CENTER FOR DIVERSITY IN ENGINEERING

2000-2001 ANNUAL ACCOUNTABILITY AND PLANNING REPORT

A. MISSION AND AREAS OF FOCUS

To support the mission of Florida International University’s College of Engineering, CDE- Center for Diversity in Engineering was created to serve and engage students, teachers, families and communities in science, mathematics, engineering & technology education. Its purpose is to recruit, retain, graduate and serve an ethnically diverse population in its mission to increase the flow of traditionally underrepresented ethnic and gender groups into the engineering pipeline.

The Center educates and enriches the K-16 population by providing bridge programs, dual enrollment, scholarships and undergraduate research experience. In addition, CDE assists the College of Engineering with Latin American and Caribbean programs.

B. ORGANIZATION, EXTERNAL TRENDS AND STRATEGIC DIRECTIONS

1. Organizational Issues: Personnel

Organizational chart enclosed

2. Advisory Board Members

a) List of members

*Advisory Board Members:

<table>
<thead>
<tr>
<th>Name</th>
<th>Title and Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr. Irma Becerra-Fernandez</td>
<td>Assistant Professor, Decision Sciences, College of Business, FIU</td>
</tr>
<tr>
<td>Dr. Manuel Berriozabal</td>
<td>Professor, Director, Proyecto ACCESS, University of Texas at San Antonio</td>
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<tr>
<td>Dr. Maria Bilbao</td>
<td>Assistant Dean, College of Education, FIU</td>
</tr>
<tr>
<td>Dr. Amaury Caballero</td>
<td>Assistant Professor, Construction Management, FIU</td>
</tr>
<tr>
<td>Dr. Gisella Casines</td>
<td>Associate Dean, College of Arts &amp; Sciences, FIU</td>
</tr>
<tr>
<td>Mr. Waldo Castro-Molleda</td>
<td>President, CAMACOL Hispanic Chamber of Commerce</td>
</tr>
<tr>
<td>Dr. Marta Centeno</td>
<td>Associate Professor, Industrial &amp; Systems Engineering, FIU</td>
</tr>
<tr>
<td>Dr. Robert Coatie</td>
<td>Director, Multicultural Program Services, FIU</td>
</tr>
<tr>
<td>Mr. Rafael Diaz-Balart</td>
<td>President, Vestec International Corporation, Miami, Fla.</td>
</tr>
<tr>
<td>Dr. Kelsey Downum</td>
<td>Associate Dean, College of Art and Science, FIU</td>
</tr>
<tr>
<td>Mr. Rodolfo Ibarra</td>
<td>CEO, Conecton, Miami, Fla.</td>
</tr>
<tr>
<td>Dr. Sylvan Jolibois</td>
<td>Assistant Professor, Civil &amp; Environmental Engineering, FIU</td>
</tr>
<tr>
<td>Dr. George Koonce</td>
<td>Region Superintendent, M-DCPS</td>
</tr>
<tr>
<td>Dr. Jairo Lascarro</td>
<td>Dean, College of Engineering, Universidad del Turabo Puerto Rico</td>
</tr>
<tr>
<td>Mr. William Machado</td>
<td>Principal, Miami Coral Park Senior High School, M-DCPS</td>
</tr>
<tr>
<td>Mr. Alberto Martin</td>
<td>Senior Design Engineer, Xtec Industries, Miami, Fla.</td>
</tr>
<tr>
<td>Dr. Raul Martinez</td>
<td>President/CEO, ASPIRA of Florida, Inc., Miami, Fla.</td>
</tr>
<tr>
<td>Mr. Marco Midon</td>
<td>RF Engineer, NASA-Goddard Space Center, Baltimore, Meryland</td>
</tr>
<tr>
<td>Dr. Osama Mohammed</td>
<td>Professor, President, IEEE, Miami Chapter</td>
</tr>
<tr>
<td>Dr. Norman Munroe</td>
<td>Chairperson, Mechanical Engineering, FIU</td>
</tr>
</tbody>
</table>
Dr. Ali Ebadian, Professor
Director, Hemispheric Center for Environmental Technology, FIU

Dr. Federico Norwood, Chairperson
Department of Engineering, New Mexico Highlands University, Las Vegas, New Mexico

Mr. Lorenzo Elgarresta, Telecommunication Director, Florida Power and Light

Dr. Enrique Villamor, Professor
Chairperson, Mathematics Department, FIU

Dr. David Ferguson, Director
Center of Excellence in Learning and Teaching, Stony Brook University

Mr. Ivan Yaeger, CEO
The Yaeger Foundation, Miami, Fla.

Dr. Julio Garcia, Director
Disability Services, FIU

Dr. Kang Yen, Professor
Chairperson Electrical & Computer Engineering, FIU

*Although the Advisory Board members have not been officially installed, the above-named faculty advisors and industry mentors have provided invaluable guidance and assistance through fostering partnerships in the university and school communities and by providing technical assistance.

3. **External Trends**

- **“Less state support per student”:** Due to the rapid growth of Florida International University, state financial support will need to be distributed among an increased number of students. FIU’s Center for Diversity in Engineering-CDE continues to actively pursue additional scholarships opportunities, jobs and dual enrollment programs for students in its efforts to aid in remedying this trend.

- **“Distance learning”:** With the increasing sophistication of technology, distance and online education provide unique teaching and learning experiences. CDE looks towards improving and strengthening its web-based educational materials and resources through the increased adaptation and implementation of its NASA-KSC-Project VISION manipulative (scientific hands-on modules) database.

- **“Southeast Florida’s role as an information and transportation center”:** CDE intends to provide resources and support for Dr. Jolibois’ Summer Transportation Center. Also, the Center is working very closely with Dr. Amaury Caballeros’ Construction Industry Focus Center, Apprentice for a Positive Tomorrow, Barbara Goldman youth program participants and Dr. Kang Yen Computer Industry Focus Center summer program

4. **Strategic Directions and Areas of Emphasis**

It is envisioned that in the next five years the Center for Diversity in Engineering will have developed a nationally recognized, sustainable, and replicable program that successfully integrates education, industry & the community for the advancement of ethnic and gender groups traditionally underrepresented in the field of engineering.

More specifically, the Center will work towards increasing the impact of its pre-college educational and bridge components by uniting community resources.

C. **2000-2001 ANNUAL ACCOMPLISHMENTS**

The Center for Diversity in Engineering was created to serve students, teachers and parents through outreach programs, dual enrollment, bridge programs, scholarship and undergraduate research experience. During 2000/2001, 15 programs were funded, 30 schools have been served, 351 teachers and 49 pre-service teachers have been trained, and 13,253 students have received educational services. The parental involvement thru the K-parents has been very effective with the ENLACE Miami! effort.
D. 2001-2002 ANNUAL GOALS

2001-2002 Goal 1: Well-Educated Students: Provide comprehensive educational materials and resources, quality teaching and engineering awareness to program participants. Measurable Outcome: High performance in Center programs/initiatives, enriching experiences, and higher grades, improve FCAT performance, and increase minority enrollments in engineering. GI

2001-2002 Goal 2: Research & Creative Activities: Strengthen collaborations with NASA Kennedy Space Center in the areas of education and outreach. G2/TV Measurable Outcome: NASA/KSC funding for service and research opportunities; educational and enriching experiences to better prepare students for a complex changing world.


2001-2002 Goal 4: Strategic Themes: To be recognized as a nation’s Centers for Diversity in Engineering. Measurable Outcome: As measured by number, level and success of conference presentations, journals and trainings sessions. G4/TV

E. EXECUTIVE SUMMARY

1. Prior Year
   a. Scholarly activities (e.g., forums or conferences that support faculty research, teaching, and service interests) *Since Jan 2001 (Official month Center opened)

      Member of the Advisory Committee for Engineering, National Science Foundation (NSF). September 2000 until present.

      Member of the Committee on equal Opportunities in Science and Engineering (CEOSE), National Science Foundation (NSF). October 2000 – September 2003


      Member of the Board of Directors of the Magnet Educational Choice Association, Inc. Miami-Dade County Public Schools, Florida. 2000 to present

      Member of the Board of Directors of the YAEGER Foundation, Miami, Florida. 2000 to present.

      Member of the Center for Urban Education and Innovation Advisory Committee, College of Education, Florida International University. July 2000 to present


      International Student Advisory Committee, July 2001

      S.A.C.S. (Southern Association of Colleges and Schools), Secondary Commission, Peer Review Team for Northwestern Senior High School. April 8-10, 2001

      USP Superintendent’s Coalition/National Science Foundation Workshop on Instructional Leadership, March 2001
b. Published research, faculty productions or other media by primary authors giving credit to the institute/center for its support
   - Project VISION Science Middle School Learning Modules
   - Project VISION Math Middle School Learning Modules
   - Project VISION Math and Science Elementary School Learning Modules

c. External funding sources

<table>
<thead>
<tr>
<th>Project/Proposal Title</th>
<th>Source of Support</th>
<th>Amount</th>
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<tbody>
<tr>
<td>SHPE Honores</td>
<td>NASA/SHPE</td>
<td>$48,000.00</td>
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<tr>
<td>Engineering and Technology Industry Focus Center</td>
<td>Youth Co-op, Inc</td>
<td>$74,000.00</td>
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<td>Florida Action for Minorities in Engineering (FLAME) Summer 2001</td>
<td>Miami-Dade County Public Schools</td>
<td>$29,440.00</td>
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<tr>
<td>Florida Action for Minorities in Engineering (FLAME) Fall-Spring</td>
<td>Miami-Dade County Public Schools</td>
<td>$32,500.00</td>
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<td>Florida/Georgia Louis Stokes Alliance for Minority Participation in Engineering, Mathematics and Sciences (FG-LSAMP)</td>
<td>NSF/Florida A&amp;M University</td>
<td>$100,175.00</td>
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<td>Florida/Georgia Louis Stokes Alliance for Minority Participation (FG-LSAMP)</td>
<td>NSF/Florida A&amp;M University</td>
<td>$220,807.00</td>
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<td>Florida Collaborative for Excellence in Teacher Preparation</td>
<td>NSF/Florida A&amp;M University</td>
<td>$91,415.00</td>
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<tr>
<td>Project VISION – George Washington Carver Elementary</td>
<td>Miami-Dade County Public Schools</td>
<td>$5,600.00</td>
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Project/Proposal Title: Project VISION/Kinloch Park Middle School  
Principal Investigator: Roig  
Source of Support: Miami-Dade County Public Schools.  
Amount: $7,200.00

Project/Proposal Title: Project VISION/Everglades Elemiddle  
Principal Investigator: Roig  
Source of Support: Miami-Dade County Public Schools.  
Amount: $5,000.00

Project/Proposal Title: Proyecto ACCESS/Miami PREP – NASA/HACU  
Principal Investigator: Roig  
Source of Support: NASA/HACU  
Amount: $82,100.00

Project/Proposal Title: ¡ENLACE Miami!  
Principal Investigator: Roig  
Source of Support: W.K. Kellogg Foundation  
Amount: $1,500,000.00/4 years

Project/Proposal Title: Project VISION  
Principal Investigator: Roig  
Source of Support: NASA/Kennedy Space Center  
Amount: $200,000.00

Project/Proposal Title: GEAR UP Homestead Program  
Principal Investigator: Roig  
Source of Support: US Department of Education  
Amount: $7,548,152.00/5 years

Project/Proposal Title: JETS/UNITE  
Principal Investigator: Roig  
Source of Support: US Army  
Amount: $30,000.00

d. Any form of public recognition by the mass media

“Up to the Challenge”. Technica magazine, Spring 2001, page 20/21

FIU in view, Cable-TAP community Station, May 2001.

$1.5 million grant will help Hispanic students. ENLACE Miami! The Herald, April 2001

FIU earns $1.5 million grant ENLACE Miami! The Beacon, April 2001

“Council of 100” Nomination” Nominee: Dr. Gustavo Roig, September 2001  
Florida International University’s Honorary Degrees and Awards Committee

Teamwork Award- The Non-Violence Project of United States – 2001  
Presented to Dr. Gustavo Roig by Dr. Michael Nobel of the Nobel Peace Prize Foundation.

Integration of faculty into center activities.

Amaury Caballero, College of Engineering
Armando Barreto, College of Engineering
Bill Beesting, Undergraduate Studies
Delia Garcia, College of Education
Enrique Villamor, College of Art and Science
Gisela Casines, College of Art and Science
Irma Becerra-Fernandez, College of Business
Jaime Canaves, School of Architecture
Jose Longoria, College of Art and Science
Kang Yen, College of Engineering
Leon Cuervo, College of Art and Science
Luis Gomez Imbert, College of Art and Science
Maria Bilbao, College of Education
Michael McQueen, College of Journalism
Nestor Gomez, College of Engineering
Osama Mohammed, College of Engineering/IEEE
Rene Herrera, College of Art and Science
Ricardo Alvarez, Hurricane Center

2. Coming Year

External funding sources

<table>
<thead>
<tr>
<th>Project/Proposal Title</th>
<th>METAS SCHOLARS</th>
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<tbody>
<tr>
<td>Principal Investigator</td>
<td>Roig</td>
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<tr>
<td>Source of Support</td>
<td>National Science Foundation (NSF)</td>
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<td>Amount: $</td>
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<th>Project/Proposal Title</th>
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<tr>
<td>Principal Investigator</td>
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<tr>
<td>Source of Support</td>
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<tr>
<th>Project/Proposal Title</th>
<th>Bringing Science and Technology to Hispanic Youth to Televised Spanish LAN</th>
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<tr>
<td>Principal Investigator</td>
<td>Roig</td>
</tr>
<tr>
<td>Source of Support</td>
<td>NASA/Kennedy Space Center</td>
</tr>
<tr>
<td>Amount: $</td>
<td>154,667.00</td>
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a. Proposed research and scholarly activities:

Keynote Speaker
Hispanic Heritage Awareness Month, US Department of Energy, Savannah, Georgia. October 10, 2001

Conference presentations

b. Teaching and training activities

To continue training teachers at: Homestead Middle School; Aspira North; Aspira South and North Dade Middle School.

c. Service and outreach - internal (e.g., with departments, colleges, or other university units) or external networking (e.g., with other universities, community colleges, public schools; public-private partnerships);

- CDE intends to hold in the spring 2002, during Engineering Week its first annual Engineering Day that will serve as an open house for public and private Miami-Dade County and Broward School students. Guests will be able to visit the Engineering Campus, tour its facilities (including research labs and classrooms) and interact with researchers, faculty, graduate students, and students in general.
- CDE will sponsor the Miami-Dade County SECME 2003 District Olympiad Special Competition.
- CDE will sponsor the Junior Engineering Technical Society (JETS) Team Competition.
- CDE will sponsor the Junior Engineering Technical Society (JETS) NEDC Competition.
- CDE will sponsor the Junior Engineering Technical Society Aptitude Test (JETS)

d. Opportunities for students (e.g., assistantships, service learning); or financial goals (e.g., levels of external funding, potential contracts).

Scholarships
Dual enrollment
Part time jobs
Research jobs
Internships

Our target goal is to provide 86 scholarships, 35 undergraduate research experience and 12 internships for FIU students. Also, to provide 51 dual enrollment opportunities for High School students.

e. Integration of faculty into center activities

CDE will continue working with the university through its “comprehensive wide approach”.