

Department of Engineering
Strategic Planning
2012-2017

Mission

The mission of the Department of Engineering at Northern New Mexico College is to provide education of the highest quality to students in its various associates, bachelors and post-baccalaureate Engineering, Information Technology and Solar Energy Degrees. In addition, we prepare students to consider pursuit of a career or an advanced degree by providing outreach and professional services at current academic and industrial standards.

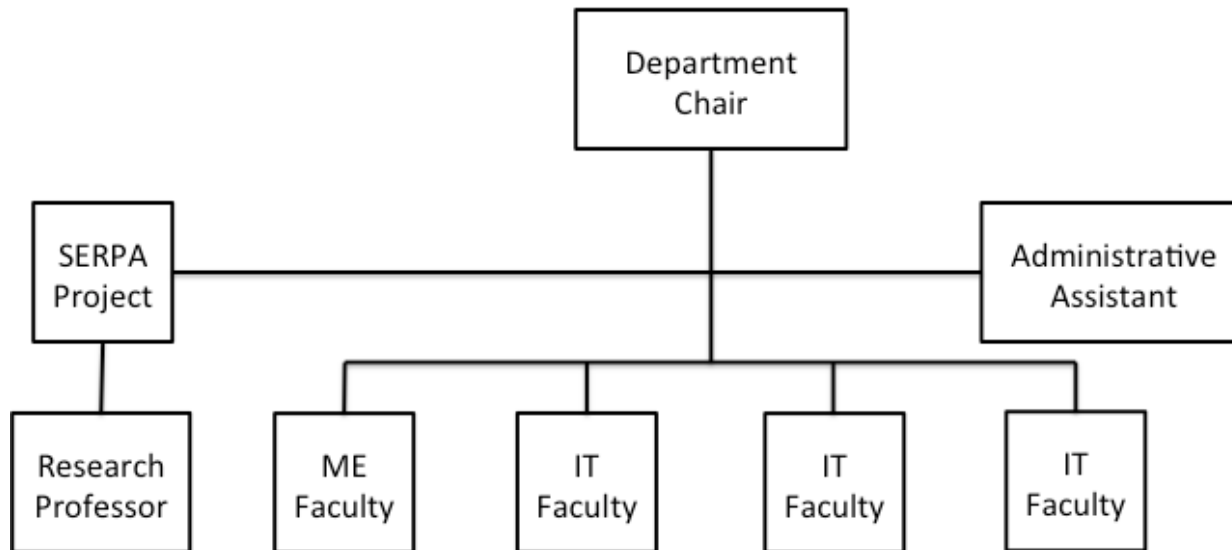
Vision

By 2017, the Department of Engineering at Northern New Mexico College will provide regionally recognized and ABET accredited bachelor of engineering programs. To achieve this mission the department will:

- Develop Strategic alliances with academic institutions as well as key players in the industry.
- Graduate students that are competent in applying technical and critical thinking skills to solve real world problems.
- Have a course completion rate of at least ninety percent.
- Establish a six-year graduation rate above fifty percent for bachelor degrees
- Establish a three-year graduation rate above fifty percent for associate degrees.

Organization Guideline

The current organizational chart for the Department of Engineering is the following



The leadership in the Department of Engineering begins with the department Chair. Expansion of the initiatives in the Information Technology field and the future expansion of the SERPA project will require the promotion of two faculty members to a directorship position: one each for Information Technology and the SERPA initiative. The effectiveness of these two areas would be much enhanced with an institutionalization of directorships in these positions.

For accreditation purposes and in order to support our curricular offering, it will be useful to increase by at least one faculty member (desirable for two positions) in the Mechanical Engineering/Solar Energy field. The department would also be beneficially impacted with addition of department assistants for tutoring services and laboratory technical support.

Goals

- Goal 1: Accomplish and maintain a culture of excellence in teaching, advisement, and undergraduate-research to improve the student academic experience.
- Goal 2: Accomplish ABET accreditation in both of our bachelor programs.
- Goal 3: Increase the number of students in engineering programs, graduate these students, and place them in the allied professions within the state.
- Goal 4: Increase departmental funding for the purposes of institutionalizing current faculty positions and current departmental assistants; expand the faculty lines in at least two more positions, expanding the staff in at least one lab technician and provide all department employees a salary level comparable to other Institutions of Higher Education.
- Goal 5: Develop the SERPA project according to its business plan.

Objectives

In order to accomplish Goal 1, the following objectives are established:

- Objective 1.1. To facilitate the retention of talented faculty.
- Objective 1.2. To establish policies that reward excellence in faculty accomplishments.
- Objective 1.3. To improve the quality of the student pipeline by working with the community in STEM education.
- Objective 1.4. To provide a richer campus life experience for students with internship programs and workshops.
- Objective 1.5. To enhance the laboratory facilities for the programs.

In order to accomplish Goal 2, the following objectives are established:

- Objective 2.1. To have all engineering faculty members trained on the student learning assessment process.
- Objective 2.2. To have all engineering faculty members trained on the ABET accreditation criteria.

- Objective 2.3. To complete the self-study questionnaire, to schedule mock visits, and to schedule an accreditation visit.

In order to accomplish Goal 3, the following objectives are established:

- Objective 3.1. Continuously improvement of the curricula and an increase in the number of course electives for students, particularly with a focus in research and development, entrepreneurship, and communication skills.
- Objective 3.2. To improve the visibility of the Department through marketing and effective partnerships with federal labs, industry and other universities.
- Objective 3.3. To link the two bachelor programs to at least one relevant industrial certification.
- Objective 3.4. To participate in existing and to organize new recruitment events.

In order to accomplish Goal 4, the following objectives are established:

- Objective 4.1. To secure funding in the amount of at least \$130,000 per year through grants, contracts, donations and continuing education training programs.
- Objective 4.2. To engage a formal discussion with the College administration on a plan to increase departmental funding.
- Objective 4.3. To work with industrial, government and academic partners on equipment donation.

In order to accomplish Goal 5, the following objectives are established:

- Objective 5.1. To initiate the offering of continuous education courses in the solar energy field at a rate of at least two courses per semester.
- Objective 5.2. To engage in consulting services with local entrepreneurs and larger companies in the solar energy field.
- Objective 5.3. To pursue grants in the solar energy field to fund research in solar energy and applications.

Tasks

The following task will be performed in order to achieve the different objectives.

- Task 1.1.1. Starting in Fall 2012, the Department will provide at least one developmental opportunity per year to each faculty member in their own field of interest.
- Task 1.1.2. Starting in Fall 2012, the Department will initiate conversations with upper administration to find authorized and legal mechanisms to increase faculty/employee compensation.
- Task 1.2. In Fall 2012, the Department will start an internal discussion to define a realistic rewarding plan for achievement of excellence.
- Task 1.3. Starting in Spring 2013, the Department will implement the Introductory Math Model and will increase its offerings for dual credit students as a way to bridge high school students into the engineering programs.

- Task 1.4.1. Starting in Fall 2012, the Department will implement a mandatory new student orientation session for new students every semester.
- Task 1.4.2. Starting at the end of Spring 2013, the Department will perform evaluations and institutional comparisons of implemented technologies in courses.
- Task 1.4.3. The Department will keep the current established mandatory advisement policy.
- Task 1.4.4. By the Spring 2013, the Department will develop two learning communities: one for the Information Technology Program and one for the Mechanical Engineering Program. The learning communities will work on semester basis.
- Task 1.4.5. Faculty will keep the current open-door policy for office hours.
- Task 1.5.1. During the Fall 2012, faculty will identify lab improvements that are currently needed.
- Task 1.5.2. By Fall 2012, faculty will develop a three-year equipment replacement plan.
- Task 1.5.3. By Fall 2013, faculty will identify funding sources (including donations) to implement the three-year equipment replacement plan.

- Task 2.1. Starting in Fall 2012, all full-time faculty will participate in at least one training session per year related to pedagogy and/or student learning.
- Task 2.2. The Department will continue scheduling the assessment meeting and action plan development per semester.
- Task 2.3.1. All Information Technology full-time faculty will be working in developing the self-study review for ABET accreditation. The study will be done by the end of Summer 2012.
- Task 2.3.2. All Mechanical Engineering full-time faculty will be working in developing the self-study review for ABET accreditation. The study will be done by the end of Summer 2016.

- Task 3.1.1. Starting in Spring 2013, the Department will implement an annual online survey to collect student preferences in terms of electives offerings and will offer the best rate courses.
- Task 3.2.1. The Department will institute and operate a Cisco Academy Support Center for the State of New Mexico by the end of 2012.
- Task 3.2.2. The Department will continue working on collaborative grants with UNM and pursue new opportunities with NMSU.
- Task 3.2.3. In the Fall 2012, the Department will form a committee charged with the improvement of the communication of departmental activities through website content and printed media. The committee will also propose measures that will increase the Department's visibility within professional societies.
- Task 3.2.4. Starting in Spring 2012, the Department will implement at least one community workshop with the focus on IT/Solar programs.

- Task 3.3 The Department will continue providing faculty training on industrial certifications and, in Spring 2014, will incorporate one industrial certification for the Information Technology Bachelor program and one for the Mechanical Engineering Program.
- Task 3.4. 1 The Department will continue its participation in at least three recruitment events per semester.
- Task 3.4.2 The Department will continue its participation in at least three outreach activities per semester: i.e., Friday Academy, ASPIRE initiatives, etc.

- Task 4.1.1 Starting in Fall 2012, the Department will establish an advancement committee that will meet regularly every semester to explore funding opportunities.
- Task 4.1.2 Starting in Spring 2013, the Department will submit at least six grant proposals per year.
- Task 4.2 Starting in Fall 2012, the Department will schedule meetings with the upper administration and the Provost to discuss a plan to improve the funding of the Department.
- Task 4.3 As part of the three-year replacement plan, by fall 2013 faculty will identify partners and initiate conversations related to equipment donations.

- Task 5.1.1 Starting in Fall 2012, the Department will develop a continuous education course plan that will be implemented starting on Spring 2013. At least two courses will be offered in this format.
- Task 5.2.1 Starting in Fall 2012, the Department of Engineering will work closely with the Small Business Development Center as a path to become a consultant and service provider in the solar field.
- Task 5.2.2 In Fall 2013, a new faculty/director in the field of Solar Energy will be hired to coordinate the SERPA efforts.
- Task 5.2.3 In Fall 2013, the Department will complete the PNM project. The success of the project will be marketed as a way to attract new similar projects.
- Task 5.3.1 Starting in Spring 2014, the Department will submit at least two grant proposals per year related to research in solar energy and applications.

Periodic monitoring of the plan

This strategic plan will be revisited at the end of the academic year 2012-2013. Initially, the plan will be validated using a bi-monthly accomplishment checklist, this will show the progress in the accomplishment of the enumerated tasks and their impact towards the goals and objectives. During the months of February and June, data will be collected and analyzed in departmental meetings to see if any objective has been accomplished or if the tasks require adaptations.

The availability of more departmental funding (or less funding) will also determine if changes need to be addressed during the next five years.