to Power Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE/ME-A308</td>
<td>Instrumentation and Measurement</td>
<td>3</td>
</tr>
<tr>
<td>EE/PHYS-A314</td>
<td>Electromagnetics</td>
<td>3</td>
</tr>
<tr>
<td>EE/PHYS-A324</td>
<td>Electromagnetics II</td>
<td>3</td>
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<tr>
<td>EE-A324L</td>
<td>Electromagnetics Laboratory II</td>
<td>1</td>
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<tr>
<td>EE-A333</td>
<td>Electronic Devices</td>
<td>4</td>
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<tr>
<td>EE-A353</td>
<td>Circuit Theory</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>&amp; A353L ---and Circuit Theory Lab</td>
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</tr>
<tr>
<td>EE-A354</td>
<td>Engineering Signal Analysis</td>
<td>3</td>
</tr>
<tr>
<td>EE-A438</td>
<td>Design of Electrical Engineering Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE-A441</td>
<td>Integrated Circuit Design</td>
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<td>EE-A465</td>
<td>Telecommunications</td>
<td>3</td>
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<tr>
<td>EE/ME-A471</td>
<td>Automatic Control</td>
<td>3</td>
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<tr>
<td>ENGL-A212</td>
<td>Technical Writing</td>
<td>3</td>
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<tr>
<td>ENGR-A105A</td>
<td>Engineering Computer-Aided Design I</td>
<td>1</td>
</tr>
<tr>
<td>ENGR-A105B</td>
<td>Engineering Computer-Aided Design II</td>
<td>1</td>
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<tr>
<td>ENGR-A151</td>
<td>Introduction to Engineering</td>
<td>1</td>
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<tr>
<td>ES-A208</td>
<td>Engineering Statics and Dynamics</td>
<td>5</td>
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<td>ES-A302</td>
<td>Engineering Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ESM-A450</td>
<td>Economic Analysis and Operations</td>
<td>3</td>
</tr>
<tr>
<td>MATH-A200</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH-A201</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH-A202</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH-A302</td>
<td>Ordinary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>PHYS-A211</td>
<td>General Physics I</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>&amp; A211L ---and General Physics I Laboratory</td>
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</table>
**Physical Science and Engineering**

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<td>PHYS A212</td>
<td>General Physics II</td>
<td>4</td>
</tr>
<tr>
<td>&amp; A212L</td>
<td>—and General Physics II Laboratory</td>
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</table>

**Advanced Mathematics Electives**

Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH A314</td>
<td>Linear Algebra</td>
<td></td>
</tr>
<tr>
<td>MATH A321</td>
<td>Analysis of Several Variables</td>
<td></td>
</tr>
<tr>
<td>MATH A371</td>
<td>Stochastic Processes</td>
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</tr>
<tr>
<td>MATH A407</td>
<td>Mathematical Statistics I</td>
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<tr>
<td>MATH A410</td>
<td>Introduction to Complex Analysis</td>
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<tr>
<td>MATH A422</td>
<td>Partial Differential Equations</td>
<td></td>
</tr>
<tr>
<td>MATH A423</td>
<td>Advanced Engineering Mathematics</td>
<td></td>
</tr>
<tr>
<td>MATH A426</td>
<td>Numerical Methods</td>
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</tbody>
</table>

**Advanced Engineering Electives**

Complete 12 credits, including at least 6 credits of EE courses, from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE A403</td>
<td>Arctic Engineering **</td>
<td></td>
</tr>
<tr>
<td>or CE A603</td>
<td>Arctic Engineering</td>
<td></td>
</tr>
<tr>
<td>or ES A411</td>
<td>Northern Design</td>
<td></td>
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<tr>
<td>CSCE A365</td>
<td>Computer Networks</td>
<td></td>
</tr>
<tr>
<td>CSCE A445</td>
<td>Computer Design and Simulation</td>
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</tr>
<tr>
<td>CSCE A465</td>
<td>Computer and Network Security</td>
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</tr>
<tr>
<td>EE/ME A306</td>
<td>Dynamics of Systems</td>
<td></td>
</tr>
<tr>
<td>EE A407</td>
<td>Power Distribution</td>
<td></td>
</tr>
<tr>
<td>EE A451</td>
<td>Digital Signal Processing</td>
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<tr>
<td>EE A458</td>
<td>Antenna Theory</td>
<td></td>
</tr>
<tr>
<td>EE A462</td>
<td>Communication Systems</td>
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</tr>
</tbody>
</table>

**Upper Division Electives**

** Only one of CE A403 or CE A603 or ES A411 can apply to the degree.

A total of 131 credits is required for the degree, of which 42 credits must be upper division.

**Mechanical Engineering Option**
### Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>CHEM A105</td>
<td>General Chemistry I</td>
<td>4</td>
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<tr>
<td>A105L</td>
<td>and General Chemistry I Laboratory</td>
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<tr>
<td>CHEM A106</td>
<td>General Chemistry II</td>
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</tr>
<tr>
<td>A106L</td>
<td>and General Chemistry II Laboratory</td>
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<tr>
<td>ENGL A212</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGR A105A</td>
<td>Engineering Computer-Aided Design I</td>
<td>1</td>
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<tr>
<td>ENGR A105B</td>
<td>Engineering Computer-Aided Design II</td>
<td>1</td>
</tr>
<tr>
<td>ENGR A105C</td>
<td>Engineering Computer-Aided Design III</td>
<td>1</td>
</tr>
<tr>
<td>ENGR A151</td>
<td>Introduction to Engineering</td>
<td>1</td>
</tr>
<tr>
<td>ENGR A161</td>
<td>Engineering Practices II</td>
<td>3</td>
</tr>
<tr>
<td>ES A209</td>
<td>Engineering Statics</td>
<td>3</td>
</tr>
<tr>
<td>ES A210</td>
<td>Engineering Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ES A202</td>
<td>Engineering Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ES A209</td>
<td>Elements of Electrical Engineering</td>
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<tr>
<td>ES A331</td>
<td>Mechanics of Materials</td>
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</tr>
<tr>
<td>ES A341</td>
<td>Fluid Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>A341L</td>
<td>and Fluid Mechanics Laboratory</td>
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<tr>
<td>ES A346</td>
<td>Introduction to Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ESM A450</td>
<td>Economic Analysis and Operations</td>
<td>3</td>
</tr>
<tr>
<td>MATH A200</td>
<td>Calculus I</td>
<td>4</td>
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<tr>
<td>MATH A201</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH A202</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH A202</td>
<td>Ordinary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>ME A280</td>
<td>Solid Modeling for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>ME/EE A306</td>
<td>Dynamics of Systems</td>
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</tr>
<tr>
<td>ME/EE A308</td>
<td>Instrumentation and Measurement</td>
<td>3</td>
</tr>
<tr>
<td>ME A313</td>
<td>Mechanical Engineering Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME A334</td>
<td>Materials Science</td>
<td>4</td>
</tr>
<tr>
<td>A334L</td>
<td>and Materials Science Laboratory</td>
<td></td>
</tr>
</tbody>
</table>
ME-A403  Machine Design  3
ME-A414  Thermal System Design  4
& A414L  — and Thermal System Design Lab  4
ME-A428  Design of Mechanical Engineering Systems  3
ME-A441  Heat and Mass Transfer  4
& A441L  — and Heat and Mass Transfer Lab  4
PHYS-A211  General Physics I  4
& A211L  — and General Physics I Laboratory  4
PHYS-A212  General Physics II  4
& A212L  — and General Physics II Laboratory  4

Advanced Mathematics Electives

Select one of the following:  3

MATH-A314  Linear Algebra
MATH-A321  Analysis of Several Variables
MATH-A371  Stochastic Processes
MATH-A407  Mathematical Statistics I
MATH-A410  Introduction to Complex Analysis
MATH-A422  Partial Differential Equations
MATH-A423  Advanced Engineering Mathematics
MATH-A426  Numerical Methods

Advanced Engineering Electives

Complete 12 credits, including at least 6 credits of ME courses, from the following:  12

AEST-A608  Fundamentals of Air Pollution
CE-A403  Arctic Engineering  **
or CE-A603  Arctic Engineering
or ES-A411  Northern Design
CE-A441  Fundamentals of Environmental Engineering and Applied Environmental Science
CE-A442  Environmental Systems Design
ME-A408  Mechanical Vibrations  ***
or ME-A608  Mechanical Vibrations
ME A415 Composite Materials
or ME A615 Composite Materials
ME A442 Advanced Fluid Mechanics
or ME A642 Advanced Fluid Mechanics
ME A450 Manufacturing Design
ME A453 Renewable Energy Systems Engineering
or ME A653 Renewable Energy Systems Engineering
ME A456 HVAC Systems Optimization
or ME A656 HVAC Systems Optimization
ME A459 Fracture Mechanics
or ME A659 Fracture Mechanics
ME/EE A471 Automatic Control
ME A664 Corrosion Processes and Engineering
ME A685 Arctic Heat and Mass Transfer

** Only one of CE A403 or CE A603 or ES A411 can apply to the degree.
*** Only one course can apply to the degree.

A total of 132 credits is required for the degree, of which 42 credits must be upper division.

** Honors in Computer Systems Engineering

Undergraduate students in the program may be recognized for exceptional performance by earning departmental honors. The award will be noted on their permanent university transcript. In order to receive departmental honors, a student must meet each of the following requirements.

1. Complete all program requirements.
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 engineering profession.
3. Earn a GPA of 3.50 or above in the courses required for the major.
4. Gain approval for, complete and present a design/research project prior to applying for graduation. The project proposal, presentation, and final written report must be approved by the program faculty.

** Minor in Computer Systems Engineering
Students majoring in another subject who wish to minor in Computer Systems Engineering must complete the following requirements.

- **CSCE A201** Computer Programming I 4
- **CSCE A211** Computer Programming II 4
- **CSCE/EE A241** Computer Hardware Concepts 4
- **CSCE A248** Computer Organization and Assembly Language Programming 3
- **CSCE A311** Data Structures and Algorithms 3
- Additional upper division CSCE-prefixed courses 6

Total Credits 24

A total of 24 credits are required for the minor.

**Minor in Electrical Engineering**

Students majoring in another subject who wish to minor in Electrical Engineering must complete the following requirements.

A minimum of 18 credits must be selected from:

- **EE A203** Fundamentals of Electrical Engineering I* 3
- **EE/CSC A241** Computer Hardware Concepts
- **EE A307** Introduction to Power Systems
- **EE/ME A306** Instrumentation and Measurement
- **EE/PHYS A314** Electromagnetics *
- **EE/PHYS A324** Electromagnetics II
- **EE A324L** Electromagnetics Laboratory II *
- **EE A322** Electronic Devices *
- **EE A352** Circuit Theory *
- **EE A407** Power Distribution
- **EE A441** Integrated Circuit Design
- **EE A451** Digital Signal Processing
- **EE A458** Antenna Theory

Total Credits 18
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE/A462</td>
<td>Communication Systems</td>
<td></td>
</tr>
<tr>
<td>EE/A465</td>
<td>Telecommunications.*</td>
<td></td>
</tr>
<tr>
<td>EE/ME/A471</td>
<td>Automatic Control</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>18</td>
</tr>
</tbody>
</table>

*Recommended set of courses for the minor.

### Minor in General Engineering

Students majoring in a non-engineering subject who wish to minor in General Engineering must complete the following requirements.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGR/A151</td>
<td>Introduction to Engineering</td>
<td>1</td>
</tr>
<tr>
<td>ENGR/A161</td>
<td>Engineering Practices I</td>
<td>3</td>
</tr>
<tr>
<td>ES/A208</td>
<td>Engineering Statics and Dynamics</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Complete three of the following</strong></td>
<td>9</td>
</tr>
<tr>
<td>ES/A308</td>
<td>Instrumentation and Measurement</td>
<td></td>
</tr>
<tr>
<td>ES/A209</td>
<td>Elements of Electrical Engineering.*</td>
<td></td>
</tr>
<tr>
<td>ES/A311</td>
<td>Mechanics of Materials</td>
<td></td>
</tr>
<tr>
<td>ES/A341</td>
<td>Fluid Mechanics.*</td>
<td></td>
</tr>
<tr>
<td>ES/A346</td>
<td>Introduction to Thermodynamics.*</td>
<td></td>
</tr>
<tr>
<td>ESM/A450</td>
<td>Economic Analysis and Operations</td>
<td></td>
</tr>
<tr>
<td>ME/A224</td>
<td>Materials Science</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>18</td>
</tr>
</tbody>
</table>

*Recommended set of courses

### Minor in Mechanical Engineering

Students majoring in another subject who wish to minor in Mechanical Engineering must complete the following requirements:

A minimum of 18 credits must be selected from:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES/A224</td>
<td>Mechanics of Materials.*</td>
<td></td>
</tr>
<tr>
<td>ES/A341</td>
<td>Fluid Mechanics.*</td>
<td></td>
</tr>
<tr>
<td>ES/A341L</td>
<td>Fluid Mechanics Laboratory</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total Credits</strong></td>
<td>18</td>
</tr>
</tbody>
</table>
**Introduction to Thermodynamics**

**ME/EE A306**  
Dynamics of Systems

**ME/EE A308**  
Instrumentation and Measurement

**ME A312**  
Mechanical Engineering Thermodynamics

**ME A334**  
Materials Science

**ME A334L**  
Materials Science Laboratory

**ME A403**  
Machine Design

**ME A414**  
Thermal System Design

**ME A414L**  
Thermal System Design Lab

**ME A441**  
Heat and Mass Transfer

**ME A441L**  
Heat and Mass Transfer Lab

Total Credits: 18

---

**Recommended set of courses**

---

**Computer Systems Engineering**

*Martin Cenek, Assistant Professor, mcenek@uaa.alaska.edu*

*Kenrick Mock, Professor, kjmock@uaa.alaska.edu*

*Frank Moore, Professor/Chair, fwmoore@uaa.alaska.edu*

*Randy Moulic, Associate Professor, jmoulic@uaa.alaska.edu*

*Kirk Scott, Professor, kascott@uaa.alaska.edu*

*Frank Witmer, Assistant Professor*

---

**Electrical Engineering**

The Department of Electrical Engineering offers a Bachelor of Science in Electrical Engineering (BSEE), and a minor in Electrical Engineering. The program is a fully-accredited Bachelor of Science in Electrical Engineering degree program. During the first two years of study, students are introduced to principles of mathematics, chemistry and physics, as well as basic circuit theory, digital logic and electrical devices. The third year of study largely focuses on fundamental electrical engineering concepts including courses in signal analysis, electromagnetism, instrumentation and telecommunication. During the fourth year students take more advanced courses including technical electives that are more focused on electrical engineering analysis and design. Upper division electives include courses in computer design, antenna theory, communication theory, power distribution and control systems. Students also
take courses on written and oral communication, humanities, social sciences and fine arts to improve their communication skills and to put their profession into a broader societal context.

**Accreditation**

The Bachelor of Science in Electrical Engineering program is accredited by Engineering Accreditation Commission of ABET.

**Program Objectives**

1. To produce electrical engineering graduates with the training and skills to enter the job market or to continue their education by attending graduate school.
2. To produce graduates who will become business and community leaders in Alaska and throughout the world.
3. To produce graduates who will, through their training in electrical engineering and their commitment to their continuing education, become the entrepreneurs driving Alaska’s growth in the future.
4. To produce graduates in electrical engineering who conduct themselves and practice their profession with the highest of professional standards.

**Program Student Learning Outcomes**

It is expected that graduates from the program will have:

- An ability to apply knowledge of mathematics, science, and engineering.
- An ability to design and conduct experiments, as well as analyze and interpret data.
- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- An ability to function on multidisciplinary teams.
- An ability to identify, formulate, and solve engineering problems.
- An understanding of professional and ethical responsibility.
- An ability to communicate effectively.
- The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- A recognition of the need for, and the ability to engage in, lifelong learning.
- Knowledge of contemporary issues.
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

**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 should 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 of courses that count toward the engineering degree.

**Admission Requirements**

- Satisfy the Application and Admission Requirements for Baccalaureate Programs.

**Pre-Electrical Engineering and Electrical Engineering Levels**

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

Applicants for admission who have completed only the Application and Admission Requirements for Baccalaureate Programs are admitted to the program at the pre-electrical engineering level.

Applicants for admission who, in addition to the Application and Admission Requirements for Baccalaureate Programs, have completed the high school preparation courses listed above (or their university equivalents) with grades of C or better will be admitted to the program at the electrical engineering level.

**Advancement**

To advance from the pre-electrical engineering level to the electrical engineering level, students must meet the admission requirements to the electrical engineering level and complete and submit a Change of Major form.

**Academic Progress Requirements**

All prerequisites for engineering courses must be completed with a grade of C or higher, and all courses listed in the major requirements must be completed with a grade of C or higher. A student who is unable to earn a grade of C or higher in any EE, ES or ENGR course offered by
the college may attempt to earn a satisfactory grade one additional time on a space-available basis. Failure to earn a grade of C or higher on the second attempt may result in removal from the program. Re-admittance requires a letter of appeal from the student requesting re-admittance with an explanation of any mitigating factors and how these factors have been addressed. Re-admittance is subject to approval by the department chair of the program.

A student who has a semester GPA below 2.00 in the major requirements will be placed on academic warning by the program. If a student on academic warning status receives a semester GPA of at least 2.00 in the major requirements, that student will be removed from academic warning status by the program. Otherwise, if a student on academic warning status receives a semester GPA below 2.00 in the major requirements, the student will be dropped from the program and must reapply in order to continue in the program.

**Academic Integrity**

The program requires its students to abide by the principles of academic integrity described in the Student Code of Conduct. Should suspected cases of academic misconduct occur, these cases may be submitted to the UAA Dean of Students Office, where the assistant director of student conduct reviews all allegations of academic misconduct. At the conclusion of the review, the assistant director of student conduct issues a notification of the findings and conclusions to the reporting faculty member, department chair and dean. Should a student from the program be found responsible for a case of academic misconduct by the UAA Dean of Students Office on two separate occasions, that student will be dropped from the program. Re-admittance requires a letter of appeal from the student requesting re-admittance with an explanation of any mitigating factors and how these factors have been addressed. Re-admittance is subject to approval by the department chair of the student’s degree program.

**Graduation Requirements**

- Satisfy the General University Requirements for Baccalaureate Degrees.
- Complete the General Education Requirements for Baccalaureate Degrees.
- Complete the Major Requirements below with a grade of C or higher.
## Major Requirements

### Core Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM A105</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>&amp; A105L</td>
<td>General Chemistry I Laboratory</td>
<td></td>
</tr>
<tr>
<td>CSE A205</td>
<td>Introduction to C Programming for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>CSCE A248</td>
<td>Computer Organization and Assembly Language Programming</td>
<td>3</td>
</tr>
<tr>
<td>EE A203</td>
<td>Fundamentals of Electrical Engineering I</td>
<td>4</td>
</tr>
<tr>
<td>EE/CSCE A241</td>
<td>Computer Hardware Concepts</td>
<td>4</td>
</tr>
<tr>
<td>EE A261</td>
<td>MATLAB for Electrical Engineers</td>
<td>1</td>
</tr>
<tr>
<td>EE A307</td>
<td>Introduction to Power Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE/ME A308</td>
<td>Instrumentation and Measurement</td>
<td>3</td>
</tr>
<tr>
<td>EE/PHYS A314</td>
<td>Electromagnetics</td>
<td>3</td>
</tr>
<tr>
<td>EE/PHYS A324</td>
<td>Electromagnetics II</td>
<td>3</td>
</tr>
<tr>
<td>EE A324L</td>
<td>Electromagnetics Laboratory II</td>
<td>1</td>
</tr>
<tr>
<td>EE A333</td>
<td>Electronic Devices</td>
<td>4</td>
</tr>
<tr>
<td>EE A353</td>
<td>Circuit Theory</td>
<td>4</td>
</tr>
<tr>
<td>&amp; A353L</td>
<td>and Circuit Theory Lab</td>
<td></td>
</tr>
<tr>
<td>EE A354</td>
<td>Engineering Signal Analysis</td>
<td>3</td>
</tr>
<tr>
<td>EE A438</td>
<td>Design of Electrical Engineering Systems</td>
<td>3</td>
</tr>
<tr>
<td>EE A441</td>
<td>Integrated Circuit Design</td>
<td>3</td>
</tr>
<tr>
<td>EE A465</td>
<td>telecommunications</td>
<td>3</td>
</tr>
<tr>
<td>EE/ME A471</td>
<td>Automatic Control</td>
<td>3</td>
</tr>
<tr>
<td>ENGL A212</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGR A105A</td>
<td>Engineering Computer-Aided Design I</td>
<td>1</td>
</tr>
<tr>
<td>ENGR A105B</td>
<td>Engineering Computer-Aided Design II</td>
<td>1</td>
</tr>
<tr>
<td>ENGR A151</td>
<td>Introduction to Engineering</td>
<td>1</td>
</tr>
<tr>
<td>ES A208</td>
<td>Engineering Statics and Dynamics</td>
<td>5</td>
</tr>
<tr>
<td>ES A302</td>
<td>Engineering Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ESM A450</td>
<td>Economic Analysis and Operations</td>
<td>3</td>
</tr>
<tr>
<td>MATH A200</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>MATH A201</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH A202</td>
<td>Calculus III</td>
<td>4</td>
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<tr>
<td>MATH A302</td>
<td>Ordinary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>PHYS A211</td>
<td>General Physics I &amp; A211L</td>
<td>4</td>
</tr>
<tr>
<td>PHYS A212</td>
<td>General Physics II &amp; A212L</td>
<td>4</td>
</tr>
</tbody>
</table>

**Advanced Mathematics Electives**
Select 3 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH A314</td>
<td>Linear Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH A321</td>
<td>Analysis of Several Variables</td>
<td></td>
</tr>
<tr>
<td>MATH A371</td>
<td>Stochastic Processes</td>
<td></td>
</tr>
<tr>
<td>MATH A407</td>
<td>Mathematical Statistics I</td>
<td></td>
</tr>
<tr>
<td>MATH A410</td>
<td>Introduction to Complex Analysis</td>
<td></td>
</tr>
<tr>
<td>MATH A422</td>
<td>Partial Differential Equations</td>
<td></td>
</tr>
<tr>
<td>MATH A423</td>
<td>Advanced Engineering Mathematics</td>
<td></td>
</tr>
<tr>
<td>MATH A426</td>
<td>Numerical Methods</td>
<td></td>
</tr>
</tbody>
</table>

**Advanced Engineering Electives**
Complete 12 credits, including at least 6 credits of EE courses, from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CE A403</td>
<td>Arctic Engineering</td>
<td></td>
</tr>
<tr>
<td>or CE A603</td>
<td>Arctic Engineering</td>
<td></td>
</tr>
<tr>
<td>or ES A411</td>
<td>Northern Design</td>
<td></td>
</tr>
<tr>
<td>CSCE A365</td>
<td>Computer Networks</td>
<td></td>
</tr>
<tr>
<td>CSCE A445</td>
<td>Computer Design and Simulation</td>
<td></td>
</tr>
<tr>
<td>CSCE A465</td>
<td>Computer and Network Security</td>
<td></td>
</tr>
<tr>
<td>EE/ME A306</td>
<td>Dynamics of Systems</td>
<td></td>
</tr>
<tr>
<td>EE A407</td>
<td>Power Distribution</td>
<td></td>
</tr>
<tr>
<td>EE A451</td>
<td>Digital Signal Processing</td>
<td></td>
</tr>
<tr>
<td>EE A458</td>
<td>Antenna Theory</td>
<td></td>
</tr>
</tbody>
</table>

- [ ]
Only one of CE A403 or CE A603 or ES A411 can apply to the degree.

A total of 131 credits is required for the degree, of which 42 credits must be upper division.

**Honors in Electrical Engineering**

Undergraduate students in the program may be recognized for exceptional performance by earning departmental honors. The award will be noted on their permanent university transcript. In order to receive departmental honors, a student must meet each of the following requirements.

1. Complete all program requirements.
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 engineering profession.
3. Earn a GPA of 3.50 or above in the courses required for the major.
4. Gain approval for, complete and present a design/research project prior to applying for graduation. The project proposal, presentation, and final written report must be approved by the program faculty.

**Minor in Electrical Engineering**

Students majoring in another subject who wish to minor in Electrical Engineering must complete the following requirements.

A minimum of 18 credits must be selected from:

<table>
<thead>
<tr>
<th>EE A203</th>
<th>Fundamentals of Electrical Engineering I *</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE/CSCE A241</td>
<td>Computer Hardware Concepts</td>
</tr>
<tr>
<td>EE A307</td>
<td>Introduction to Power Systems</td>
</tr>
<tr>
<td>EE/ME A308</td>
<td>Instrumentation and Measurement</td>
</tr>
<tr>
<td>EE/PHYS A314</td>
<td>Electromagnetics *</td>
</tr>
<tr>
<td>EE/PHYS A324</td>
<td>Electromagnetics II</td>
</tr>
<tr>
<td>EE A324L</td>
<td>Electromagnetics Laboratory II *</td>
</tr>
<tr>
<td>EE A333</td>
<td>Electronic Devices *</td>
</tr>
<tr>
<td>EE A353</td>
<td>Circuit Theory *</td>
</tr>
<tr>
<td>EE A407</td>
<td>Power Distribution</td>
</tr>
</tbody>
</table>

\[\text{Formatted...}\]
### EE A441
Integrated Circuit Design

### EE A451
Digital Signal Processing

### EE A458
Antenna Theory

### EE A462
Communication Systems

### EE A465
Telecommunications

### EE/ME A471
Automatic Control

**Total Credits** 18

*Recommended set of courses for the minor.*

#### 2. Minor in General Engineering

3. Students majoring in a non-engineering subject who wish to minor in General Engineering must complete the following requirements.

- **ENGR A151** Introduction to Engineering
- **ENGR A161** Engineering Practices II
- **ES A208** Engineering Statics and Dynamics

Complete three of the following:

- **EE/ME A308** Instrumentation and Measurement
- **ES A309** Elements of Electrical Engineering*
- **ES A321** Mechanics of Materials
- **ES A341** Fluid Mechanics*
- **ES A346** Introduction to Thermodynamics*
- **ESM A450** Economic Analysis and Operations
- **ME A334** Materials Science

**Total Credits** 18

*Recommended set of courses*

#### 5. Minor in Mechanical Engineering

6. Students majoring in another subject who wish to minor in Mechanical Engineering must complete the following requirements.

A minimum of 18 credits must be selected from:

**Total Credits** 18
Mechanics of Materials
Fluid Mechanics
Fluid Mechanics Laboratory
Introduction to Thermodynamics
Dynamics of Systems
Instrumentation and Measurement
Mechanical Engineering Thermodynamics
Materials Science
Materials Science Laboratory
Machine Design
Thermal System Design
Thermal System Design Lab
Heat and Mass Transfer
Heat and Mass Transfer Lab
Total Credits 18

Recommended set of courses

Faculty

Electrical Engineering
Matthew Kapilik, Assistant Professor, mkupilik@uaa.alaska.edu
Joe Mixsell, Associate Professor, jcmixselljr@uaa.alaska.edu
Jens Munk, Associate Professor/Chair, jmunk2@uaa.alaska.edu
Todd Petersen, Assistant Professor, thpetersen@uaa.alaska.edu

Mechanical Engineering

The Department of Mechanical Engineering offers a Bachelor of Science in Mechanical Engineering (BSME), and minors in General Engineering and Mechanical Engineering. The program is a fully accredited Bachelor of Science in Mechanical Engineering degree program. Students are introduced to principles of mathematics, chemistry and physics during the first two years of study. The third year of study largely focuses on courses that apply these basic sciences in an engineering context. During the fourth year students take more advanced courses including technical electives that are more focused on mechanical engineering analysis and design. The program focuses on the design of systems related to transfer of thermal and mechanical energies.
where topics such as machine design and thermal systems, including heating, ventilation, air conditioning, and refrigeration (HVAC&R), are covered in detail. Students have the opportunity for hands-on experience in a state-of-the-art manufacturing lab with rapid prototyping through three dimensional printers and CNC machining. Students also take courses on written and oral communication, humanities, social sciences and fine arts to improve their communication skills and to put their profession into a broader societal context.

**Accreditation**

The Bachelor of Science in Mechanical Engineering program is accredited by Engineering Accreditation Commission of ABET.

**Program Objectives**

To produce graduates who are able to practice mechanical engineering through design and analysis of mechanical systems in industry, government, and academic settings.

To produce graduates who are prepared for graduate-level education, research and development, and other creative endeavors in science and technology.

To produce graduates who are able to conduct themselves in a professional and ethical manner.

To produce graduates who are able to become contributors and leaders in the economic development and improving the quality of life in the State of Alaska, the nation and the world.

**Program Student Learning Outcomes**

It is expected that graduates from the program will have:

- An ability to apply knowledge of mathematics, science, and engineering.
- An ability to design and conduct experiments, as well as analyze and interpret data.
- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- An ability to function on multidisciplinary teams.
- An ability to identify, formulate, and solve engineering problems.
- An understanding of professional and ethical responsibility.
- An ability to communicate effectively.
- The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- A recognition of the need for, and the ability to engage in, lifelong learning.
- A knowledge of contemporary issues.
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
**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 should 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 of courses that count toward the engineering degree.

**Admission Requirements**

Satisfy the Application and Admission Requirements for Baccalaureate Programs.

**Pre-engineering and Engineering Levels**

Admission to the Bachelor of Science in Mechanical 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 mechanical engineering students.

Applicants for admission who have completed only the Application and Admission Requirements for Baccalaureate Programs are admitted to the program at the pre-engineering level.

Applicants for admission who, in addition to the Application and Admission Requirements for Baccalaureate Programs, have completed the high school preparation courses listed above (or their university equivalents) with grades of C or better will be admitted to the program at the mechanical engineering level.

**Advancement**

To advance from the pre-engineering level to the engineering level, students must meet the admission requirements to the engineering level and complete and submit a Change of Major form.

**Academic Progress Requirements**
All prerequisites for engineering courses must be completed with a grade of C or higher, and all courses listed in the major requirements must be completed with a grade of C or higher. A student who is unable to earn a grade of C or higher in an ES, ENGR or ME course may attempt to earn a satisfactory grade one additional time on a space-available basis. Failure to earn a grade of C or higher on the second attempt may result in removal from the program. Re-admittance requires a letter of appeal from the student requesting re-admittance with an explanation of any mitigating factors and how these factors have been addressed. Re-admittance is subject to approval by the department chair of the program.

A student who has a semester GPA below 2.00 in the major requirements will be placed on academic warning by the program. If a student on academic warning status receives a semester GPA of at least 2.00 in the major requirements, that student will be removed from academic warning status by the program. Otherwise, if a student on academic warning status receives a semester GPA below 2.00 in the major requirements, the student will be dropped from the program and must reapply in order to continue in the program.

Academic Integrity

The program requires its students to abide by the principles of academic integrity described in the Student Code of Conduct. Should suspected cases of academic misconduct occur, these cases may be submitted to the UAA Dean of Students Office, where the assistant director of student conduct reviews all allegations of academic misconduct. At the conclusion of the review, the assistant director of student conduct issues a notification of the findings and conclusions to the reporting faculty member, department chair and dean. Should a student from the program be found responsible for a case of academic misconduct by the UAA Dean of Students Office on two separate occasions, that student will be dropped from the program. Re-admittance requires a letter of appeal from the student requesting re-admittance with an explanation of any mitigating factors and how these factors have been addressed. Re-admittance is subject to approval by the department chair of the student’s degree program.

Graduation Requirements

Satisfy the General University Requirements for Baccalaureate Degrees.
Complete the General Education Requirements for Baccalaureate Degrees.
Complete the Major Requirements below with a grade of C or higher.

Major Requirements

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM A105 &amp; A105L</td>
<td>General Chemistry I and General Chemistry I Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>CHEM A106 &amp; A106L</td>
<td>General Chemistry II and General Chemistry II Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>ENGL A212</td>
<td>Technical Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGR A105A</td>
<td>Engineering Computer-Aided Design I</td>
<td>1</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
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<tr>
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<tr>
<td>ENGR A105B</td>
<td>Engineering Computer-Aided Design II</td>
<td>3</td>
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<tr>
<td>ENGR A105C</td>
<td>Engineering Computer-Aided Design III</td>
<td>3</td>
</tr>
<tr>
<td>ENGR A151</td>
<td>Introduction to Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ENGR A161</td>
<td>Engineering Practices II</td>
<td>3</td>
</tr>
<tr>
<td>ES A209</td>
<td>Engineering Statics</td>
<td>3</td>
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<tr>
<td>ES A210</td>
<td>Engineering Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>ES A302</td>
<td>Engineering Data Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ES A308</td>
<td>Elements of Electrical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ES A331</td>
<td>Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>ES A341 &amp; A341L</td>
<td>Fluid Mechanics and Fluid Mechanics Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>ES A346</td>
<td>Introduction to Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ESM A450</td>
<td>Economic Analysis and Operations</td>
<td>3</td>
</tr>
<tr>
<td>MATH A200</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH A201</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH A202</td>
<td>Calculus III</td>
<td>4</td>
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<tr>
<td>MATH A202</td>
<td>Ordinary Differential Equations</td>
<td>3</td>
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<tr>
<td>ME A280</td>
<td>Solid Modeling for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>ME/EE A306</td>
<td>Dynamics of Systems</td>
<td>3</td>
</tr>
<tr>
<td>ME/EE A308</td>
<td>Instrumentation and Measurement</td>
<td>3</td>
</tr>
<tr>
<td>ME A313</td>
<td>Mechanical Engineering Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>ME A331 &amp; A331L</td>
<td>Materials Science and Materials Science Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>ME A402</td>
<td>Machine Design</td>
<td>3</td>
</tr>
<tr>
<td>ME A414 &amp; A414L</td>
<td>Thermal System Design and Thermal System Design Lab</td>
<td>4</td>
</tr>
<tr>
<td>ME A438</td>
<td>Design of Mechanical Engineering Systems</td>
<td>3</td>
</tr>
<tr>
<td>ME A441 &amp; A441L</td>
<td>Heat and Mass Transfer and Heat and Mass Transfer-Lab</td>
<td>4</td>
</tr>
<tr>
<td>PHYS A211 &amp; A211L</td>
<td>General Physics and General Physics I Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>PHYS A212 &amp; A212L</td>
<td>General Physics II and General Physics II Laboratory</td>
<td>4</td>
</tr>
</tbody>
</table>

**Advanced Mathematics Electives**

Select one of the following:

- **MATH A314** Linear Algebra
- **MATH A321** Analysis of Several Variables
- **MATH A371** Stochastic Processes
- **MATH A407** Mathematical Statistics I
- **MATH A410** Introduction to Complex Analysis
Complete 12 credits, including at least 6 credits of ME courses, from the following: 12

- AEST A608 Fundamentals of Air Pollution
- CE A403 Arctic Engineering **
  or CE A603 Arctic Engineering
  or ES A411 Northern Design
- CE A441 Fundamentals of Environmental Engineering and Applied Environmental Science
- CE A442 Environmental Systems Design
  or ME A408 Mechanical Vibrations ***
  or ME A608 Mechanical Vibrations
- ME A415 Composite Materials ***
  or ME A615 Composite Materials
- ME A442 Advanced Fluid Mechanics ***
  or ME A642 Advanced Fluid Mechanics
- ME A450 Manufacturing Design
  or ME A653 Renewable Energy Systems Engineering
- ME A452 Renewable Energy Systems Engineering
  or ME A655 HVAC Systems Optimization ***
  or ME A655 HVAC Systems Optimization
- ME A459 Fracture Mechanics ***
  or ME A659 Fracture Mechanics
- ME/EE A471 Automatic Control
- ME A664 Corrosion Processes and Engineering
- ME A685 Arctic Heat and Mass Transfer

** Only one of CE A403 or CE A603 or ES A411 can apply to the degree.

*** Only one course can apply to the degree.

A total of 132 credits is required for the degree, of which 42 credits must be upper division.

** Honors in Engineering **

Undergraduate students in the program may be recognized for exceptional performance by earning departmental honors. The award will be noted on their permanent university transcript. In order to receive departmental honors, a student must meet each of the following requirements:

- Complete all program requirements.
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 engineering profession.

Gain approval for, complete and present a design/research project prior to applying for graduation. The project proposal, presentation, and final written report must be approved by the program faculty.

**Minor in General Engineering**

Students majoring in a non-engineering subject who wish to minor in General Engineering must complete the following requirements:

- **ENGR A151**: Introduction to Engineering
- **ENGR A161**: Engineering Practices II
- **ES A308**: Engineering Statics and Dynamics

Complete three of the following:

- **EE/ME A308**: Instrumentation and Measurement
- **ES A309**: Elements of Electrical Engineering
- **ES A331**: Mechanics of Materials
- **ES A341**: Fluid Mechanics
- **ES A346**: Introduction to Thermodynamics
- **ESM A450**: Economic Analysis and Operations
- **ME A334**: Materials Science

Total Credits

Recommended set of courses

**Minor in Mechanical Engineering**

Students majoring in another subject who wish to minor in Mechanical Engineering must complete the following requirements:

A minimum of 18 credits must be selected from:

- **ES A331**: Mechanics of Materials
- **ES A341**: Fluid Mechanics
- **ES A341L**: Fluid Mechanics Laboratory
- **ES A346**: Introduction to Thermodynamics
- **ME/EE A306**: Dynamics of Systems
- **ME/EE A308**: Instrumentation and Measurement
- **ME A313**: Mechanical Engineering Thermodynamics
- **ME A334**: Materials Science
- **ME A334L**: Materials Science Laboratory
ME A403  Machine Design
ME A414  Thermal System Design
ME A414L Thermal System Design Lab
ME A441  Heat and Mass Transfer
ME A441L Heat and Mass Transfer Lab

[Total Credits 18]

Recommended set of courses

Faculty

Mechanical Engineering

Jennifer Brock, Associate Professor/Chair, jmeffran@uaf.alaska.edu
Matt Cullin, Associate Professor, mcullin@uaf.alaska.edu
Getu Haile, Assistant Professor, ghalli@uaf.alaska.edu
Jeff Hoffman, Associate Professor, ajhoffman@uaf.alaska.edu
Nicolae Lobontiu, Professor, nlobontiu@uaf.alaska.edu
Ganghua Lu, Assistant Professor, glu2@uaf.alaska.edu
Anthony Paris, Associate Professor, aparis@uaf.alaska.edu
Jifeng Peng, Assistant Professor, jpeng@uaf.alaska.edu
13 November 2014

Dear Provost Baker:

The Computer Science & Engineering Department faculty is proposing that our current baccalaureate degree offering, the Bachelor of Science in Engineering, concentration Computer Systems Engineering (BSE/CSE) degree, be replaced with a Bachelor of Science in Computer Systems Engineering (BSCSE) degree. Two other concentrations are offered under the BSE degree, one in Electrical Engineering (EE) and one in Mechanical Engineering (ME). The CSE, EE, and ME concentrations offer separate curricula with few common courses, are administered by faculty in three separate departments, and are separately accredited by our external accrediting body, ABET, Inc.

The rationale for the proposed change is administrative difficulties and confusion caused by the BSE/CSE designation. For example, since CSE is not a separate bachelor’s degree program, its students are difficult to track on Banner. This proposal is not for a program that will be new to UA, nor will it involve making substantive changes to anything other than the title of the degree conferred to students at the completion of an established course of study. Changes are not being proposed to the curriculum, student learning outcomes, faculty or staff workloads, number of faculty and staff, or the level of resourcing currently provided to the Computer Science & Engineering Department.

Thank you for your consideration. Please feel free to contact me at any time if you have any questions.

Sincerely,

Frank W. Moore
Professor and Chair
Computer Science & Engineering Department
jmcferran@uaa.alaska.edu
# 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
EN SOENGR

## 1b. Department
CS&E

## 2. Complete Program Title/Prefix

**Computer Systems Engineering**

## 3. Type of Program

<table>
<thead>
<tr>
<th>Choose one from the appropriate drop down menu:</th>
<th>Undergraduate:</th>
<th>or</th>
<th>Graduate:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bachelor of Science</td>
<td></td>
<td>CHOSE ONE</td>
</tr>
</tbody>
</table>

This program is a Gainful Employment Program:  

- [ ] Yes
- [x] No

## 4. Type of Action:

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>PREFIX</th>
</tr>
</thead>
<tbody>
<tr>
<td>[x] Add</td>
<td>[ ] Add</td>
</tr>
<tr>
<td>[ ] Change</td>
<td>[ ] Change</td>
</tr>
<tr>
<td>[ ] Delete</td>
<td>[ ] Inactivate</td>
</tr>
</tbody>
</table>

## 5. Implementation Date (semester/year)

From: **Fall 2015**  
To: **9/9999**

## 6a. Coordination with Affected Units

**Department, School, or College:** CS&E

Initiator Name (typed): **J R Moulic**

Initiator Signed Initials: ______  
Date: ___________

## 6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu)  

**Date:** 11/12/2014

## 6c. Coordination with Library Liaison  

Date: **11/12/2014**

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

- [x] Cover Memo
- [x] Catalog Copy in Word using the track changes function

## 8. Justification for Action

The Bachelor of Science in Engineering program is being split into three separate degree programs. By doing so, the College of Engineering is eliminating confusion on the part of students, parents, and employers. Students who complete the Computer Systems Engineering program will earn a Bachelor of Science in Computer Systems Engineering degree.

---

**Initiator (faculty only)**

**James R Moulic**  
Initiator (TYPE NAME)

- [ ] Approved  
- [x] Disapproved

**Date**

- [ ] Approved  
- [x] Disapproved

Dean/Director of School/College  
Date

- [ ] Approved  
- [x] Disapproved

Undergraduate/Graduate Academic  
Date

- [ ] Approved  
- [x] Disapproved

Board Chair  
Date

- [ ] Approved  
- [x] Disapproved

Provost or Designee  
Date
Catalog Copy

Computer Systems Engineering

Natural Sciences Building (NSB), Room 223, (907) 786-5475
http://www.rrr.alaska.edu/schoolofengineering

The Department of Computer Science and Engineering offers a Bachelor of Science in Computer Systems Engineering (BSCSE), and a minor in Computer Systems Engineering. The program is a fully-accredited Bachelor of Science in Computer Systems Engineering degree program. Students are introduced to principles of mathematics and physics during the first two years of study along with introductory courses in fundamentals of computer hardware and programming. The third and fourth years consist of upper division courses applicable to computer systems along with computer systems engineering electives in the area of the students’ interests. Students complete a project-oriented capstone course where they will apply their knowledge in computer systems engineering to solve challenging problems. Students also take courses on written and oral communication, humanities, social sciences and fine arts to improve their communication skills and to put their profession into a broader societal context.

Accreditation

The Bachelor of Science in Computer Systems Engineering (BSCSE) program is accredited by the Engineering Accreditation Commission of ABET.

Program Objectives

1. Graduates are successful practitioners of computer systems engineering in a variety of industries, government agencies and research/academic institutions, serving the State of Alaska as well as national/international needs.
2. Graduates exhibit high standards regarding ethical behavior and social responsibility.
3. Graduates successfully engage in life-long learning experiences such as graduate education, short courses, technical talks, conferences, training program, community groups, and writing and/or publishing papers.

Program Student Learning Outcomes

It is expected that graduates from the program will have:

- An ability to apply knowledge of mathematics, science, and engineering.
- An ability to design and conduct experiments, as well as analyze and interpret data.
• An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
• An ability to function on multidisciplinary teams.
• An ability to identify, formulate, and solve engineering problems.
• An understanding of professional and ethical responsibility.
• An ability to communicate effectively.
• The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
• A recognition of the need for, and the ability to engage in, lifelong learning.
• A knowledge of contemporary issues.
• An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Preparation

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Algebra</td>
<td>2 years</td>
</tr>
<tr>
<td>Chemistry</td>
<td>1 year</td>
</tr>
<tr>
<td>English</td>
<td>3 years</td>
</tr>
<tr>
<td>Physics</td>
<td>1 year</td>
</tr>
<tr>
<td>Trigonometry</td>
<td>1/2 year</td>
</tr>
</tbody>
</table>

Students successfully completing the above courses should 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 of courses that count toward the engineering degree.

Admission Requirements

Satisfy the Application and Admission Requirements for Baccalaureate Programs.

Pre-engineering and Engineering Levels

Admission to the Bachelor of Science in Computer Systems Engineering program is to one of two levels: pre-Computer Systems Engineering or Computer Systems Engineering. Students admitted to either of the two levels are considered to be degree-seeking computer systems engineering students.
Applicants for admission who have completed only the Application and Admission Requirements for Baccalaureate Programs are admitted to the program at the pre-Computer Systems Engineering level.

Applicants for admission who, in addition to the Application and Admission Requirements for Baccalaureate Programs, have completed the high school preparation courses listed above (or their university equivalents) with grades of C or better will be admitted to the program at the computer systems engineering level.

Advancement

To advance from the pre-Computer Systems Engineering level to the Computer Systems Engineering level, students must meet the admission requirements to the Computer Systems Engineering level and complete and submit a Change of Major form.

Academic Progress Requirements

All prerequisites for engineering courses must be completed with a grade of C or higher, and all courses listed in the major requirements must be completed with a grade of C or higher. A student who is unable to earn a grade of C or higher in any course offered by the College of Engineering may attempt to earn a satisfactory grade a maximum of two additional times on a space-available basis. Failure to earn a grade of C or higher on either the second or third attempt shall result in removal from the program. Re-admittance requires a letter of appeal from the student requesting re-admittance with an explanation of any mitigating factors and how these factors have been addressed. Re-admittance is subject to approval by the Computer Science & Engineering Department Chair.

A student who has a semester GPA below 2.00 in the major requirements will be placed on academic warning by the program. If a student on academic warning status receives a semester GPA of at least 2.00 in the major requirements, that student will be removed from academic warning status by the program. If a student on academic warning status receives a semester GPA below 2.00 in the major requirements, the student will be dropped from the program and must reapply in order to continue in the program.

Academic Integrity

The program requires its students to abide by the principles of academic integrity described in the Student Code of Conduct. Should suspected cases of academic misconduct occur, these cases may be submitted to the UAA Dean of Students Office, where the assistant director of student conduct reviews all allegations of academic misconduct. At the conclusion of the review, the assistant director of student conduct issues a notification of the findings and conclusions to the reporting faculty member, department chair and dean. Should a student from the program be found responsible for a case of academic misconduct by the UAA Dean of Students Office on two separate occasions, that student will be dropped from the program. Re-admittance requires a letter of appeal from the student requesting re-admittance with an explanation of any mitigating
factors and how these factors have been addressed. Re-admittance is subject to approval by the department chair of the student’s degree program.

Graduation Requirements

- Satisfy the General University Requirements for Baccalaureate Degrees.
- Complete the General Education Requirements for Baccalaureate Degrees.
- Complete the Major Requirements below with a grade of C or higher.

Major Requirements

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCE A201</td>
<td>Computer Programming I</td>
<td>4</td>
</tr>
<tr>
<td>CSCE A211</td>
<td>Computer Programming II</td>
<td>4</td>
</tr>
<tr>
<td>CSCE/EE A241</td>
<td>Computer Hardware Concepts</td>
<td>4</td>
</tr>
<tr>
<td>CSCE A248</td>
<td>Computer Organization and Assembly Language Programming</td>
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</tr>
<tr>
<td>CSCE A311</td>
<td>Data Structures and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>CSCE A320</td>
<td>Operating Systems</td>
<td>3</td>
</tr>
<tr>
<td>CSCE A342</td>
<td>Digital Circuits Design</td>
<td>3</td>
</tr>
<tr>
<td>CSCE A365</td>
<td>Computer Networks</td>
<td>3</td>
</tr>
<tr>
<td>CSCE A448</td>
<td>Computer Architecture</td>
<td>3</td>
</tr>
<tr>
<td>CSCE A465</td>
<td>Computer and Network Security</td>
<td>3</td>
</tr>
<tr>
<td>CSCE A470</td>
<td>Computer Science and Engineering Capstone Project</td>
<td>3</td>
</tr>
<tr>
<td>EE A203</td>
<td>Fundamentals of Electrical Engineering I</td>
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</tr>
<tr>
<td>EE A333</td>
<td>Electronic Devices</td>
<td>4</td>
</tr>
<tr>
<td>EE A353</td>
<td>Circuit Theory</td>
<td>3</td>
</tr>
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<td>ENGL A212</td>
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<tr>
<td>MATH A200</td>
<td>Calculus I</td>
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<tr>
<td>MATH A202</td>
<td>Calculus III</td>
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</tr>
<tr>
<td>MATH A231</td>
<td>Introduction to Discrete Mathematics</td>
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</tr>
<tr>
<td>MATH A302</td>
<td>Ordinary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>PHIL A305</td>
<td>Professional Ethics</td>
<td>3</td>
</tr>
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<td>PHYS A211</td>
<td>General Physics I</td>
<td>4</td>
</tr>
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<td></td>
<td>&amp; A211L</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Physics I and General Physics I Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>PHYS A212</td>
<td>General Physics II</td>
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<td></td>
<td>&amp; A212L</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Physics II and General Physics II Laboratory</td>
<td>4</td>
</tr>
<tr>
<td>STAT A307</td>
<td>Probability and Statistics</td>
<td>4</td>
</tr>
</tbody>
</table>

Advanced Engineering Electives *

Complete 15 credits from the following: 15

Any upper division elective with a CSCE prefix

- EE/PHYS A314 Electromagnetics
- EE/PHYS A324 Electromagnetics II
- EE A324L Electromagnetics Laboratory II
- EE A354 Engineering Signal Analysis
- EE A441 Integrated Circuit Design
- EE A451 Digital Signal Processing
- EE A462 Communication Systems
- EE A465 Telecommunications

* Of the 15 credits of advanced engineering electives, at least 6 credits must be from CSCE courses. A maximum of 3 credits from CSCE A395, a maximum of 3 credits from CSCE A495 and a maximum of 6 credits from CSCE A498 may be applied toward this degree requirement.
Other relevant courses may be accepted by approved petition.

A total of 120 credits are required for the degree, of which 42 credits must be upper division.

**Honors in Computer Systems Engineering**

Undergraduate students in the program may be recognized for exceptional performance by earning departmental honors. The award will be noted on their permanent university transcript. In order to receive departmental honors, a student must meet each of the following requirements.

1. Complete all program requirements.
2. Earn a GPA of 3.50 or above in the courses required for the major.
3. Gain approval for, complete and present a design/research project prior to applying for graduation. The project proposal, presentation, and final written report must be approved by the program faculty.

**Minor in Computer Systems Engineering**

Students majoring in another subject who wish to minor in Computer Systems Engineering must complete the following requirements.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Computer Programming I</td>
<td>4</td>
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<tr>
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<td>Computer Programming II</td>
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<tr>
<td>CSCE/EE A241</td>
<td>Computer Hardware Concepts</td>
<td>4</td>
</tr>
<tr>
<td>CSCE A248</td>
<td>Computer Organization and Assembly Language</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Programming</td>
<td></td>
</tr>
<tr>
<td>CSCE A311</td>
<td>Data Structures and Algorithms</td>
<td>3</td>
</tr>
<tr>
<td>Additional upper division CSCE-prefixed courses</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Total Credits</td>
<td></td>
<td>24</td>
</tr>
</tbody>
</table>

A total of 24 credits are required for the minor.

**Faculty**

*Martin Cenek, Assistant Professor, mcenek@uaa.alaska.edu*
*Kenrick Mock, Professor, kjmock@uaa.alaska.edu*
*Frank Moore, Professor/Chair, fmoore@uaa.alaska.edu*
*Randy Moulic, Associate Professor, jrmoulic@uaa.alaska.edu*
Kirk Scott, Professor, kascott@uaa.alaska.edu
Frank Witmer, Assistant Professor, fwitmer@uaa.alaska.edu
The Department of Computer Science and Engineering offers a Bachelor of Science in Computer Systems Engineering (BSCSE), and a minor in Computer Systems Engineering. The program is a fully-accredited Bachelor of Science in Computer Systems Engineering degree program. Students are introduced to principles of mathematics and physics during the first two years of study along with introductory courses in fundamentals of computer hardware and programming. The third and fourth years consist of upper division courses applicable to computer systems along with computer systems engineering electives in the area of the students’ interests. Students complete a project-oriented capstone course where they will apply their knowledge in computer systems engineering to solve challenging problems. Students also take courses on written and oral communication, humanities, social sciences and fine arts to improve their communication skills and to put their profession into a broader societal context.

Accreditation

The Bachelor of Science in Computer Systems Engineering (BSCSE) program is accredited by the Engineering Accreditation Commission of ABET.

Program Objectives

1. Graduates are successful practitioners of computer systems engineering in a variety of industries, government agencies and research/academic institutions, serving the State of Alaska as well as national/international needs.
2. Graduates exhibit high standards regarding ethical behavior and social responsibility.
3. Graduates successfully engage in life-long learning experiences such as graduate education, short courses, technical talks, conferences, training program, community groups, and writing and/or publishing papers.

Program Student Learning Outcomes

It is expected that graduates from the program will have:

- An ability to apply knowledge of mathematics, science, and engineering.
- An ability to design and conduct experiments, as well as analyze and interpret data.
• An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
• An ability to function on multidisciplinary teams.
• An ability to identify, formulate, and solve engineering problems.
• An understanding of professional and ethical responsibility.
• An ability to communicate effectively.
• The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
• A recognition of the need for, and the ability to engage in, lifelong learning.
• A knowledge of contemporary issues.
• An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Preparation

While in high school, students can prepare for entering and succeeding in the university engineering program. In order to be adequately prepared, students should complete a minimum of 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 should 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 of courses that count toward the engineering degree.

Admission Requirements

Satisfy the Application and Admission Requirements for Baccalaureate Programs.

Pre-engineering and Engineering Levels

Admission to the Bachelor of Science in Computer Systems Engineering program is to one of two levels: pre-Computer Systems Engineering engineering or Computer Systems Engineering. Students admitted to either of the two levels are considered to be degree-seeking computer systems engineering students.
Applicants for admission who have completed only the Application and Admission Requirements for Baccalaureate Programs are admitted to the program at the pre-Computer Systems Engineering level.

Applicants for admission who, in addition to the Application and Admission Requirements for Baccalaureate Programs, have completed the high school preparation courses listed above (or their university equivalents) with grades of C or better will be admitted to the program at the computer systems engineering level.

Advancement

To advance from the pre-Computer Systems Engineering level to the Computer Systems Engineering level, students must meet the admission requirements to the Computer Systems Engineering level and complete and submit a Change of Major form.

Academic Progress Requirements

All prerequisites for engineering courses must be completed with a grade of C or higher, and all courses listed in the major requirements must be completed with a grade of C or higher. A student who is unable to earn a grade of C or higher in a CSE, CS, EE, ES or ENGR any course offered by the College of Engineering may attempt to earn a satisfactory grade a maximum of twice additional times on a space-available basis. Failure to earn a grade of C or higher on either the second or third attempt shall result in removal from the program. Re-admittance requires a letter of appeal from the student requesting re-admittance with an explanation of any mitigating factors and how these factors have been addressed. Re-admittance is subject to approval by the Computer Science & Engineering Department Chair of the program.

A student who has a semester GPA below 2.00 in the major requirements will be placed on academic warning by the program. If a student on academic warning status receives a semester GPA of at least 2.00 in the major requirements, that student will be removed from academic warning status by the program. Otherwise, if a student on academic warning status receives a semester GPA below 2.00 in the major requirements, the student will be dropped from the program and must reapply in order to continue in the program.

Academic Integrity

The program requires its students to abide by the principles of academic integrity described in the Student Code of Conduct. Should suspected cases of academic misconduct occur, these cases may be submitted to the UAA Dean of Students Office, where the assistant director of student conduct reviews all allegations of academic misconduct. At the conclusion of the review, the assistant director of student conduct issues a notification of the findings and conclusions to the reporting faculty member, department chair and dean. Should a student from the program be found responsible for a case of academic misconduct by the UAA Dean of Students Office on two separate occasions, that student will be dropped from the program. Re-admittance requires a letter of appeal from the student requesting re-admittance with an explanation of any mitigating
factors and how these factors have been addressed. Re-admittance is subject to approval by the department chair of the student’s degree program.

Graduation Requirements

- Satisfy the General University Requirements for Baccalaureate Degrees.
- Complete the General Education Requirements for Baccalaureate Degrees.
- Complete the Major Requirements below with a grade of C or higher.

Major Requirements

Core Courses

- **CSCE A201** Computer Programming I 4
- **CSCE A211** Computer Programming II 4
- **CSCE/EE A241** Computer Hardware Concepts 4
- **CSCE A248** Computer Organization and Assembly Language Programming 3
- **CSCE A311** Data Structures and Algorithms 3
- **CSCE A320** Operating Systems 3
- **CSCE A342** Digital Circuits Design 3
- **CSCE A365** Computer Networks 3
- **CSCE A448** Computer Architecture 3
- **CSCE A465** Computer and Network Security 3
- **CSCE A470** Computer Science and Engineering Capstone Project 3
- **EE A203** Fundamentals of Electrical Engineering I 4
- **EE A333** Electronic Devices 4
- **EE A353** Circuit Theory 3
- **ENGL A212** Technical Writing 3
- **ESM A450** Economic Analysis and Operations 3
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH A200</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>MATH A201</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>MATH A202</td>
<td>Calculus III</td>
<td>4</td>
</tr>
<tr>
<td>MATH A231</td>
<td>Introduction to Discrete Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MATH A302</td>
<td>Ordinary Differential Equations</td>
<td>3</td>
</tr>
<tr>
<td>PHIL A305</td>
<td>Professional Ethics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS A211</td>
<td>General Physics I</td>
<td>3</td>
</tr>
<tr>
<td>&amp; A211L</td>
<td>General Physics I Laboratory</td>
<td></td>
</tr>
<tr>
<td>PHYS A212</td>
<td>General Physics II</td>
<td>3</td>
</tr>
<tr>
<td>&amp; A212L</td>
<td>General Physics II Laboratory</td>
<td></td>
</tr>
<tr>
<td>STAT A307</td>
<td>Probability and Statistics</td>
<td>4</td>
</tr>
</tbody>
</table>

**Advanced Engineering Electives**

Complete 15 credits from the following:

Any upper division elective with a CSCE prefix

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE/PHYS A314</td>
<td>Electromagnetics</td>
</tr>
<tr>
<td>EE/PHYS A324</td>
<td>Electromagnetics II</td>
</tr>
<tr>
<td>EE A324L</td>
<td>Electromagnetics Laboratory II</td>
</tr>
<tr>
<td>EE A354</td>
<td>Engineering Signal Analysis</td>
</tr>
<tr>
<td>EE A441</td>
<td>Integrated Circuit Design</td>
</tr>
<tr>
<td>EE A451</td>
<td>Digital Signal Processing</td>
</tr>
<tr>
<td>EE A462</td>
<td>Communication Systems</td>
</tr>
<tr>
<td>EE A465</td>
<td>Telecommunications</td>
</tr>
</tbody>
</table>

* Of the 15 credits of advanced engineering electives, at least 6 credits must be from CSCE courses. A maximum of 3 credits from CSCE A395, a maximum of 3 credits from CSCE A495 and a maximum of 6 credits from CSCE A498 may be applied toward this degree requirement.
Other relevant courses may be accepted by approved petition.

A total of 120 credits are required for the degree, of which 42 credits must be upper division.

Honors in Computer Systems Engineering

Undergraduate students in the program may be recognized for exceptional performance by earning departmental honors. The award will be noted on their permanent university transcript. In order to receive departmental honors, a student must meet each of the following requirements.

1. Complete all program requirements.
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 engineering profession.
3. Earn a GPA of 3.50 or above in the courses required for the major.
4. Gain approval for, complete and present a design/research project prior to applying for graduation. The project proposal, presentation, and final written report must be approved by the program faculty.

Minor in Computer Systems Engineering

Students majoring in another subject who wish to minor in Computer Systems Engineering must complete the following requirements.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSCE A201</td>
<td>Computer Programming I</td>
<td>4</td>
</tr>
<tr>
<td>CSCE A211</td>
<td>Computer Programming II</td>
<td>4</td>
</tr>
<tr>
<td>CSCE/EE A241</td>
<td>Computer Hardware Concepts</td>
<td>4</td>
</tr>
<tr>
<td>CSCE A248</td>
<td>Computer Organization and Assembly Language Programming</td>
<td>3</td>
</tr>
<tr>
<td>CSCE A311</td>
<td>Data Structures and Algorithms</td>
<td>3</td>
</tr>
</tbody>
</table>

Additional upper division CSCE-prefixed courses 6

Total Credits 24

A total of 24 credits are required for the minor.

Faculty

Martin Cenek, Assistant Professor, mcenek@uaa.alaska.edu
Kenrick Mock, Professor, kmock@uaa.alaska.edu
## Course Action Request

**University of Alaska Anchorage**

**Proposal to Initiate, Add, Change, or Delete a Course**

<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>EA COE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1b. Division</td>
<td>No Division Code</td>
</tr>
<tr>
<td>1c. Department</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Course Prefix</th>
<th>EDEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Course Number</td>
<td>A205</td>
</tr>
<tr>
<td>4. Previous Course Prefix &amp; Number</td>
<td>EDEL A205</td>
</tr>
</tbody>
</table>

| 5a. Credits/CEUs | 3 |

| 5b. Contact Hours (Lecture + Lab) | (2.5+1.5) |

### 6. Complete Course Title

**Becoming an Elementary Teacher**

### 7. Type of Course

- [x] Academic
- [ ] Preparatory/Development
- [ ] Non-credit
- [ ] CEU
- [ ] Professional Development

### 8. Type of Action:

- [ ] Add
- [ ] Change
- [ ] Delete

If a change, mark appropriate boxes:

- [ ] Prefix
- [x] Course Number
- [ ] Contact Hours
- [ ] Repeat Status
- [ ] Grading Basis
- [ ] Cross-Listed/Stacked
- [x] Course Description
- [ ] Course Prerequisites
- [ ] Test Score Prerequisites
- [ ] Co-requisites
- [ ] Automatic Restrictions
- [ ] Registration Restrictions
- [ ] General Education Requirement

### 9. Repeat Status No

<table>
<thead>
<tr>
<th># of Repeats</th>
<th>Max Credits</th>
</tr>
</thead>
</table>

### 10. Grading Basis

- [x] A-F
- [ ] P/NP
- [ ] NG

### 11. Implementation Date

From: Fall 2015
To: 9999

### 12. Cross Listed with

- [ ] Stacked with

### 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](http://www.uaa.alaska.edu/governance).

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenai Peninsula College</td>
<td>09/05/2014</td>
<td>Pete Snow</td>
</tr>
<tr>
<td>Kodiak College</td>
<td>09/05/2014</td>
<td>Kitty Deal</td>
</tr>
<tr>
<td>Mat-Su College</td>
<td>09/05/2014</td>
<td>Marc Robinson</td>
</tr>
</tbody>
</table>

Initiator Name (typed): Marc Robinson
Initiator Signed Initials: _________
Date:________________

### 13b. Coordination Email

submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

Date: 11/3/14

### 13c. Coordination with Library Liaison

Date: 11/13/14

### 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 field of elementary education and the process of becoming an elementary teacher. Overview of core topics including the history of elementary education, teaching and learning, professionalism, observation strategies, and communicating with children.

Special Note: Requires a 20 hour field assignment that must be arranged by the College of Education. Partners may limit registration.

**EDEL 205 Restricted registration:** Students may register for this course only once unless department approval is granted.

### 16a. Course Prerequisite(s)

(list prefix and number or test code and score)

- ENGL Alll or ENGL A211 or ENGL A212 or ENGL A213 or ENGL A311 or ENGL A312 or ENGL A414 with a minimum grade of C

### 16b. Co-requisite(s)

(concurrent enrollment required)

- N/A

### 16c. Automatic Restriction(s)

- College
- Major
- Class
- Level

### 16d. Registration Restriction(s)

(non-codable)

Students may register for this course only once unless department approval is granted.

### 17. Mark if course has fees

### 18. Mark if course is a selected topic course

### 19. Justification for Action

Credits and contact time were increased to reflect the time needed by faculty to teach and students to obtain course learning outcomes as described in the CCG. The description reflects a reduction in the field experience hours since students and partner schools agree students’ observational needs can be met in 20 hours of elementary classroom observation. Restricted registration provides a purposeful advising requirement to proactively explore and remediate academic or dispositional issues early in the students’ teacher education program.

### 88
I. Date Initiated: Fall 2014

II. Information for the Course Action Request

College/School: EA College of Education

Department:

Subject: EDEL

Course Number: A205

Title: Becoming an Elementary Teacher

Credits: 3.0

Grading Basis: 2.5 + 1.5

Implementation Date: Spring 2015

Course Description: Introduction to field of elementary education and the process of becoming an elementary teacher. Overview of core topics including the history of elementary education, teaching and learning, professionalism, observation strategies, and communicating with children.

Course Prerequisites(s): [ENGL A111 or ENGL A211 or ENGL A212 or ENGL A213 or ENGL A214 or ENGL A311 or ENGL A312 or ENGL A414] with a minimum grade of C

Test Scores(s): N/A

Corequisite(s) N/A

Registration Restrictions: Students may register for this course only once unless department approval is granted.

Course Fee: X Yes □ No
III. Instructional Goals, Student Outcomes, and Assessment Procedures

A. Instructional Goals

The instructor will:

1. Present overview of the history of elementary education and identify enduring themes in current elementary classrooms and schools.

2. Introduce classroom observation strategies and explain their relationship to teaching and learning.

3. Present approaches to and skills for communicating with children in elementary classrooms.

4. Introduce major components of teaching and learning in elementary education including learning theory, learners in sociocultural context, learning environment, curriculum, instruction, and assessments.

5. Present information on the use of technology in elementary classrooms.

6. Define professionalism and explain connections to teaching in today's elementary classrooms and preparing to become an elementary teacher in the UAA program.

B. Student Learning Outcomes/Assessment Procedures

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Procedures</th>
<th>Standards</th>
<th>Core Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon successful completion of the course, the student will be able to do the following:</td>
<td>This outcome will be assessed by one or more of the following:</td>
<td>This outcome meets the following state and/or national standard:</td>
<td>This outcome addresses the following core value:</td>
</tr>
<tr>
<td>1. Summarize historical origins of elementary education in U.S. and Alaska; and identify enduring themes reflected in today’s elementary classrooms.</td>
<td>Explanatory Essay Reflective Journal Observation Project Written Report</td>
<td>*ACEI: 5.1 **ABTS: 8</td>
<td>Intellectual Vitality</td>
</tr>
<tr>
<td>2. Apply classroom observation strategies to develop knowledge of teaching and learning in elementary education.</td>
<td>Reflective Journal Observation Project Written Report Class Discussion</td>
<td>ACEI: 5.1 ABTS: 8</td>
<td>Intellectual Vitality</td>
</tr>
<tr>
<td>3. Apply communication skills to interactions with children in elementary classrooms.</td>
<td>Reflective Journal Descriptive Essay</td>
<td>ACEI: 3.5 ABTS: 3, 6</td>
<td>Collaborative Spirit Inclusiveness and Equity</td>
</tr>
</tbody>
</table>
4. Identify major components of teaching and learning in elementary education and present examples from field experience.

<table>
<thead>
<tr>
<th>Component</th>
<th>ACEI</th>
<th>ABTS</th>
<th>ACEI: 1, 2, 3, 4</th>
<th>ABTS: 2, 4, 5, 6</th>
<th>Intellectual Vitality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflective Journal Observation</td>
<td>ACEI: 1, 2, 3, 4</td>
<td>ABTS: 2, 4, 5, 6</td>
<td>Intellectual Vitality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project</td>
<td>Written Report</td>
<td>Class Discussion</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5. Describe classroom technology tools and their applications.

<table>
<thead>
<tr>
<th>Component</th>
<th>ACEI</th>
<th>ABTS</th>
<th>Intellectual Vitality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Written Report</td>
<td>ACEI: 3.5</td>
<td>ABTS: 2, 4</td>
<td></td>
</tr>
</tbody>
</table>

6. Define professionalism and make connections to teaching in elementary classrooms and preparing to become a teacher in the UAA program.

<table>
<thead>
<tr>
<th>Component</th>
<th>ACEI</th>
<th>ABTS</th>
<th>Leadership</th>
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</thead>
<tbody>
<tr>
<td>Autobiography</td>
<td>ACEI: 5.1</td>
<td>ABTS: 8</td>
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</tr>
<tr>
<td>Becoming a Teacher: Development Plan</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*ACEI: Association for Childhood Education International
**ABTS: Alaska Beginning Teacher Standards

IV. Course Level Justification
This course is an introductory course that builds on writing skills developed in a GER Written Communication course. It provides a foundation for continued coursework and field experiences in Elementary Education.

V. Course Outline
1. Survey of History of Elementary Education in U.S. and Alaska

<table>
<thead>
<tr>
<th>Section</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Alaska Native approaches to childhood education</td>
</tr>
<tr>
<td>1.2</td>
<td>Colonial origins</td>
</tr>
<tr>
<td>1.3</td>
<td>The common school</td>
</tr>
<tr>
<td>1.4</td>
<td>European influences</td>
</tr>
<tr>
<td>1.5</td>
<td>Progressive education</td>
</tr>
<tr>
<td>1.6</td>
<td>Human capital theory and neoliberal influences</td>
</tr>
</tbody>
</table>

2. Introduction to Observation in Elementary Education

<table>
<thead>
<tr>
<th>Section</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Observation</td>
</tr>
<tr>
<td>2.2</td>
<td>Documentation</td>
</tr>
<tr>
<td>2.3</td>
<td>Interpretation</td>
</tr>
<tr>
<td>2.4</td>
<td>Reflection</td>
</tr>
</tbody>
</table>
3. Communicating with Children

3.1 Listening skills
3.2 Dialogue skills

4. Introduction to Teaching and Learning in Elementary Education

4.1 Learning theory
4.2 Learners in sociocultural context
4.3 Learning environments
4.4 Curriculum
4.5 Instruction
4.6 Assessment
4.7 Technology

5. Professionalism in Elementary Education

5.1 Defining professionalism
5.2 Alaska’s Code of Ethics and Teaching Standards
5.3 Alaska Beginning Teacher Standards: Standard VIII
5.4 ACEI Standard 5: Professionalism
5.5 UAA Elementary Education Program Framework

VI. Suggested Text(s)


VII. Bibliography

learn: Brain, mind. experience, and school. Washington, DC:
National Academy Press.

York: Teachers College Press.

New York: Teachers College Press.

Hubbard, R. S., & Power, B. M. (2003). The art of classroom inquiry: A

Mooney, C. G. (2013). Theories of childhood: An introduction to
Dewey, Montessori, Erikson, Piaget & Vygotsky (2nd ed.). St.
Paul, MN: Redleaf Press.

New York: Teachers College Press.

Fairbanks, AK: University of Alaska Press.


responsive standards-based teaching: Classroom to community and

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

1a. School or College  
EA COE  
1b. Division  
No Division Code  
1c. Department

2. Course Prefix  
EDEL  
3. Course Number  
A206  
4. Previous Course Prefix & Number  
EDFN A206  
5a. Credits/CEUs  
2  
5b. Contact Hours  
(Lecture + Lab)  
(2+0)

6. Complete Course Title
Introduction to Assessment in Elementary Education  
Intro to Assessment in Ed.  
Abbreviated Title for Transcript (30 character)

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

8. Type of Action:  
☐ Add  
☐ Change  
☐ Delete  
If a change, mark appropriate boxes:

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

9. Repeat Status No  
# of Repeats  
Max Credits

10. Grading Basis  
☑ A-F  
☐ P/NP  
☐ NG

11. Implementation Date  
semester/year  
From: Fall/2015  
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.

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<tbody>
<tr>
<td>1. BAEC Program</td>
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<td>Karen Roth</td>
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<td>2. Kodiak College</td>
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<td>3. Mat-Su College</td>
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<td>Marc Robinson</td>
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Initiator Name (typed): Marc Robinson  
Initiator Signed Initials:  
Date: __________________

13b. Coordination Email  
Date: 11/3/14  
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison  
Date: 11/13/14

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)  
Overview of purposes and types of assessments including data interpretation and reporting strategies.

16a. Course Prerequisite(s) (list prefix and number or test code and score)  
EDEC A105 or EDEL A205 or EDFN A101 or concurrent enrollment.

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

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

16d. Registration Restriction(s) (non-codable)  
N/A

17. ☐ Mark if course has fees  
18. ☐ Mark if course is a selected topic course

19. Justification for Action
Course prefix changed to reflect the focus on assessment in elementary education. Credits and course time increased to incorporate additional content including: revision of state academic standards, revision of the statewide student assessment system, and revision of the statewide teacher evaluation system.

Initiator (faculty only)  
Marc Robinson  
Initiator Signed Initials:  
Date: __________________

Approved  
Disapproved  
Dean/Director of School/College  
Date

Approved  
Disapproved  
Undergraduate/Graduate Academic  
Date

Approved  
Disapproved  
Board Chair  
Date

Approved  
Disapproved  
Provost or Designee  
Date
I. Date Initiated: Fall 2014

II. Information for the Course Action Request

College/School: EA College of Education

Department: Undergraduate and Initial Certification

Subject: EDEL

Course Number: A206

Title: Introduction to Assessment in Education

Credits: 2.0

Grading Basis: A-F

Implementation Date: Fall 2015

Course Description: Introduction to assessment and the rationale for using assessments to guide instruction. Overview of purposes and types of assessments including data interpretation and reporting strategies.

Course Prerequisites(s): EDEC A105 or EDEL A205 or EDFN A101 or concurrent enrollment

Test Scores(s): N/A

Corequisite(s): N/A

Registration Restrictions: None

Course Fee: X Yes ☐ No
### III. Instructional Goals, Student Outcomes, and Assessment Procedures

#### A. Instructional Goals

The instructor will:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1.</td>
<td>Explain the role of assessment in supporting student learning, including ethical issues</td>
</tr>
<tr>
<td>2.</td>
<td>Present purposes and types of assessments, highlighting statewide, district, and school-wide instruments and processes</td>
</tr>
<tr>
<td>3.</td>
<td>Explain methods for interpreting and reporting assessment results</td>
</tr>
<tr>
<td>4.</td>
<td>Demonstrate analysis and interpretation of a data set</td>
</tr>
<tr>
<td>5.</td>
<td>Explain how to develop a content area unit plan that includes formative and summative assessment</td>
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#### B. Student Learning Outcomes/Assessment Procedures

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Procedures</th>
<th>Standards</th>
<th>Core Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present and discuss the role of assessment in student learning, including ethical issues</td>
<td>Reflective Essay Classroom Discussion</td>
<td>*ACEI: 4.0**ABTS: 5</td>
<td>Intellectual Vitality Leadership</td>
</tr>
<tr>
<td>Describe the different types and purposes of assessment</td>
<td>Descriptive Essay Classroom Presentation</td>
<td>ACEI: 4.0 ABTS: 5</td>
<td>Intellectual Vitality Inclusiveness and Equity</td>
</tr>
<tr>
<td>Present and demonstrate methods for interpreting and reporting assessment data</td>
<td>Written report Classroom Presentation</td>
<td>ACEI: 4.0 ABTS: 5</td>
<td>Intellectual Vitality Collaborative Spirit</td>
</tr>
<tr>
<td>Analyze and interpret a data set</td>
<td>Data Analysis Project Classroom Presentation</td>
<td>ACEI: 4.0 ABTS: 5</td>
<td>Intellectual Vitality Inclusiveness and Equity</td>
</tr>
<tr>
<td>Create a content area unit plan that includes formative and summative</td>
<td>Multiple Intelligences Unit Project Classroom</td>
<td>ACEI: 4.0 ABTS: 5</td>
<td>Intellectual Vitality Leadership</td>
</tr>
</tbody>
</table>
IV. **Course Level Justification**

This is an introductory course in assessment of learning. It provides a foundation for continued coursework and field experiences.

V. **Course Outline**

1. **Overview of Assessment**
   - 1.1 The purposes and challenges of classroom assessment
   - 1.2 Guiding principles of assessment
   - 1.3 Assessment’s role in student success
   - 1.4 Ethical issues

2. **Types and Purposes of Assessment**
   - 2.1 Standards, goals, and outcomes
   - 2.2 Norm referenced and criterion referenced
   - 2.3 Formative and summative
   - 2.4 Statewide
   - 2.5 District-wide
   - 2.6 School-wide
   - 2.7 Classroom
   - 2.8 Authentic assessments

3. **Interpreting and Reporting Assessment Results**
   - 3.1 Data Analysis and interpretation
   - 3.2 Assessment reports

4. **Using Data to Guide Instruction**
   - 4.1 Interpreting test scores
   - 4.2 Instructional Design
   - 4.3 Standards-Based learning

5. **Unit Design and Assessment**
   - 5.1 Designing a Multiple Intelligences Unit
   - 5.2 Creating an Assessment Plan

VI. **Suggested Text(s)**


**VII. Bibliography**


**Course Action Request**

**University of Alaska Anchorage**

Proposal to Initiate, Add, Change, or Delete a Course

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<td>EDEL A327</td>
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| 7. Type of Course | X Academic | O Preparatory/Development | O Non-credit | O CEU | O Professional Development |

| 8. Type of Action: | O Add | O Change | O Delete |

If a change, mark appropriate boxes:

- Prefix
- Credits
- Title
- Grading Basis
- Course Description
- Test Score Prerequisites
- Automatic Restrictions
- Class
- Level
- College
- Other (please specify)

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| 10. Grading Basis | O A-F | O P/NP | O NG |

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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.

<table>
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<th>Chair/Coordinator Contacted</th>
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<td>Mat-Su College</td>
<td>September 5, 2014</td>
<td>Marc Robinson</td>
</tr>
<tr>
<td>BAEC</td>
<td>September 5, 2014</td>
<td>Karen Roth, EC Coordinator</td>
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13b. Coordination Email: Date: 11/3/14 submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison: Date: 11/13/14

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)

Methodology and materials used in elementary social studies classrooms. Review of current research regarding K-6 student learning and conceptual development in social studies and corresponding pedagogies. Examines content selection, assessment, and curriculum design within a culturally responsive framework.

16a. Course Prerequisite(s) (list prefix and number or test code and score)

N/A

16b. Co-requisite(s) (concurrent enrollment required)

EDEL A325 & EDEL A395

16c. Automatic Restriction(s)

- College
- Major
- Class
- Level

16d. Registration Restriction(s) (non-codable)

Departmental Approval

17. Mark if course has fees

18. Mark if course is a selected topic course

19. Justification for Action

Credits and course time increased to incorporate additional course work, revised state standards, and host teacher collaboration.

Initiator Name (typed): Marc Robinson

Initiator Signed Initials: ____________________________  Date: __________________

10. Grading Basis | O A-F | O P/NP | O NG |

11. Implementation Date |
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12. Cross Listed with | Stacked with |

Cross-Listed Coordination Signature

Initiator (faculty only) Marc Robinson

Initiator (TYPE NAME) ____________________________  Date: __________________

Approved

Disapproved

Dean/Director of School/College

Date

Disapproved

Undergraduate/Graduate Academic

Date

Approved

Board Chair

Date

Disapproved

Provost or Designee

Date

Department Chair

Date

Approved

College/School Curriculum Committee Chair

Date

Disapproved
I. Date Initiated: Fall 2014

II. Information for the Course Action Request

College/School: EA COE
Department: EDTL
Course Prefix: EDEL
Course Number: A327
Title: Teaching Social Studies in Elementary Schools
Credits: 3.0
Contact Hours 3 + 0
Grading Basis: A-F
Implementation Date: Fall 2015

Course Description: Methodology and materials used in elementary social studies classrooms. Review of current research regarding K-6 student learning and conceptual development in social studies and corresponding pedagogies. Examines content selection, assessment, and curriculum design within a culturally responsive framework.

Course Prerequisite: N/A
Test Scores: N/A
Corequisite(s): EDEL A325 & EDEL A395
Registration Restrictions: Departmental Approval
Course Fee: ☒ Yes ☐ No
### III. Instructional Goals, Student Outcomes, and Assessment Procedures

#### A. Instructional Goals

The instructor will:

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<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1.</td>
<td>Explain foundations of social studies education in elementary schools including socio-political and academic purposes and goals, relationship to core disciplines, trends, and links to culturally responsive teaching and social and emotional learning.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Present principles and methods of assessment in social studies education.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Present principles and examples of learning activities in social studies education.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Explain curriculum design relevant to standards-based (national and state standards) social studies education.</td>
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</table>

#### B. Student Learning Outcomes/Assessment Procedures

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Procedures</th>
<th>Standards</th>
<th>Core Values</th>
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</thead>
<tbody>
<tr>
<td>Upon successful completion of the course, the student will be able to do the following:</td>
<td>This outcome will be assessed by one or more of the following:</td>
<td>This outcome meets the following state and/or national standard:</td>
<td>This outcome addresses the following core value:</td>
</tr>
<tr>
<td>1. Present the purpose and goals of social studies in K-6 education explaining the relationship to core disciplines, trends, and links to culturally responsive teaching framework and social and emotional learning.</td>
<td>Lesson Plan (*SBA) Unit Plan Written essay Reflective journal</td>
<td>**ACEI: 2.4 ***ABTS: 4</td>
<td>Intellectual Vitality Inclusiveness and Equity Collaborative Spirit</td>
</tr>
<tr>
<td>2. Critique and design assessment activities in social studies education.</td>
<td>Lesson Plan (SBA) Written essay Reflective journal In-class discussion</td>
<td>ACEI: 2.4, 3.1, 4.0 ABTS: 4, 5</td>
<td>Intellectual Vitality</td>
</tr>
<tr>
<td>3. Critique and design learning activities in social studies education.</td>
<td>Lesson Plan (SBA) Written essay Reflective journal</td>
<td>ACEI: 2.4, 3.1, 3.2, 3.3, 3.4, 3.5</td>
<td>Intellectual Vitality</td>
</tr>
</tbody>
</table>
### Lesson Plan (SBA)
- ACEI: 2.4, 3.1
- ABTS: 4, 5
- Intellectual Vitality

### 4. Critique and design social studies curriculum incorporating national (NCSS), state, and/or school district standards
- Lesson Plan (SBA)
- Unit Plan
- Reflective journal

*SBA: Standards-based Assessment required in Elementary Education program.  
** ACEI: Association for Childhood Education International  
***ABTS: Alaska Beginning Teacher Standards

#### IV. Course Level Justification
This course builds on previous coursework in liberal arts, sciences, and education; requires application of theories, content, and pedagogies in K-6 field experience.

#### V. Course Outline

1. Overview of Social Studies in Elementary Education
   - 1.1 Purposes and goals of social studies
   - 1.2 Elementary social studies and core humanities and social science disciplines
   - 1.3 Trends in elementary social studies
   - 1.4 Culturally responsive teaching as framework for teaching social studies
   - 1.5 Social and emotional learning in social studies

2. Assessment in Social Studies
   - 2.1 Purposes of assessment in social studies
   - 2.2 Learning theory and assessment
   - 2.3 Methods
   - 2.4 Culturally responsive teaching and assessments in social studies

3. Learning Activities in Social Studies
   - 3.1 Learning theory and engaging social studies learning activities
   - 3.2 Culturally responsive teaching and learning activities
   - 3.3 Learning activities facilitating critical thinking and problem solving
   - 3.4 Learning activities and the learning environment (classroom management)
   - 3.5 Learning activities and social emotional learning
   - 3.6 Learning activities and democratic citizenship in the classroom
   - 3.7 Incorporating children’s literature
4. Social Studies Curriculum

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<td>Culturally responsive curriculum framework</td>
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<td>Integrated curriculum design</td>
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<td>4.6</td>
<td>Lesson plans</td>
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<td>4.7</td>
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VI. Suggested Text(s)


VII. Bibliography


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

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<tr>
<th>1a. School or College</th>
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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](http://www.uaa.alaska.edu/governance).

**Impacted Program/Course**  
**Date of Coordination**  
**Chair/Coordinator Contacted**

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<td>Peter Snow</td>
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<td>3. Mat-Su College</td>
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<td>Marc Robinson</td>
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**Initiator Name (typed):** Marc Robinson  
**Initiator Signed Initials:** [ ]  
**Date:** [ ]

13b. Coordination Email  
**Date:** 11/3/14  
**Submitted to Faculty Listserv:** [uaa-faculty@lists.uaa.alaska.edu]

13c. Coordination with Library Liaison  
**Date:** 11/13/14

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)  
An inquiry-based approach to teaching science in linguistically, culturally, and socioeconomically diverse K-6 classrooms.

16a. Course Prerequisite(s)  
(list prefix and number or test code and score)  
**EDEL A395**

16b. Co-requisite(s)  
(concurrent enrollment required)  
**EDEL A426, EDEL A492A, EDEL A495A**

16c. Automatic Restriction(s)  
[ ] College  
[ ] Major  
[ ] Class  
[ ] Level

16d. Registration Restriction(s)  
(non-codable)  
Departmental Approval

17. ☑ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action  
Updates to goals, outcomes, and outline to reflect diverse school settings and national science standards. Increases number of credits by one to reflect the amount of coursework and content covered in this course.

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<td>[ ] Disapproved</td>
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</table>

106
I. Date Initiated:

II. Information for the Course Action Request

College/School: College of Education

Department:

Subject: EDEL

Course Number: A428

Title: Teaching Science in Elementary Schools

Credits: 3

Grading Basis: A-F

Implementation Date: Spring 2015

Course Description: An inquiry-based approach to teaching science in linguistically, culturally, and socioeconomically diverse K-6 classrooms.

Course Prerequisites(s): EDEL A395

Test Scores(s):

Corequisite(s): EDEL A426, EDEL A492A, EDEL A495A

Registration Restrictions: Departmental Approval

Course Fee: ☑ Yes □ No

III. Instructional Goals, Student Outcomes, and Assessment Procedures

A. Instructional Goals

The instructor will:

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<thead>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td>Explain elementary level science concepts, principles, theories, laws, and their connections to Alaska and Next Generation Science Standards</td>
</tr>
<tr>
<td>2.</td>
<td>Discuss the nature of science, scientific habits of mind, and inquiry methods used in scientific disciplines; explain connections to instructional planning and</td>
</tr>
</tbody>
</table>
3. Demonstrate culturally sustaining instructional planning and implementation and explain connections to serving the needs of linguistically, culturally and socioeconomically diverse students

4. Model and explain inquiry-based science instructional strategies and their connection to learning theory

5. Identify strategies for assessment and create pre-assessment, formative, and summative assessments

6. Address science materials management in an inquiry-based environment and present legal and ethical responsibilities, including classroom safety, care and use of animals, and maintenance and disposal of materials

<table>
<thead>
<tr>
<th>Student Learning Outcomes</th>
<th>Assessment Procedures</th>
<th>Standards</th>
<th>Core Values</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong> Engage children in learning major concepts, principles, theories, laws, and their connections to Alaska and Next Generation Science Standards</td>
<td>Inquiry lesson plans <em>(SBA)</em>&lt;br&gt;Curriculum unit</td>
<td><strong>ACEI:</strong> 2.2, 3.4&lt;br&gt;*<strong>A.B.T.S:</strong> 4</td>
<td>Intellectual Vitality</td>
</tr>
<tr>
<td>2. Design and implement learning activities that engage children in the study of the nature of science; including scientific habits of mind, scientific discourse, and inquiry research methods</td>
<td>Inquiry lesson plans (SBA)&lt;br&gt;Curriculum unit&lt;br&gt;Reflective journal&lt;br&gt;Graded discussions</td>
<td><strong>ACEI:</strong> 2.2, 3.4&lt;br&gt;A.B.T.S:** 4, 5</td>
<td>Intellectual Vitality</td>
</tr>
<tr>
<td>3. Prepare lesson plans that are culturally sustaining and connect to AK, local community, the lives of the students, and the broader social context</td>
<td>Inquiry lesson plans (SBA)&lt;br&gt;Curriculum unit&lt;br&gt;Reflective journal&lt;br&gt;Graded discussion</td>
<td><strong>ACEI:</strong> 2.2, 3.1, 3.2&lt;br&gt;A.B.T.S:** 4, 5</td>
<td>Intellectual Vitality&lt;br&gt;Inclusiveness and Equity</td>
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<td></td>
<td>Curriculum unit</td>
<td>Reflective journal</td>
<td>Graded discussion</td>
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<tr>
<td>5.</td>
<td>Use multiple assessment strategies to guide and modify classroom instruction, the classroom environment, or the assessment process</td>
<td>Inquiry lesson plans (SBA)</td>
<td>ACEI: 2.2, 4.0 A.B.T.S: 5, 6</td>
</tr>
<tr>
<td></td>
<td>Curriculum unit</td>
<td>Reflective journal</td>
<td>Graded discussion</td>
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<tr>
<td>6.</td>
<td>Explain legal and ethical responsibilities of teaching science, including classroom safety and materials management</td>
<td>Science safety plan</td>
<td>ACEI: 2.2, 5.1 A.B.T.S: 8</td>
</tr>
<tr>
<td></td>
<td>Inquiry lesson plans (SBA)</td>
<td>Reflective journal</td>
<td>Graded discussion</td>
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</tbody>
</table>

*SBA: Standards-based assessment  
**ACEI: Association for Childhood Education International  
***ABTS: AK beginning Teacher Standards

IV. Course Level Justification
This course requires students to apply knowledge and skills developed in previous science content courses from Arts and Sciences, as well as courses in child development, education, and formal field experiences in elementary classrooms.

V. Course Outline
1. Content Knowledge
   |   |   |
   | 1.1 | Elementary science concepts, principles, theories, and laws |
   | 1.2 | Nature of science, habits of mind, and scientific argumentation |
   | 1.3 | Alignment of science curriculum to national, state, and district standards |
   | 1.4 | Science literacy development |
   | 1.5 | Analysis of claims, false, or doubtful assertions |

2. Inquiry/Research
2.1 Inquiry /research design
2.2 Science notebooks
2.3 Reporting results using quantitative methods

3. Planning Instructions and Assessments
   3.1 Inquiry-based learning models
   3.2 Links to learning theory
   3.3 Culturally sustaining science teaching
   3.4 Alaska community resources and issues
   3.5 Assessment strategies
   3.6 Using assessment to inform instructional decisions
   3.7 Lesson and unit planning
   3.8 Use of outstanding science trade books and scientific texts

4. Safe Learning Environments
   4.1 Materials management
   4.2 Legal and ethical considerations
   4.3 Safety issues
   4.4 Animal welfare
   4.5 Appropriate use of materials: maintenance and disposal

VI. Suggested Text(s)

   Buxton, C., & Provenzo, E. (2011). Teaching science in elementary and middle schools: A


   Goldston, J., & Downey, L. (2013). Your science classroom: Becoming an elementary/

VII. Bibliography

literacy: American Association for the Advancement of Science Project


To: College of Education Course and Curriculum Committee  
From: Marc Robinson, BAEL Program Chair  
Re: BAEL Program Revision  
Date: October 3, 2014

On September 5, 2014, the Bachelor of Arts in Elementary Education (BAEL) program faculty unanimously approved revisions to the BAEL program.

On September 26, 2014, the Undergraduate and Initial Certification Department approved moving the BAEL proposed revisions to the College of Education Course and Curriculum Committee. There were two dissenting votes.

In an effort to increase student enrollment, respond to course deletions, better align with the BAEC program, better align with the BAEL programs of the MAUs, and increase the ability to seamlessly accept transfer credits from MAUs and other institutions, the BAEL program faculty proposes the following revisions to the BAEL program:

EDEL A205—Becoming a Teacher--increase from 2 credits to 3 credits.

EDEL A327--Teaching Social Studies in Elementary Schools—increase from 2 credits to 3 credits.

EDEL A428--Teaching Science in Elementary Schools—increase from 2 credits to 3 credits.

EDFN A101--Introduction to Education—this course has been an elective. We will make it a required course.

EDFN A206—Introduction to Assessment in Education—change from EDFN to EDEL and increase from 1 credit to 2 credits.

STATS—252/253—remove as a requirement. Students still have 9 credits of quantitative skills required. (Math 105, Math 107, Math 205)

The current program requires 48 credits of specific LSIS, LSSS, LSIC, and HUM courses. On September 16, 2014, The College of Arts and Sciences informed the BAEL program of the following:

- Since the Liberal Studies program is in the “transform” category, CAS will make no commitments to classes beyond the 2014-15 academic year.
- CAS will not offer any LSSS courses (9 credits of “required” courses)
- CAS will not offer LSIC 331 this spring (3 credits, “required”) perhaps next fall.

Consequently, the BAEL faculty have unanimously approved removing the “required” Liberal Studies/Humanities blocks and replacing them with:

- 6 credits from the Natural Sciences GERs
- 6 credits from the Social Sciences GERs (plus EDSE A212)
- 6 credits from the Humanities GERs (plus HIST 131, 132, or 355)

Note:
These changes fulfill the University Natural Sciences, Social Sciences, and Humanities GER requirements and are consistent with the respective GER requirements of UAS and UAF.
Program/Prefix Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Program of Study or Prefix

<table>
<thead>
<tr>
<th>1a. School or College</th>
<th>1b. Department</th>
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<tr>
<td>EA COE</td>
<td>Undergraduate and Initial Certification</td>
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<table>
<thead>
<tr>
<th>2. Complete Program Title/Prefix</th>
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<tbody>
<tr>
<td>Bachelor of Arts in Elementary Education (BAEL)</td>
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<table>
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<th>3. Type of Program</th>
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<td>Choose one from the appropriate drop down menu:</td>
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<tr>
<td>Undergraduate: or Graduate:</td>
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<td>Bachelor of Arts</td>
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<th>This program is a Gainful Employment Program:</th>
<th>Yes or No</th>
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<td>☑ No</td>
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<th>4. Type of Action: PROGRAM</th>
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<td>☑ Change</td>
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<td>☐ Delete</td>
<td>☐ Inactivate</td>
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<th>5. Implementation Date (semester/year)</th>
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<td>From: Fall/2015 To: 9999</td>
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<thead>
<tr>
<th>6a. Coordination with Affected Units</th>
<th>Department, School, or College: College of Education</th>
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<tbody>
<tr>
<td>Initiator Name (typed): Marc Robinson</td>
<td>Initiator Signed Initials: ________</td>
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<td>Date: _____________________________</td>
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| 6b. Coordination Email submitted to Faculty Listserv (uaa-faculty@lists.uaa.alaska.edu) | Date: 11/03/14 |

| 6c. Coordination with Library Liaison | Date: 11/03/14 |

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

<table>
<thead>
<tr>
<th>8. Justification for Action</th>
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<tr>
<td>In an effort to increase student enrollment, respond to course deletions, better align with the BAEC program, better align with the BAEL programs of the MAUs, and increase the ability to seamlessly accept transfer credits from MAUs, and other institutions, the BAEL program faculty proposes revisions to the BAEL program.</td>
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<tr>
<th>Initiator (faculty only)</th>
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<tr>
<td>Marc Robinson</td>
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<td>Dean/Director of School/College</td>
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<td>Undergraduate/Graduate Academic Board Chair</td>
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Bachelor of Arts in Elementary Education (with Teacher Certification)

Individuals interested in undergraduate elementary teacher preparation may obtain either a BA in Elementary Education or a Post-Baccalaureate Certificate in Elementary Education with elementary teacher certification. See Chapter 11, Post-Baccalaureate Certificate Programs, for more information.

The BA in Elementary Education is a professional degree nationally recognized by the Association of Childhood Education International (ACEI) and the Council for the Accreditation of Educator Preparation (CAEP). Unique features of the program include an emphasis on culturally responsive teaching in Alaska’s context; exposure to a range of teaching and curriculum design approaches, including integration of educational technology; and focused field experiences, developmentally sequenced and in a variety of school/classroom settings. Elementary Education supports an Honors Track option. See an advisor for course guidance.

Admission Requirements

Satisfy the Application and Admission Requirements for Baccalaureate Programs. Application forms are available on the Admissions website.

Admission to the College of Education, Elementary Education Program and upper division major courses

In order to be admitted to the Elementary Education program, students must:

1. Meet with an Academic Advisor in the COE’s Student Services Office.
2. Complete the Tier I Basic College-Level Skills General Education Requirements.
3. Have a cumulative GPA of 2.75.
4. Have a GPA of 3.00 in Major Requirements.
5. Successfully complete the Praxis Core Academic Skills for Educators (Praxis Core). Contact the COE Student Services office for current passing scores.
6. Successfully complete the following courses with a grade of C or higher: EDEL A205 and EDSE A212
7. Submit or have on file a current Interested Person Report and other background check requirements. See COE Student Services office for current requirements.

Admission to the Elementary Education program is competitive. Qualified applicants are accepted on a space-available basis. Admission to the university as an Elementary Education major does not guarantee admission to the program and upper division classes.
Admission to Advanced Practicum

Admission to field experiences is separate from admission to the program and may be limited by community partners. See COE Field Placements. Applications for EDEL A495A, Elementary Education Practicum II, and Elementary Internship courses must be submitted the semester before enrolling in EDEL A495A, Elementary Education Practicum II. Qualified applicants are accepted on a space-available basis. Admission to the Elementary Education program does not guarantee admission to the field experiences.

The Elementary Education Programs Admission Committee determines a candidate’s readiness to enroll in all field experiences. Requirements set forth below constitute minimum preparation, and it may be the judgment of the committee that the candidate needs further work to develop content knowledge or skills to work with children.

EDEL A495A, Elementary Education Practicum II and Internship Admission Criteria

EDEL A495A, Elementary Education Practicum II, increases the time in the classroom and the planning and teaching experiences, with focus on the classroom environment, math and science. The Elementary Internship courses include a capstone seminar and extensive, supervised teaching experiences in an elementary classroom. Emphasis is placed on meeting the Alaska Beginning Teacher Standards and the Alaska Cultural Standards. Criteria include the following:

1. Meet all the requirements for and be admitted to the Elementary Education program.
2. Submit a Practicum II application, by the published deadline. See the COE’s Student Services office for the application and deadlines.
3. Participate in a screening interview if requested.
4. Complete all prerequisite courses.
5. Successfully complete the Praxis II: Elementary Content Knowledge (0014/5014). Contact the COE Student Services office for current passing scores.
6. Have a cumulative GPA of 2.75.
7. Have a GPA of 3.00 in Major Requirements.
8. Apply for the Student Teaching Authorization Certificate. This application includes fingerprinting and a criminal background check. Fee required. Contact COE Student Services office for more information.
9. Submit Internship application by the published deadline. See the COE’s Student Services office for application and deadlines.
10. A current Student Teaching Authorization Certificate is necessary for internship.
11. Complete school district specific application for internship placement. See the COE Student Services office for more information.
**Academic Progress Requirements**

Satisfactory progress in the practicum courses (EDEL A395 and EDEL A495A) is required for enrollment in the internship (EDEL A495B). All Major Requirements, EDSE A212 and MATH A205 must be completed with a grade of C or higher in order to obtain an institutional recommendation for elementary teacher certification.

**Graduation Requirements**

- Satisfy the [General University Requirements for Baccalaureate Degrees](#).
- Complete the [General Education Requirements for Baccalaureate Degrees](#).
- Complete the background check requirements listed under Field Placements.
- Complete the Major Requirements listed below.

**Foundations Requirements**

Complete the following foundation courses. The courses provide content knowledge for elementary education majors. Some of the foundation courses may also be used to meet General Education Requirements.

**Oral and Written Communication Skills**

- Select one course from the GER oral communications skills list 3
- Select two courses from the GER written communications skills list 6

**Mathematical Skills**

- Select one course from the GER quantitative skills list (Math A107 or A172 are recommended.) 3-4
  - MATH A205 Communicating Mathematical Ideas 3
  - STAT 252 Elementary Statistics or STAT 253 Applied Statistics for the Sciences 3

**Fine Arts Skills**

- Select one course from the GER fine arts skills list 3

**Natural Science Core**

- Select a minimum of two courses from the Natural Sciences GER list (LSIS A102 and LSIS A201 are recommended.) 10-12
Social Science Core 9
Select three courses from the GER Social Science list, from two different disciplines 9

Humanities Core 9

HIST A131 History of United States I 3
or HIST A132 History of United States II
or HIST A355 Major Themes in US History
Select two additional courses from the GER Humanities list 6

Electives 18
Electives may be used towards a minor which is issued concurrently with a baccalaureate degree. Minors consist of a minimum of 18 credits. Students are encouraged to consider adding a minor to help explore various fields of studies that are applicable in the classroom. Recommended minors include, Speech and Language Pathology, Early Childhood Special Education, Languages, Alaska Native Studies and Mathematics.

Major Requirements 67
It is strongly recommended that students see an advisor to stay on track. Field experiences in public schools are required as part of most courses.

Core Courses 28

EDFN A101 Introduction to Education 3
EDSE A212 Human Development and Learning 3
EDEC A242 Family and Community Partnerships 3
or HNRS A310 Community Service: Theory and Practice

EDEL A205 Becoming an Elementary Teacher 3
EDEL A206 Introduction to Assessment in Education 2
EDFN A300 Philosophical and Social Context of American Education 3
or EDFN A304 Comparative Education
EDFN A301 Foundations of Literacy and Language Development 3
EDFN A302 Foundations of Educational Technology 2
EDFN A478 Issues in Alaska Native Education, K-12 3
EDSE A482 Inclusive Classrooms for All Children 3
Methods Courses

- **EDEC A106** Creativity and the Arts in Early Childhood 3
- **EDEL A325** Teaching Literacy in Elementary Schools 6
- **EDEL A327** Teaching Social Studies in Elementary Schools 3
- **EDEL A426** Teaching Mathematics in Elementary Schools 3
- **EDEL A428** Teaching Science in Elementary Schools 3
- **PEP A345** Incorporating Health and Physical Activity into the Pre-K - 6 Classroom 2

Field Experience and Internship

- **EDEL A395** Elementary Education Practicum I: Literacy and Social Studies 2
- **EDEL A492A** Elementary Education Seminar I: Learning Environment 2
- **EDEL A492B** Elementary Education Seminar II: Teaching Capstone 3
- Elementary Education Practicum II: Learning Environment, Mathematics, 3
- **EDEL A495A** Science 3

Select one of the following:
- **EDEL A495B** Elementary Education Internship 9
- **EDEL A495B** and Honors Thesis (for honors option senior requirement) 6

** Concurrent enrollment in multiple courses is required. See an advisor for details.

A total of 134-137 credits is required for the degree, of which 42 credits must be upper division.

BAEL and Honors College Option

Take the following Honors College core program courses:

- **HNRS A192** Honors Seminar: Enduring Books 3
- **HNRS A292** Honors Seminar in Social Science 3
- **HNRS A310** Community Service: Theory and Practice 3
- **HNRS A392** Honors Thesis Seminar 1
- **HNRS A499** Honors Thesis (and taken concurrently with EDEL A495B) 3

*** Three credits of EDEL A495B apply to the senior requirement.

Institutional Recommendation, Elementary Teacher Certification (K-6)

Following are the requirements for an institutional recommendation:

1. Major requirements completed with a grade of C or higher.
2. Cumulative GPA of 2.75.
3. Cumulative GPA of 3.00 in all Major Requirements.
4. Passing scores on the Praxis Core and Praxis II (0014/5014) exams.
5. Internship satisfactorily completed.
Program Student Learning Outcomes

Student learning outcomes for the program are based on the Standards for Alaska’s Beginning Teachers and Culture located at [www.eed.state.ak.us/standards](http://www.eed.state.ak.us/standards) and the Association for Childhood Education International (ACEI) standards located at [www.acei.org](http://www.acei.org). Within a culturally responsive framework, program graduates will:

- Construct learning opportunities that support K-6 students’ development, acquisition of knowledge, and motivation.
- Design and implement curriculum that supports K-6 students’ learning of language arts, science, mathematics, social studies, the arts, health, and physical education.
- Plan and implement instruction based on knowledge of K-6 students, learning, theory, curriculum, and community.
- Create appropriate instructional opportunities to address diversity.
- Use teaching strategies that encourage development of critical thinking and problem solving.
- Foster active engagement in learning and create supportive learning environments.
- Use effective communication strategies to foster inquiry and support interaction among K-6 students.
- Use formal and informal assessments to inform and improve instructional practice.
- Reflect on practice and engage in professional growth activities.
- Establish positive collaborative relationships with families, colleagues, and the community.
Bachelor of Arts in Elementary Education (with Teacher Certification)

Individuals interested in undergraduate elementary teacher preparation may obtain either a BA in Elementary Education or a Post-Baccalaureate Certificate in Elementary Education with elementary teacher certification. See Chapter 11, Post-Baccalaureate Certificate Programs, for more information.

The BA in Elementary Education is a professional degree nationally recognized by the Association of Childhood Education International (ACEI) and the Council for the Accreditation of Educator Preparation (CAEP). Unique features of the program include an emphasis on culturally responsive teaching in Alaska’s context; a strong liberal studies focus; exposure to a range of teaching and curriculum design approaches, including integration of educational technology; and focused field experiences, developmentally sequenced and in a variety of school/classroom settings. Applicants are required/encouraged to take EDFN A101 Introduction to the Field of Education to learn more about the field of education. Elementary Education supports an Honors Track option. See an advisor for course guidance.

Admission Requirements
Satisfy the Application and Admission Requirements for Baccalaureate Programs. Application forms are available on the Admissions website.

Admission to the College of Education, Department of Teaching and Learning: Elementary Education Major Program and upper division major courses

In order to be admitted to the Department of Teaching and Learning Elementary Education program, students must:

1. Meet with an Academic Advisor in the COE’s Student Services Office. Submit an application to the Department of Teaching and Learning.
2. Complete the Tier I Basic College-Level Skills General Education Requirements.
3. Have a cumulative GPA of 2.75.
4. Have a GPA of 3.00 in Major Requirements.
5. Successfully complete the Praxis Core Academic Skills for Educators (Praxis CoreCASE) I: Pre-Professional Skills Test (PPST). Contact the Department of Teaching and Learning COE Student Services Office for current passing scores.
6. Successfully complete the following courses with a grade of C or higher: EDEL A205 and EDSE A212 or PSY A365.
7. Submit or have on file a current Interested Person Report and other background check requirements. See COE Student Services Advising Office for current requirements.
Admission to the Department of Teaching and Learning Elementary Education program is competitive. Qualified applicants are accepted on a space-available basis. Admission to the university as an Elementary Education major does not guarantee admission to the department program and upper division classes.

**Admission to Field Experiences Advanced Practicum**

Admission to field experiences is separate from admission to the program and may be limited by community partners. See COE Field Placements. Applications for EDEL A495A, Elementary Education Practicum II, and Elementary Internship courses EDEL A495B must be submitted by the semester before enrolling in EDEL A495A, Elementary Education Practicum II. Qualified applicants are accepted on a space-available basis. Admission to the Department of Teaching and Learning Elementary Education program does not guarantee admission to the field experiences.

The Elementary Education Programs Admission Committee determines a candidate’s readiness to enroll in all field experiences. The candidate must realize that requirements set forth below constitute minimum preparation, and it may be the judgment of the committee that the candidate needs further work to develop content knowledge or skills to work with children.

**EDEL A495A, Elementary Education Practicum II and Internship Admission Criteria**

EDEL A495A, Elementary Education Practicum II, increases the time in the classroom and the planning and teaching experiences, with focus on the classroom environment, math and science. The Elementary Internship courses EDEL A495B includes a capstone seminar and extensive, supervised teaching experiences in an elementary classroom. Emphasis is placed on meeting the Alaska Beginning Teacher Standards and the Alaska Cultural Standards. Criteria include the following:

1. Meet all the requirements for and be admitted to the Department of Teaching and Learning Elementary Education program as an Elementary Education major.
2. Submit a Practicum II application form for admission to internship, including a resume and letter of introduction, by the department’s published deadline. See the COE’s Student Services office for the application and deadlines.
3. Participate in a screening interview if requested.
4. Complete all prerequisite courses.
5. Successfully complete the Praxis II: Elementary Content Knowledge (0014/5014). Contact the Department of Teaching and Learning COE Student Services office for current passing scores.
6. Have a cumulative GPA of 2.75.
7. Have a GPA of 3.00 in Major Requirements.
8. Apply for the Student Teaching Authorization Certificate. This application includes fingerprinting and a criminal background check. Fee required. Contact COE Student Services office advisors for more information.
9. Submit Internship application by the published deadline. See the COE’s Student Services office for application and deadlines.
10. A current Student Teaching Authorization Certificate is necessary for internship.
11. Complete school district specific application for internship placement. See the COE Student Services office for more information.

Academic Progress Requirements
Satisfactory progress in the practicum courses (EDEL A395 and EDEL A495A) is required for enrollment in the internship (EDEL A495B). All Major Requirements, EDSE A212 and MATH A205 must be completed with a grade of C or higher in order to obtain an institutional recommendation for elementary teacher certification.

Graduation Requirements
- Satisfy the General University Requirements for Baccalaureate Degrees.
- Complete the General Education Requirements for Baccalaureate Degrees.
- Complete the background check requirements listed under Field Placements.
- Complete the Liberal Studies Area listed below.
- Complete the Major Requirements listed below.

Foundations Requirements
Complete the following foundation courses. The courses provide content knowledge for elementary education majors are selected to provide future elementary educators with the skills and background knowledge in the various subjects they will be expected to teach. The selection is based on national and state standards for content preparation. Some of the foundation courses may also be used to meet General Education Requirements.

Oral and Written Communication Skills
Select one course from the GER oral communications skills list
Select two courses from the GER written communications skills list
### Mathematical Skills  
<table>
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<tr>
<td>MATH A205 Communicating Mathematical Ideas</td>
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<tr>
<td>STAT 252 Elementary Statistics or STAT 253 Applied Statistics for the Sciences</td>
<td>3</td>
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**Fine Arts Skills**  
Select one course from the GER fine arts skills list  
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<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

### Natural Science Core  
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select a minimum of two courses from the Natural Sciences GER list</td>
<td>8-10</td>
</tr>
</tbody>
</table>

### Social Science Core  
Select three courses from the GER Social Science list, from two different disciplines  
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9</td>
</tr>
</tbody>
</table>

### Humanities Core  
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST A131 History of United States I</td>
<td>3</td>
</tr>
<tr>
<td>or HIST A132 History of United States II</td>
<td></td>
</tr>
<tr>
<td>or HIST A355 Major Themes in US History</td>
<td></td>
</tr>
<tr>
<td>Select two additional courses from the GER Humanities list</td>
<td>6</td>
</tr>
</tbody>
</table>

### Electives  
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electives may be used towards a minor which is issued concurrently with a baccalaureate degree. Minors consist of a minimum of 18 credits. Students are encouraged to consider adding a minor to help explore various fields of studies that are applicable in the classroom. Recommended</td>
<td>18</td>
</tr>
</tbody>
</table>
minors include, Speech and Language Pathology, Early Childhood Special Education, Languages, Alaska Native Studies and Mathematics, etc.

**Liberal Studies Area**

These courses are selected to provide future elementary teachers with the skills and background knowledge in the various subjects they will be expected to teach. The selection is based on national and state standards for content preparation. Some of the liberal studies courses may also be used to meet GERs.
<table>
<thead>
<tr>
<th>Sciences Core</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GEOL A111</td>
<td>Physical Geology</td>
<td>3-5</td>
</tr>
<tr>
<td>or LSIS A102</td>
<td>Origins: Earth-Solar System-Life</td>
<td></td>
</tr>
<tr>
<td>ASTR A103</td>
<td>Solar System Astronomy</td>
<td></td>
</tr>
<tr>
<td>&amp; A103L</td>
<td>and Solar System Astronomy Laboratory</td>
<td></td>
</tr>
<tr>
<td>or ASTR A104</td>
<td>Stars, Galaxies and Cosmology</td>
<td></td>
</tr>
<tr>
<td>&amp; A104L</td>
<td>and Stars, Galaxies and Cosmology Laboratory</td>
<td></td>
</tr>
<tr>
<td>LSIS A204</td>
<td>Life on Earth</td>
<td>4-5</td>
</tr>
<tr>
<td>or BIOL A102</td>
<td>Introductory Biology</td>
<td></td>
</tr>
<tr>
<td>&amp; BIOL A103</td>
<td>and Introductory Biology Laboratory</td>
<td></td>
</tr>
<tr>
<td>BIOL A115</td>
<td>Fundamentals of Biology I</td>
<td>4</td>
</tr>
<tr>
<td>or BIOL A116</td>
<td>Fundamentals of Biology II</td>
<td></td>
</tr>
<tr>
<td>LSIS A202</td>
<td>Concepts and Processes: Natural Science</td>
<td>4-5</td>
</tr>
<tr>
<td>or CHEM A103</td>
<td>Survey of Chemistry</td>
<td></td>
</tr>
<tr>
<td>&amp; A103L</td>
<td>and Survey of Chemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>PHYS A115</td>
<td>Physical Science</td>
<td></td>
</tr>
<tr>
<td>&amp; A115L</td>
<td>and Physical Science Lab</td>
<td></td>
</tr>
<tr>
<td>or PHYS A123</td>
<td>Basic Physics I</td>
<td></td>
</tr>
<tr>
<td>&amp; A123L</td>
<td>and Basic Physics I Laboratory</td>
<td></td>
</tr>
<tr>
<td>Social Sciences and Humanities Core</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANTH A202</td>
<td>Cultural Anthropology</td>
<td>3</td>
</tr>
<tr>
<td>or HNRS A202</td>
<td>Honors Seminar in Social Science</td>
<td></td>
</tr>
<tr>
<td>or LSIS A111</td>
<td>Cultural Foundations of Human Behavior</td>
<td></td>
</tr>
<tr>
<td>ANTH A250</td>
<td>The Rise of Civilization</td>
<td>3</td>
</tr>
<tr>
<td>or HIST A390</td>
<td>Themes in World History</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>EDSE A212</td>
<td>Human Development and Learning</td>
<td>3</td>
</tr>
<tr>
<td>ENGL A121</td>
<td>Introduction to Literature</td>
<td>3</td>
</tr>
<tr>
<td>or ENGL A201</td>
<td>Masterpieces of World Literature I</td>
<td></td>
</tr>
<tr>
<td>or ENGL A202</td>
<td>Masterpieces of World Literature II</td>
<td></td>
</tr>
<tr>
<td>ENVLA211</td>
<td>Environmental Science: Systems and Processes</td>
<td>3</td>
</tr>
<tr>
<td>or LSSS A311</td>
<td>People, Places, and Ecosystems</td>
<td></td>
</tr>
<tr>
<td>HIST A121</td>
<td>History of United States I</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>HIST A132</td>
<td>History of United States II</td>
<td></td>
</tr>
<tr>
<td>HIST A355</td>
<td>Major Themes in US History</td>
<td></td>
</tr>
<tr>
<td>HNRS A192</td>
<td>Honors Seminar: Enduring Books</td>
<td>3</td>
</tr>
<tr>
<td>HUM A211</td>
<td>Introduction to Humanities I</td>
<td></td>
</tr>
<tr>
<td>HUM A212</td>
<td>Introduction to Humanities II</td>
<td></td>
</tr>
<tr>
<td>LSIC/PHIL A231</td>
<td>Truth, Beauty, and Goodness</td>
<td>2</td>
</tr>
<tr>
<td>PHIL A301</td>
<td>Ethics</td>
<td></td>
</tr>
<tr>
<td>LSIC A332</td>
<td>Science, Technology, and Culture</td>
<td>3</td>
</tr>
<tr>
<td>LSSS A312</td>
<td>Individuals, Groups, and Institutions</td>
<td>3-6</td>
</tr>
<tr>
<td>PSY A111</td>
<td>General Psychology</td>
<td></td>
</tr>
<tr>
<td>&amp; SOC A101</td>
<td>and Introduction to Sociology</td>
<td></td>
</tr>
<tr>
<td>PSY A375</td>
<td>Social Psychology</td>
<td></td>
</tr>
<tr>
<td>PS/SOC A351</td>
<td>Political Sociology</td>
<td>2</td>
</tr>
<tr>
<td>LSIC A331</td>
<td>Power, Authority, and Governance</td>
<td></td>
</tr>
<tr>
<td>Select one course from the GER fine arts list</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Mathematical Skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH A205</td>
<td>Communicating Mathematical Ideas</td>
<td>2</td>
</tr>
<tr>
<td>STAT A252</td>
<td>Elementary Statistics</td>
<td>3-4</td>
</tr>
<tr>
<td>or STAT A253</td>
<td>Applied Statistics for the Sciences</td>
<td></td>
</tr>
<tr>
<td>Select one course from the GER quantitative skills list</td>
<td>2-6</td>
<td></td>
</tr>
<tr>
<td>Oral and Written Communications Skills</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select one course from the GER oral communications skills list</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Select two courses from the GER written communications skills list</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

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Students must meet the General Education Requirements for Baccalaureate Degrees, including 6 credits of social science from two different disciplines and 6 credits of humanities.

Major Requirements

It is recommended that students complete EDFN A101 prior to enrolling in the following major courses. It is strongly recommended that students see an advisor to stay on track. Field experiences in public schools are required as part of most courses.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDFN A101</td>
<td>Introduction to Education</td>
<td>3</td>
</tr>
<tr>
<td>EDSE A212</td>
<td>Human Development and Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDEC A242</td>
<td>Family and Community Partnerships</td>
<td>3</td>
</tr>
<tr>
<td>or HNRS A310</td>
<td>Community Service: Theory and Practice</td>
<td></td>
</tr>
<tr>
<td>EDEL A205</td>
<td>Becoming an Elementary Teacher</td>
<td>23</td>
</tr>
<tr>
<td>EDEL A392</td>
<td>Elementary Education Seminar I: Culturally Responsive Teaching</td>
<td>2</td>
</tr>
<tr>
<td>EDFN A206</td>
<td>Introduction to Assessment in Education</td>
<td>12</td>
</tr>
<tr>
<td>EDFN A300</td>
<td>Philosophical and Social Context of American Education</td>
<td>3</td>
</tr>
<tr>
<td>or EDFN A304</td>
<td>Comparative Education</td>
<td></td>
</tr>
<tr>
<td>EDFN A301</td>
<td>Foundations of Literacy and Language Development</td>
<td>3</td>
</tr>
<tr>
<td>EDFN A302</td>
<td>Foundations of Educational Technology</td>
<td>2</td>
</tr>
<tr>
<td>EDFN A478</td>
<td>Issues in Alaska Native Education, K-12</td>
<td>3</td>
</tr>
<tr>
<td>EDSE A482</td>
<td>Inclusive Classrooms for All Children</td>
<td>3</td>
</tr>
</tbody>
</table>

Methods Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEC A106</td>
<td>Creativity and the Arts in Early Childhood</td>
<td>3</td>
</tr>
<tr>
<td>EDEL A325</td>
<td>Teaching Literacy in Elementary Schools</td>
<td>6</td>
</tr>
<tr>
<td>EDEL A327</td>
<td>Teaching Social Studies in Elementary Schools</td>
<td>23</td>
</tr>
<tr>
<td>EDEL A426</td>
<td>Teaching Mathematics in Elementary Schools</td>
<td>3</td>
</tr>
<tr>
<td>EDEL A428</td>
<td>Teaching Science in Elementary Schools</td>
<td>23</td>
</tr>
<tr>
<td>PEP A345</td>
<td>Incorporating Health and Physical Activity into the Pre-K - 6 Classroom</td>
<td>2</td>
</tr>
</tbody>
</table>

Field Experience and Internship

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDEL A395</td>
<td>Elementary Education Practicum I: Literacy and Social Studies</td>
<td>2</td>
</tr>
<tr>
<td>EDEL A492A</td>
<td>Elementary Education Seminar II: Learning Environment</td>
<td>2</td>
</tr>
<tr>
<td>EDEL A492B</td>
<td>Elementary Education Seminar III: Teaching Capstone</td>
<td>3</td>
</tr>
</tbody>
</table>
Elementary Education Practicum II: Learning Environment, Mathematics, Science  
**Select one of the following:**  
EDEL A495A Elementary Education Practicum II: Mathematics, Science  
EDEL A495B Elementary Education Internship  
F & HNRS A499 and Honors Thesis (for honors option senior requirement)  
**Concurrent enrollment in multiple courses is required. See an advisor for details.**

A total of 125-141 credits is required for the degree, of which 42 credits must be upper division.

### BAEL and Honors College Option
Take the following Honors College core program courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HNRS A192</td>
<td>Honors Seminar: Enduring Books</td>
<td>3</td>
</tr>
<tr>
<td>HNRS A292</td>
<td>Honors Seminar in Social Science</td>
<td>3</td>
</tr>
<tr>
<td>HNRS A310</td>
<td>Community Service: Theory and Practice</td>
<td>3</td>
</tr>
<tr>
<td>HNRS A392</td>
<td>Honors Thesis Seminar</td>
<td>1</td>
</tr>
<tr>
<td>HNRS A499</td>
<td>Honors Thesis (and taken concurrently with EDEL A495B) ***</td>
<td>6</td>
</tr>
</tbody>
</table>

*** Three credits of **EDEL A495B** apply to the senior requirement.

### Institutional Recommendation, Elementary Teacher Certification (K-6)
Following are the requirements for an institutional recommendation:

1. Major requirements completed with a grade of C or higher.
2. Cumulative GPA of 2.75.
3. Cumulative GPA of 3.00 in all Major Requirements, EDSE A212 and MATH A205.
4. Passing scores on the Praxis LPPST Core and Praxis II (0014/5014) exams.
5. Internship satisfactorily completed.
6. BA in Elementary Education degree conferred.

Program Student Learning Outcomes
Student learning outcomes for the program are based on the Standards for Alaska’s Beginning Teachers and Culture located at [www.eed.state.ak.us/standards](http://www.eed.state.ak.us/standards) and the Association for Childhood Education International (ACEI) standards located at [www.acei.org](http://www.acei.org). Within a culturally responsive framework, program graduates will:

- Construct learning opportunities that support K-6 students’ development, acquisition of knowledge, and motivation.
- Design and implement curriculum that supports K-6 students’ learning of language arts, science, mathematics, social studies, the arts, health, and physical education.
- Plan and implement instruction based on knowledge of K-6 students, learning, theory, curriculum, and community.
- Create appropriate instructional opportunities to address diversity.
- Use teaching strategies that encourage development of critical thinking and problem solving.
- Foster active engagement in learning and create supportive learning environments.
- Use effective communication strategies to foster inquiry and support interaction among K-6 students.
- Use formal and informal assessments to inform and improve instructional practice.
- Reflect on practice and engage in professional growth activities.
- Establish positive collaborative relationships with families, colleagues, and the community.

See more at: http://catalog.uaa.alaska.edu/undergraduateprograms/coe/elementaryeducation/ba-elementaryeducation/learningoutcomestext.
Course Action Request
University of Alaska Anchorage
Proposal to Initiate, Add, Change, or Delete a Course

1a. School or College
CH College of Health

1b. Division
No Division Code

1c. Department
College of Health

2. Course Prefix
COHI

3. Course Number
A478

4. Previous Course Prefix & Number
PSY A490

5a. Credits/CEUs
3

5b. Contact Hours
(Lecture + Lab)
(3+0)

6. Complete Course Title
Interdisciplinary Exploration of Alaska's Critical Behavioral Health Issues
AK Behavioral Health Issues

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

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

If a change, mark appropriate boxes:
☐ Prefix ☐ Course Number ☐ Contact Hours ☐ Repeat Status
☐ Grading Basis ☐ Cross-Listed/Stacked ☐ Co-requisites
☐ Course Description ☐ Course Prerequisites ☐ Registration Restrictions
☐ Test Score Prerequisites ☐ General Education Requirement
☐ Other Restrictions ☐ (please specify)

9. Repeat Status No
# of Repeats
Max Credits

10. Grading Basis
☒ A-F ☐ P/NP ☐ NG

11. Implementation Date
From: Summer/2015 To: /9999

12. Cross Listed with
☒ Stacked with COHI A678

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.

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Initiator Name (typed): ___________ Initiator Signed Initials: ___________ Date: ___________

13b. Coordination Email
Date: 12/1/14
submitted to Faculty Listserv: (uaa-faculty@lists.uaa.alaska.edu)

13c. Coordination with Library Liaison
Date: 12/9/14

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)
Engages students in an in-depth, interdisciplinary exploration of Alaska's critical behavioral health issues, including domestic violence and sexual assault, substance abuse, mental health, and suicide. Examines theoretical causation, prevention response, and intervention from the following discipline perspectives: justice, social work, human services, nursing and public health.

16a. Course Prerequisite(s) (list prefix and number or test code and score)
None

16b. Co-requisite(s) (concurrent enrollment required)
None

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

16d. Registration Restriction(s) (non-codable)
Junior standing

17. ☒ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course is a component of the focused efforts on interdisciplinary education between units in the College of Health.

Initiator (faculty only) ___________ Date ___________

Virginia Miller
Initiator (TYPE NAME)

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

☐ Approved ☐ Disapproved
Undergraduate/Graduate Academic Date ___________

☐ Approved ☐ Disapproved
Board Chair Date ___________

☐ Approved ☐ Disapproved
Provost or Designee Date ___________

131
I. Date of Initiation: January 2013

II. Curriculum Action Request
A. School: College of Health
B. Course Subject: COHI
C. Course Number: A478
D. Number of Credits: 3
E. Contact Hours: 3 + 0
F. Course Program: COHI College of Health Interprofessional
G. Course Title: Interdisciplinary Exploration of Alaska’s Critical Behavioral Health Issues
H. Grading Basis: A-F
I. Implementation Date: Summer 2015
J. Stacked: COHI A678
K. Course Description: Engages students in an in-depth, interdisciplinary exploration of Alaska's critical behavioral health issues, including domestic violence and sexual assault, substance abuse, mental health, and suicide. Examines theoretical causation, prevention response, and intervention from the following discipline perspectives: justice, social work, human services, nursing and public health.

L. Course Prerequisites: None
M. Course Co-requisites: None
N. Other Restrictions: Class
O. Registration Restrictions: Junior standing
P. Course Fees: No

III. Instructional Goals and Student Learning Outcomes
A. The instructor will:
   1. Introduce interdisciplinary perspectives of critical behavioral health issues for discussion.
   2. Present Alaskan case studies and resources and include experts from the field as guest speakers.
   3. Design learning activities to illustrate interdisciplinary understanding.
   4. Introduce research and theoretical material for review and discussion.

B. Upon completion of this course, the student will be able to:

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Measures</th>
</tr>
</thead>
</table>
| 1. Compare the interdisciplinary theoretical perspectives that inform the identification, intervention, and prevention of domestic violence, sexual assault, substance abuse, mental health, and suicide. | Class discussions  
Written assignments |
<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Identify and compare responses and interventions to domestic violence, sexual assault, substance abuse, mental health and suicide issues from various disciplinary perspectives.</td>
<td>Written assignments&lt;br&gt;Seminar discussions&lt;br&gt;Case study discussions</td>
</tr>
<tr>
<td>3. Distinguish multiple diversities, including but not limited to stage of development, culture, gender, sexual orientation, and disability to better understand an individual’s experience of domestic violence, sexual assault, substance abuse, mental health issues and/or suicide.</td>
<td>Written assignments&lt;br&gt;Seminar discussions&lt;br&gt;Case study discussions</td>
</tr>
</tbody>
</table>

IV. **Course Level Justification**

Course content will require that students possess a basic understanding of the present systems addressing domestic violence, sexual assault, and intimate partner violence; substance abuse; mental health; and suicide that they would have received in introductory level courses in their respective majors. Students will be required to identify and compare theoretical causation, prevention, and intervention from an interdisciplinary perspective.

V. **Topical Course Outline**

I. General Overview
   A. Definition: interdisciplinary
   B. Overview of disciplines: justice, social work, human services, nursing and public health perspectives
   C. Adverse Childhood Experiences (ACES) and trauma-informed services
   D. Social determinants of health
   E. Life course
   F. Crisis intervention
   G. Self-care

II. Domestic Violence/Sexual Assault/Intimate Partner Violence
   A. Description and definition of domestic violence/sexual assault/intimate partner violence in Alaska and the United States
   B. Intersection of diversity (developmental stage, culture, gender, sexual orientation, disability) on the experience of domestic violence/sexual assault/intimate partner violence
   C. Interdisciplinary perspectives
      1. Theoretical perspectives
      2. Assessment and diagnosis
      3. Prevention
      4. Intervention
   D. Interdisciplinary approaches to understanding and addressing domestic violence/sexual assault/intimate partner violence in Alaska
III. Mental Health
A. Description and definition of mental health in Alaska and the United States
B. Intersection of diversity (developmental stage, culture, gender, sexual orientation, disability) on the experience of mental health issues.
C. Interdisciplinary perspectives
   1. Theoretical perspectives
   2. Assessment and diagnosis
   3. Prevention
   4. Intervention
D. Interdisciplinary approaches to understanding and addressing mental health issues in Alaska

IV. Substance Abuse (including alcohol)
A. Description and definition of substance abuse in Alaska and the United States
B. Intersection of diversity (developmental stage, culture, gender, sexual orientation, disability) on the experience of sexual abuse.
C. Interdisciplinary perspectives
   1. Theoretical perspectives
   2. Assessment and diagnosis
   3. Prevention
   4. Intervention
D. Interdisciplinary approaches to understanding and addressing substance abuse in Alaska

V. Suicide
A. Description and definition of suicide in Alaska and the United States
B. Intersection of diversity (developmental stage, culture, gender, sexual orientation, disability) on the experience of suicide
C. Interdisciplinary perspectives
   1. Theoretical perspectives
   2. Assessment and diagnosis
   3. Prevention
   4. Intervention
D. Interdisciplinary approaches to understanding and addressing suicide in Alaska

VI. Suggested Texts
NOTE: There will not be a written text; students will be directed to a comprehensive reading list (see below).

VII. Bibliography (*denotes classic material without recent editions)


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

1a. School or College
CH College of Health

1b. Division
No Division Code

1c. Department
College of Health

2. Course Prefix
COHI

3. Course Number
A678

4. Previous Course Prefix & Number
PSY A690

5a. Credits/CEUs
3

5b. Contact Hours
(Lecture + Lab)
(3+0)

6. Complete Course Title
Interdisciplinary Exploration of Alaska’s Critical Behavioral Health Issues
AK Behavioral Health Issues

Abbreviated Title for Transcript (30 character)

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

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

If a change, mark appropriate boxes:
☐ Prefix
☐ Credits
☐ Course Number
☐ Contact Hours
☐ Title
☐ Repeat Status
☐ Grading Basis
☐ Cross-Listed/Stacked
☐ Course Description
☐ Co-requisites
☐ Text Score Prerequisites
☐ Registration Restrictions
☐ Other Restrictions
☐ College
☐ Level
☐ Major
☐ (please specify)

9. Repeat Status No
# of Repeats
Max Credits

10. Grading Basis
☒ A-F
☐ P/NP
☐ NG

11. Implementation Date
From: Summer/2015
To: 9999

12. ☐ Cross Listed with
Stacked with COHI A478

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.

<table>
<thead>
<tr>
<th>Impacted Program/Course</th>
<th>Date of Coordination</th>
<th>Chair/Coordinator Contacted</th>
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Initiator Name (typed): ____________ Initiator Signed Initials: ____________ Date: ____________

13b. Coordination Email
Date: 12/1/14
submitted to Faculty Listserv: uaa-faculty@lists.uaa.alaska.edu

13c. Coordination with Library Liaison
Date: 12/9/14

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)
Engages students in an in-depth, interdisciplinary exploration of Alaska’s critical behavioral health issues, including domestic violence and sexual assault, substance abuse, mental health, and suicide. Examines theoretical causation, prevention response, and intervention from the following discipline perspectives: justice, social work, human services, nursing and public health

16a. Course Prerequisite(s) (list prefix and number or test code and score)
None

16b. Co-requisite(s) (concurrent enrollment required)
None

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

16d. Registration Restriction(s) (non-codable)
Graduate standing

17. ☐ Mark if course has fees

18. ☐ Mark if course is a selected topic course

19. Justification for Action
This course is a component of the focused efforts on interdisciplinary education between units in the College of Health.

Initiator (faculty only) Date

Initiator (TYPE NAME)

☑ Approved
☐ Disapproved

Virginia Miller

Date

☑ Approved
☐ Disapproved

Dean/Director of School/College

Date

☑ Approved
☐ Disapproved

Undergraduate/Graduate Academic

Date

☑ Approved
☐ Disapproved

Board Chair

Date

☑ Approved
☐ Disapproved

Provost or Designee

Date
I. Date of Initiation: January 2013

II. Curriculum Action Request
A. School: College of Health
B. Course Subject: COHI
C. Course Number: A678
D. Number of Credits: 3
E. Contact Hours: 3 + 0
F. Course Program: COHI College of Health Interprofessional
G. Course Title: Interdisciplinary Exploration of Alaska’s Critical Behavioral Health Issues
H. Grading Basis: A-F
I. Implementation Date: Summer 2015
J. Stacked: COHI A478
K. Course Description: Engages students in an in-depth, interdisciplinary exploration of Alaska's critical behavioral health issues, including domestic violence and sexual assault, substance abuse, mental health, and suicide. Examines theoretical causation, prevention response, and intervention from the following discipline perspectives: justice, social work, human services, nursing and public health.

L. Course Prerequisites: None
M. Course Co-requisites: None
N. Other Restrictions: Class
O. Registration Restrictions: Graduate standing
P. Course Fees: No

III. Instructional Goals and Student Learning Outcomes
A. The instructor will:
   1. Provide interdisciplinary perspectives of critical behavioral health issues for discussion.
   2. Facilitate student led discussions based on Alaskan case studies and resources including experts from the field.
   3. Design learning activities to integrate interdisciplinary understanding.
   4. Provide a comprehensive body of research and theoretical material for review, discussion, and integration.

B. Upon completion of this course, the student will be able to:

<table>
<thead>
<tr>
<th>Outcomes and Assessment Measures</th>
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</thead>
<tbody>
<tr>
<td><strong>Outcomes</strong></td>
</tr>
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</table>
| 1. Synthesize the interdisciplinary theoretical perspectives that inform the identification, intervention, and prevention of domestic violence, sexual assault, substance abuse, mental health, and suicide. | Class discussions  
Written assignments |
Outcomes and Assessment Measures

<table>
<thead>
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<th>Outcomes</th>
<th>Measures</th>
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<tr>
<td>2. Assess responses and interventions to domestic violence, sexual assault, intimate personal violence, substance abuse, mental health and suicide issues from various disciplinary perspectives.</td>
<td>Written assignments&lt;br&gt;Seminar discussions&lt;br&gt;Case study discussions</td>
</tr>
<tr>
<td>3. Translate the intersection of multiple diversities, including but not limited to stage of development, culture, gender, sexual orientation, and disability to better understand an individual’s experience of domestic violence, sexual assault, substance abuse, mental health issues and/or suicide.</td>
<td>Culminating research paper&lt;br&gt;Seminar discussions&lt;br&gt;Case study discussions</td>
</tr>
</tbody>
</table>

IV. **Course Level Justification**  
Course content will require that students possess a basic understanding of the present systems addressing domestic violence, sexual assault, and intimate partner violence; substance abuse; mental health; and suicide that they would have received in their respective undergraduate majors. Students will be required to examine, integrate, and translate theoretical causation, prevention, and intervention from an interdisciplinary perspective.

V. **Topical Course Outline**  
I. General Overview  
   A. Definition: interdisciplinary  
   B. Overview of disciplines: justice, social work, human services, nursing and public health perspectives  
   C. Adverse Childhood Experiences (ACES) and trauma-informed services  
   D. Social determinants of health  
   E. Life course  
   F. Crisis intervention  
   G. Self-care  

II. Domestic Violence/Sexual Assault/Intimate Partner Violence  
   A. Description and definition of domestic violence/sexual assault/intimate partner violence in Alaska and the United States  
   B. Intersection of diversity (developmental stage, culture, gender, sexual orientation, disability) on the experience of domestic violence/sexual assault/intimate partner violence  
   C. Interdisciplinary perspectives  
      1. Theoretical perspectives  
      2. Assessment and diagnosis  
      3. Prevention  
      4. Intervention  
   D. Interdisciplinary approaches to understanding and addressing domestic violence/sexual assault/intimate partner violence in Alaska

III. Mental Health  
   A. Description and definition of mental health in Alaska and the United States
B. Intersection of diversity (developmental stage, culture, gender, sexual orientation, disability) on the experience of mental health issues

C. Interdisciplinary perspectives
   1. Theoretical perspectives
   2. Assessment and diagnosis
   3. Prevention
   4. Intervention

D. Interdisciplinary approaches to understanding and addressing mental health issues in Alaska

IV. Substance Abuse (including alcohol)
   A. Description and definition of substance abuse in Alaska and the United States
   B. Intersection of diversity (developmental stage, culture, gender, sexual orientation, disability) on the experience of sexual abuse
   C. Interdisciplinary perspectives
      1. Theoretical perspectives
      2. Assessment and diagnosis
      3. Prevention
      4. Intervention
   D. Interdisciplinary approaches to understanding and addressing substance abuse in Alaska

V. Suicide
   A. Description and definition of suicide in Alaska and the United States
   B. Intersection of diversity (developmental stage, culture, gender, sexual orientation, disability) on the experience of suicide
   C. Interdisciplinary perspectives
      1. Theoretical perspectives
      2. Assessment and diagnosis
      3. Prevention
      4. Intervention
   D. Interdisciplinary approaches to understanding and addressing suicide in Alaska

VI. Suggested Texts
   NOTE: There will not be a written text; students will be directed to a comprehensive reading list (see below).

VII. Bibliography  (*denotes classic material without recent editions)


*Disability Services ASAP of SafePlace. (2003).* *General facts about sexual abuse and people with mental retardation*. Austin, Texas: SafePlace.

*Disability Services ASAP of SafePlace. (2003).* *General information about domestic violence and persons with mental illness*. Austin, Texas: SafePlace.

*Disability Services ASAP of SafePlace. (2003).* *Risk factors to abuse/neglect for many people with disabilities*. Austin, Texas: SafePlace.

*Disability Services ASAP of SafePlace. (2003).* *Similarities and differences in domestic violence for people with and without disabilities*. Austin, Texas: SafePlace.

*Disability Services ASAP of SafePlace. (2003).* *Strategies for working with domestic violence survivors with mental illness*. Austin, Texas: SafePlace.

*Disability Services ASAP of SafePlace. (2003).* *Tips for communicating with survivors with developmental disabilities*. Austin, Texas: SafePlace.

*Disability Services ASAP of SafePlace. (2003).* *Tips for staying safe from sexual assault*. Austin, Texas: SafePlace.


