

**Agency: University of Alaska****Project Title:****Project Type:** Planning and Research

# UAF Engineering & Technology Project Design and Development

**State Funding Requested: \$10,000,000**  
Future Funding May Be Requested**House District:** Fairbanks Areawide (7-11)**Brief Project Description:**

Engineering &amp; Energy Technology Project Development.

**Funding Plan:****Total Cost of Project: \$50,000,000***There is no other funding needed***Detailed Project Description and Justification:**

These funds will go towards the planning, design, site and project development of engineering facilities at the University of Alaska.

Enrollment growth at UAF's College of Engineering and Mines has resulted in significant space challenges, as evidenced by overflowing classrooms and crowded labs. The proposed facility would support undergraduate and graduate education and research as well as provide teaching labs sufficient for the current curriculum.

Alaska faces a shortage of qualified engineers. To respond to the state's need, the University of Alaska Board of Regents set a priority to double annual engineering graduates by FY14, to 200 per year.

UA must have adequate instructional and specialized lab space to double engineering graduates. Current facilities cannot accommodate enrollment goal. UAF's engineering facility was completed in 1964, with an addition in 1984 and an energy conservation renovation in 2000. The existing engineering building does not have the special purpose lab space nor the larger classrooms required for the engineering curricula. UA has completed concept planning for the new facility. The additional funds would complete project planning and development, prepare bidding documents and identify construction cost.

**Project Timeline:**

\$10 million will be spent in the next 3 years for planning, design, site and project development of engineering facilities at UAF.

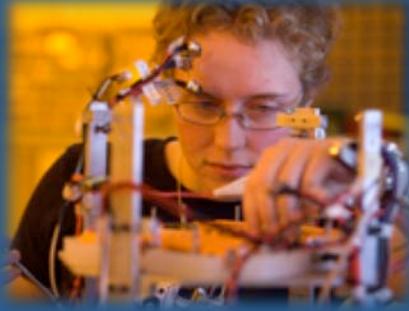
**Entity Responsible for the Ongoing Operation and Maintenance of this Project:**

University of Alaska

**Grant Recipient Contact Information:**

Name:	Kit Duke
Address:	950 Yukon Drive Fairbanks, AK 99775
Phone Number:	(907)450-8196
Email:	kduke1@alaska.edu

Has this project been through a public review process at the local level and is it a community priority?  Yes  No



FY11 Capital Request:  
\$10 Million  
Planning & Design

*"With today's shortage of engineers, the industry depends on the University of Alaska to continue doing its best to keep talented engineering graduates coming our way." -- Ted Trueblood, Vice President and Senior Consultant, URS Alaska LLC*



UNIVERSITY  
of ALASKA  
*Many Traditions One Alaska*

## UA ENGINEERING

### Program Description

Alaska faces a shortage of qualified engineers. To respond to the state's need, the University of Alaska Board of Regents set a priority to double annual engineering graduates by FY14, to 200 per year.

- The shortage is expected to grow through 2016, with an average of 50 new engineer jobs added each year, plus another 70 openings from annual turnover and retirement.\*
- Many engineers working in Alaska are non-residents, up to 35 percent in some disciplines. These employees lack education and experience in arctic engineering principles.
- Employers prefer to hire UA graduates, as they are more likely to remain in Alaska over time.

### Program growth and space needs

- **Degrees awarded:** The number of baccalaureate engineering degrees awarded each year has increased dramatically since FY03, with 94 baccalaureate engineering degrees awarded in FY09.
- **Enrollment:** UA baccalaureate engineering majors have grown significantly, nearly doubling from just over 500 in FY03 to more than 1,000 in FY10.
- UA must have adequate instructional and specialized lab space to double engineering graduates. Current facilities cannot accommodate enrollment goal.
- UAA's engineering building was constructed in 1983; UAF's was completed in 1964, with an addition in 1984 and an energy conservation renovation in 2000.
- Neither engineering building has the special purpose lab space nor the larger classrooms required for the engineering curricula.
- The UAA campus must utilize temporary space at significant expense and inconvenience to students. Additionally, the existing engineering buildings need refurbishing.
- UA has completed concept planning for new facilities at both UAA and UAF. The additional funds would complete project planning and development, prepare bidding documents and identify construction cost.

\* Source: Department of Labor and Workforce Development.

## Student Success in Engineering

- ✓ The UAF American Society of Civil Engineers (ASCE) Steel Bridge Team won the Northwest Regional Title and placed eighth at Nationals in 2008.
- ✓ Three UAA electrical engineering students brought home second place in the Institute of Electrical and Electronics Engineers (IEEE) regional ethics competition in 2009.
- ✓ UAF's rookie team entered the Society of Automotive Engineers Clean Snowmobile Challenge and won first place in the endurance competition.
- ✓ For the last two years, College of Engineering and Mines (CEM) students from the UAF microgravity project have won flight time on NASA's zero-G aircraft—a great honor.
- ✓ The UAA Bachelor of Science in Engineering was accredited in 2009, vital for engineering graduates seeking licensure.
- ✓ The NASA-funded UAF Student Rocket Project launched its fifth sounding rocket from Poker Flat Research Range in 2009.



Overflowing classroom



UAF Concept Plan for Engineering Facility

- ✓ Enrollment growth at UAF's College of Engineering and Mines has resulted in significant space challenges, as evidenced by overflowing classrooms and crowded labs. The facility shown (left) would support undergraduate and graduate education and research as well as provide teaching labs sufficient for the current curriculum.
- ✓ UAF's concept plan for new space is conservative, accommodating only current enrollment growth.
- ✓ UA partnered with statewide agencies to sign a K-12 Engineering Academies agreement to grow Alaska's technical workforce. This will build a pipeline of highly qualified Alaskans to enter careers in Science, Technology, Engineering, and Mathematics (STEM) fields.

- ✓ To help with space needs in the short-term at UAA, the School of Engineering has arranged for additional temporary space to house a design studio, additional classroom space, and faculty and staff offices. In 2013-14, all temporary space will revert to other uses.
- ✓ Phase I of UAA's proposed engineering building includes a nearby parking structure. The facility shown (right) would:
  - Primarily support undergraduate education and research
  - Provide teaching laboratory space needed to deliver much of the current curriculum
  - Provide minimal office space in support of expanded teaching labs



UAA Concept Plan for Engineering Facility