

Annual Report 2007 - 2008

Part 1

Section A

Unit Information

Unit:

U.A. Whitaker School of Engineering

Mission Statement:

The vision of the U.A. Whitaker School of Engineering at Florida Gulf Coast University is to be internationally recognized for excellence in interdisciplinary engineering education. The mission of the U.A. Whitaker School of Engineering is to graduate engineers and community leaders in selected engineering disciplines with superior technical competence and business skills to meet the engineering challenges of Southwest Florida and beyond. This is accomplished in an entrepreneurial and innovative educational environment that values diversity, service, integrity, leadership, and collaborations.

Section B

Unit Goals within Last Year's (2006-2007) Report

Strategic Plan Goal

With which 1 or 2 goals from the 8 current strategic plan goals does your 2007-2008 goal best align?

Goal 1 - High Quality Education

Unit Goal

Goal for 2007-2008

Develop proposals for Masters degrees in engineering. Develop the Minor in Environmental Engineering Science. Complete the first round of assessment for all three undergraduate engineering programs. Teach EGN 3833C Service Learning in Engineering, a credit-bearing service learning course, for the first time.

What actions have you taken to achieve this goal?

The proposal for the MS in Engineering was completed and submitted to the Graduate Curriculum Team in fall 2007.

The Minor in Environmental Engineering was approved by the UCT and will appear in the 2008-2009 catalog.

All fall engineering courses and the program outcomes associated with them were assessed at the May 5th-6th academic retreat of the engineering faculty.

EGN3833C Service Learning in Engineering (renamed to Engineering Service Learning for 08-09) was successfully taught in fall 2007.

What measures have you taken towards assessment of this goal?

Due to current economic conditions and budgetary concerns, the Provost's office recommended postponing implementation of the MS in Engineering until fall 2010 at the earliest so permission to establish the degree was not received.

The goal of establishing the Minor in Environmental Engineering was achieved

The WSOE faculty assessed the attainment of student learning outcomes and associated program outcomes in all engineering courses that were taught in fall 2007 when it held its academic retreat in May 2008. All courses that were taught in spring 2008 and their associated program outcomes will be assessed at a second academic retreat in August 2008. Assessment of program outcomes l and m was completed for all engineering programs, and these outcomes were achieved. All remaining program outcomes will be assessed at the August 2008 academic retreat.

EGN3383C was successfully taught to 38 students in fall 2007. The average overall SAI for the two instructors was 3.2.

The WSOE Advisory Board provided feedback about the academic programs at its September 2007 meeting and will provide additional feedback during their fall 2008 meeting.

Describe the progress you have made toward attaining this goal including the anticipated completion date.

All of the unit goals for 2007-2008 that were in control of the unit were attained so Goal 1 was achieved.

Describe how the results of assessments have been used to improve student learning or your department's activities.

The course assessments at the May retreat were used to determine what improvements were needed in each of our fall courses and will be implemented in fall 2008.

As the result of feedback from the WSOE Advisory Board in September 2007, a new course, ENV4612C Sustainability in Environmental Engineering, was created and added as a required course for the BS in Environmental Engineering and for the Minor in Environmental Engineering.

Strategic Plan Goal

Unit Goal

With which 1 or 2 goals from the 8 current strategic plan goals does your 2007-2008 goal best align?

Goal for 2007-2008

Goal 2 - The Student Community

Establish active outreach to local high schools to help improve the quality of incoming pre-engineering students, especially in terms of math preparedness. Begin gathering benchmarking data for retention of students who matriculate in engineering degree programs after getting a C or higher in Calc I, Calc II, Physics I, Chem I, Comp I, and Comp II. Formalize an internship program for students.

What actions have you taken to achieve this goal?

Work has continued with South Fort Myers High School with student projects from EGN3383C Service Learning in Engineering that were developed and delivered for use by the high school. A more formal outreach program has been established with Collier County middle schools by Dr. Zidek, which involves a pilot program was run during the spring semester.

The retention committee spent considerable time reviewing retention data. The data that appears to be most representative indicates that from Fall 2006 through Spring 2008, 78% of the students that completed EGM3420C Engineering Mechanics have successfully completed the class and enrolled in EGN3331 Mechanics of Materials.

A formal internship program has not been addressed; however, we are collecting data on current student internships.

The Recruitment and Retention Committee has also worked on an Engineering Honors Society which will be in place in fall 2008.

What measures have you taken towards assessment of this goal?

Data on retention have been collected and analyzed. Having 78% of the students persist from EGM3420C to ENG3331C represents excellent retention for an engineering program.

The WSOE Advisory Board will provide additional feedback to the Director and the faculty at its September 2008 meeting.

Describe the progress you have made toward attaining this goal including the anticipated completion date.

Three of the four the unit goals for 2007-2008 were achieved so Goal 2 was achieved. The last goal, that of formalizing an internship has been deferred until the WSOE is more established. In the meantime, students have access to internship opportunities through FGCU's Career Center.

Describe how the results of assessments have been used to improve student learning or your department's activities.

Dr. Zidek will continue the pilot program with Collier County middle schools in fall 2008. Student success in engineering will increase if students come to the university better prepared to succeed in mathematics.

Strategic Plan Goal

Unit Goal

With which 1 or 2 goals from the 8 current strategic plan goals does your 2007-2008 goal best align?

Goal for 2007-2008

Goal 4 - A Talented and Dedicated Faculty and Staff

Faculty and staff will participate in continuing education activities. Faculty will participate in conferences to enhance teaching and research activities. Any remaining and new faculty lines will be filled by appropriate searches. Needed support staff will be added.

What actions have you taken to achieve this goal?

Dr. O'Neill was awarded the FGCU Senior Teaching Award for 2008.

Eight of 10 engineering faculty attended the June conference of the American Society for Engineering Education (ASEE) and presented 7 peer-reviewed conference papers.

Drs. Torres and Orndoff attended the National Effectiveness in Teaching Institute that preceded the ASEE conference.

Dr. Orndoff attended FGCU's workshop on synergy between teaching and scholarship.

Drs. Torres, Kunberger, and Guo (Computer Science) as well as Ms. Diana Stoppiello (academic advisor) attended ABET Faculty Workshop on Assessing Program Outcomes in Tampa.

Ms. Lynn See, Office Manager, attended two professional development workshops at FGCU.

Successful searches were conducted for the Environmental Engineering Program Director (Dr. Sim Komisar will start in August 2007) and the remaining civil engineering faculty position (Dr. Ashraf Badir will start in August 2007).

A search is underway for the remaining environmental engineering faculty position. On July 1, 2008, there were 31 applicants, many of whom are highly qualified.

No support staff has been added.

What measures have you taken towards assessment of this goal?

Annual reports from faculty and staff were reviewed to determine participation in continuing education, research, and other scholarly activities.

Annual teaching and scholarly performance of faculty as measured by observation, student reviews and comments, and the number and quality of publications through scholarly journals and proceedings. Student Evaluation of Instruction (SAI) for fall and spring semesters were received and reviewed by the Director and the Department Chairs. The WSOE average across all 8 SAI questions for all engineering faculty was 4.0 for fall 2007.

SAIs are being graphed versus average course grades for all sections taught within the WSOE and are being used to assess overall faculty performance.

Describe the progress you have made toward attaining this goal including the anticipated completion date.

Three of the four unit goals for 2007-2008 were achieved. The last goal, that of adding additional support staff, was deferred to 2008-2009 when space will be available in Holmes Hall.

Describe how the results of assessments have been used to improve student

learning or your department's activities.

Four faculty were sent to teaching effectiveness workshops between July 1, 2007 and June 30, 2008 to help them improve their teaching skills and, thus, the opportunities for students to learn.

All current faculty plus the academic advisor are either ABET Program Evaluators or have participated in the ABET Faculty Workshop on Assessing Program Outcomes, which should lead to better assessment and continuous improvement of the engineering programs.

Strategic Plan Goal

With which 1 or 2 goals from the 8 current strategic plan goals does your 2007-2008 goal best align?

Goal 5 - State of the Art Infrastructure

Unit Goal

Goal for 2007-2008

The WSOE will continue the process for building a state-of-the-art building to house the engineering programs. Work with University Advancement to raise money for additional equipment through naming opportunities.

What actions have you taken to achieve this goal?

The 100% construction documents were completed, and Holmes Hall is under construction.

Drs. Blanchard and O'Neill attend biweekly meetings with the architect, construction company, and other representatives from FGCU to oversee the construction of Holmes Hall.

Requests for information or decisions from the architects or construction company have been answered quickly by Dr. Blanchard.

Gifts have been received to name spaces within Holmes Hall. Work continues with University Advancement to raise money for additional equipment through naming opportunities.

What measures have you taken towards assessment of this goal?

The construction of Holmes Hall is ahead of schedule.

The campaigns initiated by the University Advancement Office for private funding of spaces in Holmes Hall have been successful.

Describe the progress you have made toward attaining this goal including the anticipated completion date.

Holmes Hall will be ready for occupancy in December 2008.

Pledges totaling \$450k have been made to name seven spaces in support of equipment for Holmes Hall.

Describe how the results of assessments have been used to improve student learning or your department's activities.

The move to Holmes Hall in fall 2008 and furnishing it with state-of-the-art equipment will lead to improved student learning as well as to enhanced research opportunities for faculty.

Strategic Plan Goal

With which 1 or 2 goals from the 8 current strategic plan goals does your 2007-2008 goal best align?

Goal 6 - Research and Sponsored Programs

Unit Goal

Goal for 2007-2008

All faculty will submit at least one internal or external research grant proposal. At least one grant proposal will be submitted that will focus on purchasing major research instrumentation. The WSOE will request support from the Office of Research and Sponsored Programs (ORSP) for temporary space in which engineering faculty can do research until Holmes Hall is completed. The faculty in the WSOE will request support from the Office of Research and Sponsored Programs for equipment to enable the faculty to undertake research projects and become competitive for external grants and contracts.

What actions have you taken to achieve this goal?

All in-unit faculty were PIs or Co-PIs on one or more grant or contract proposals during the 2007-2008 academic year.

Dr. Geiger submitted a Major Research Instrumentation (MRI) proposal to the National Science Foundation to fund ~\$700k in specialized, state-of-the art equipment.

The Office of Research and Sponsored Programs (ORSP) rented temporary research space in North Naples that is being used by WSOE faculty.

ORSP provided \$111k to purchase research equipment for the North Naples space.

What measures have you taken towards assessment of this goal?

Number of grants and contracts submitted.

Number of grants and contracts awarded.

Describe the progress you have made toward attaining this goal including the anticipated completion date.

The MRI grant proposal was favorably reviewed but not funded; however, Dr. Geiger learned a great deal about how to write a successful proposal from this effort and will revise and resubmit the proposal in January 2009.

Drs. Csavina, Sweeney, and Villiers have funded contracts for research activities.

Describe how the results of assessments have been used to improve student learning or your department's activities.

Students have been involved in faculty research.

Drs. Sweeney and Csavina received a grant from the National Institute for Standards and Technology (NIST) which paid for one FGCU student to have a summer internship at NIST.

A new course, EGN4900 Directed Engineering Research, was created so that students could get course credit for participating in research activities.

Strategic Plan Goal

With which 1 or 2 goals from the 8 current strategic plan goals does your 2007-2008 goal best align?

Goal 7 - Community Leadership

Unit Goal

Goal for 2007-2008

Participation in ABET accreditation visits in fall 2007. WSOE faculty will be engaged in both local and national engineering communities through service opportunities.

What actions have you taken to achieve this goal?

Drs. Blanchard, O'Neill, and Sweeney were evaluators on ABET accreditation visits in fall 2007.

Dr. Zidek has become active with the schools in Collier County.

Drs. O'Neill, Villiers, and Orndoff participated in local activities of the American Society for Civil Engineering (ASCE).

Dr. Blanchard is on the Board of the American Institute for Medical and Biological Engineering.

Dr. Blanchard is a member of the Accreditation Activities Committee of the Biomedical Engineering Society.

Dr. O'Neill serves on the ASCE's Committee on Faculty Development.

Dr. Sweeney was elected to the position of Program-Chair-elect of the Bioengineering Division of the American Society for Engineering Education.

Dr. Sweeney has been involved with the Life Sciences Working Group of the Collier County Economic Development Corporation and has helped bring a chapter of BioFlorida to the 5-county region.

What measures have you taken towards assessment of this goal?

The service component of each annual performance report was reviewed to help assess community leadership both locally and nationally.

WSOE faculty participated in three ABET accreditation visits in fall 2007.

WSOE faculty have leadership roles in national professional organizations.

Describe the progress you have made toward attaining this goal including the anticipated completion date.

Annual reports were reviewed. All goals were attained.

Describe how the results of assessments have been used to improve student learning or your department's activities.

Lessons learned from the fall ABET visits to other institutions are used to improve the assessment process and student learning at FGCU.

Strategic Plan Goal

Unit Goal

With which 1 or 2 goals from the 8 current strategic plan goals does your 2007-2008 goal best align?

Goal for 2007-2008

Goal 8 - Ongoing Quality Improvement

"Close the loop" on the program outcomes (POs) for all three undergraduate degree programs.

What actions have you taken to achieve this goal?

The faculty held an academic retreat in May 2007 to assess all fall 2007 courses and all program outcomes associated with those courses for all three engineering degree programs. Assessments were completed for program outcomes l and m.

What measures have you taken towards assessment of this goal?

Achievement of student learning outcomes and associated program outcomes was assessed for each fall 2007 course at the May 2008 retreat.

Describe the progress you have made toward attaining this goal including the anticipated completion date.

All fall 2007 courses were assessed.

Assessment of all spring 2008 courses will be completed at a retreat in August 2008.

All program outcomes will have been assessed by the end of the August 2008 retreat.

Describe how the results of assessments have been used to improve student learning or your department's activities.

Program outcomes are assessed as part of the ABET accreditation process. These assessments should lead to continuous improvement of the programs.

One change that was made as a result of these assessments was to change the sequence of EGN3641C Engineering Entrepreneurship and EGN3833C Engineering Service Learning so that EGN3833C will proceed EGN3641C in the 2008-2009 academic year and both courses will be taught to juniors. This change should greatly improve student learning in both courses.

Section C

Program or Service Specific Assessments

What program or service specific assessment occurred in the current academic year?

The original intention was to assess all of the program outcomes for all three undergraduate engineering programs and "close the loop" by taking appropriate actions depending on the results of the assessment process during the 2007-2008 academic year. This goal was too ambitious since some program outcomes are covered only in spring courses or are covered in both fall and spring courses, and spring courses will not be assessed until August 2008.

How were the results of the assessment used to improve programs or services?

All of the engineering programs will be improved by the reordering of EGN3383C and EGN3641C.

Additional improvements will be implement after the assessment of all program outcomes is completed in August 2008.

Section D

Unit Contribution or President's Performance Measures

Please review the [President's Performance Measures for 2007-2008](#). Did your unit contribute to any specific performance goals for the President? (If so, please indicate whether the measure set was attained and to what degree.)

- I. GOAL: High Quality Education - Engineering continues to be a draw for students interested in the Collegiate High School.
- II. GOAL: The Student Community - More students than were originally expected continue to enroll in pre-engineering courses. Enrollment growth in EGN1006L (the first engineering course) was 18% over the previous year. Enrollment growth in EGN1041C (the second engineering course and the first that requires Calculus I) was nearly 28% between 2006-2007 and 2007-2008.
- III. GOAL: Co-curricular and Athletic Programming - N/A.
- IV. GOAL: Talented and Dedicated Faculty - WSOE currently has 5 women out of 10 in-unit faculty. One of the male in-unit faculty is Hispanic and one is Black. The WSOE is one of the most diverse units on campus, especially given that it is a technical discipline.
- V. GOAL: State of the Art Infrastructure - Construction was begun on Holmes Hall.
- VI. GOAL: Research and Sponsored Programs - Dr. Sweeney's involvement with BioFlorida is directly related to the development of a research park near the airport. WSOE faculty submitted proposals for sponsored research and secured several research-based contracts.
- VII. GOAL: Community Leadership - Donations for Holmes Hall have been received from Arthrex, Johnson Engineering, Davidson Engineering, Johnson-Prewitt & Assoc. Inc.
- VIII. GOAL: Ongoing Quality Improvement - The engineering programs are being systematically assessed and improved.

Part 2

Section A

Unit Goals for Coming Year (2008-2009)

Strategic Plan Goal

With which 1 or 2 goals from the 8 current strategic plan goals does your 2007-2008 goal best align?

Goal 1 - High Quality Education

Unit Goal

Goal for 2008-2009

Faculty demonstrate contributions to scholarship through professional activities, publication, and research.

Progress is made towards programmatic accreditation.

What action(s) will you undertake to achieve the goal?

Faculty will submit peer-reviewed papers to appropriate education and discipline-specific conferences as well as to appropriate journals. Presentations will be made at conferences if funding is available.

Faculty will participate in conferences to enhance teaching and research activities.

Faculty will submit proposals for grants and contracts.

The second round of assessment for all three undergraduate engineering programs will be completed at the May 2009 academic retreat.

A draft of the ABET self-studies, one per program, will be prepared by January 2009.

A mock ABET visit will be held in February or March 2009.

In January 2009, a request will be submitted to ABET for an accreditation visit in fall 2009.

The completed self-studies for all three engineering programs will be submitted to ABET by July 1, 2009.

By what means will you assess goal achievement?

Faculty annual reports will be reviewed to determine the number and type of publications and the number and types of grant and contract submissions and awards.

All drafts and final self-studies will be completed as scheduled.

A successful ABET mock visit will be held in February or March 2009.

How will you know if you have successfully attained each goal?

All of the associated actions will have been accomplished.

How will the results of the above assessments be used to improve student learning or services?

Advancing faculty knowledge through scholarly activity will improve the quality of the faculty and lead to improvements in opportunities for student learning.

These are the steps that must be followed for a successful ABET accreditation visit in fall 2009. Achieving ABET accreditation of our engineering programs is critical for the future success of the WSOE.

Strategic Plan Goal

With which 1 or 2 goals from the 8 current strategic plan goals does your 2007-2008 goal best align?

Goal 4 - A Talented and Dedicated Faculty and Staff

Unit Goal

Goal for 2008-2009

The remaining environmental engineering faculty position will be filled by someone holding a PhD or equivalent degree.

Hiring of adjunct faculty for engineering courses will cease after fall 2008.

A senior secretary will be hired.

A lab manager will be hired by the time we move into Holmes Hall.

Faculty and staff will participate in professional development activities.

What action(s) will you undertake to achieve the goal?

A successful search will be held for the remaining environmental engineering faculty position and a PhD-qualified candidate will be hired.

No adjuncts will be hired to teach in spring 2008 if the environmental engineering faculty position is filled.

A senior secretary will be hired (OPS) to provide support for the academic advisor and for the office manager.

A lab manager will be hired (OPS if necessary) to manage the equipment in Holmes Hall and to assist faculty with the use of teaching and research equipment.

A computer science faculty line will be requested to replace the computer science faculty member who will be leaving at the end of the 2008-2009 academic year so that the minimum number of faculty needed to sustain the program can be maintained.

Faculty and staff will participate in professional development workshops offered by the university and at national conferences if funding is available to support travel.

By what means will you assess goal achievement?

The search committees will follow the established procedure and qualified candidates from a diverse pool will be interviewed for all positions that are offered.

The proposed positions will be filled.

Faculty and staff annual reports will be reviewed to determine participation in professional development activities.

How will you know if you have successfully attained each goal?

Open faculty and staff positions will be filled.

Faculty and staff will have participated in professional development workshops.

How will the results of the above assessments be used to improve student learning or services?

Student learning is enhanced by having sufficient faculty and staff.

Having additional permanent faculty and eliminating the need for adjuncts will improve the course offerings available to students.

What additional resources have you requested and received a commitment for during 2008-2009 from your area VP or the President that is based on your analysis of assessment data for 2007-2008?

The vacant environmental engineering faculty position that represents the last of the original 13 faculty hires for the WSOE was funded for 2008-2009.

Section C

Assessment Plans

What assessments are you planning to conduct during 2008-2009?

All of the program outcomes for all three engineering programs will be assessed during 2008-2009 as part of the process for preparing for ABET accreditation.

Section D

Coming Year - Strategic Plan Contributions

1.1.1, 1.3.4, 4.1.1.a-c, 4.2