

FLORIDA INTERNATIONAL UNIVERSITY
COLLEGE OF ENGINEERING

CENTER FOR THE ADVANCEMENT OF ENGINEERING
PRE-COLLEGE EDUCATION



FLAME (Florida Action for Minorities in Engineering). (9th -12th graders)

The Florida Action for Minorities in Engineering (FLAME) program is a joint program between Miami-Dade County Public School System and Florida International University, specially designed for minority high school students, providing a unique educational experience in the field of engineering. The program starts with a summer program at FIU. This "Full Immersion Summer Program" lasts six weeks and is designed for students that will enter ninth grade.

During the regular academic year, ninth and tenth grade students will be exposed to a variety of math and science courses designed to prepare them for advanced studies at FIU during their eleventh and twelfth grade years. Incoming tenth grade students participate in the "Engineering Summer Institute" which is also a six-week program.

In their eleventh grade, students take Applied Mathematics I and Applied Engineering Principles I besides their regular curriculum. During the next summer program, students participate six weeks in the "Executive Internship summer program" in which they are placed at engineering related companies. During their senior year, students take six credits of dual enrollment courses at FIU and also take Applied Mathematics II and Applied Engineering Principles II. The program serves an Engineering Magnet Program that resides at Miami Coral Park Senior High School

The philosophy of the FLAME Program is to instill in students a desire for academic excellence, to prepare students to complete college, and to encourage them to become solid contributing citizens.

Funding \$45,000.00/year



Project VISION (Phase I) - NASA/John F. Kennedy Space Center. (7th graders)

Project VISION is collaboration among NASA/John F. Kennedy Space Center, Miami-Dade County Public School System, the Public School System of Puerto Rico, Florida International University (leading institution) and Universidad del Turabo in Puerto Rico

Project VISION's goal is to increase the participation of middle school students in, as well as their understanding of, science, mathematics and technology.

Project VISION will apply the resources of NASA, FIU, and the Universidad del Turabo to improve the quality of math and science education in selected middle schools in Miami, Florida and Puerto Rico.

By providing university faculty and students, industry mentors, technical training and equipment and by incorporating in the middle school curriculum the vast educational resources available through NASA, Project VISION aspires to encourage these youngsters to be our country's future scientist, engineers, and mathematicians.

Funding \$400,000.00/year



FG/LSAMP (Florida-Georgia Louis Stokes Alliance for Minority Participation in Science, Math and Engineering)

The focus of the FG/LSAMP is to increase significantly the enrollment, retention rate, and graduation rate of those individuals from traditionally underrepresented groups majoring in undergraduate and graduate science, engineering, and mathematics disciplines (SEM).

The FG/LSAMP Program comprises a unique alliance of 11 institutions in two states. The cooperating institutions are:

1. Florida A&M University (lead institution)
2. Albany State College
3. Bethune-Cookman College
4. Daytona Beach Community College
5. Florida International University
6. Florida State University
7. Miami-Dade Community College
8. Tallahassee Community College
9. University of Central Florida
10. University of Florida
11. University of South Florida
12. University of Miami

FG/LSAMP Goals:

- To increase the production of minority graduates in Science, Engineering and Mathematics (SEM).
- To increase the number of High School and Community College students in SEM disciplines.
- To enhance the programs of SEM Majors at Alliance Institutions.
- To explore avenues of collaboration to enhance the education and training of FG/LSAMP/SEM Majors.
- To facilitate the entry of FG/LSAMP/SEM Majors into graduate programs.

Funding \$475,000.00/year

Projecto Access



Miami PREP (Pre-Freshmen Engineering Program). (6th - 7th - 8th graders)

Miami PREP is a joint venture between: Hispanic Association of Colleges and Universities (HACU); National Aeronautics and Space Administration (NASA), Miami-Dade County Public Schools (M-DCPS) and Florida International University (FIU)

PREP is an intensive mathematics-based pre-college summer program, which provides educational enrichment opportunities for achieving middle school students. Students are provided with the opportunity to explore and prepare for careers in the fields of science, engineering and mathematics.

Socially and economically disadvantaged middle school students from the Greater Miami Area who are interested in learning about the engineering and science professions can attend this program. Women are especially encouraged to apply.

PREP is an intellectually demanding program, which has high expectations of its participants. In order to pursue PREP successfully, most participants must dedicate two or three hours outside of school for completion of assignments and projects. The difference between PREP and other summer courses is that PREP students are willing to dedicate themselves to eight weeks of hard work and intellectually demanding classes. These students are the best of the best, having earned a B or better average in Math, Science and English.

Funding \$90,000.00/year



JETS/UNITE (Junior Engineering Technical Society) (9th - 12th grader)

JETS mission is Guidance-Answering student, teacher and counselor questions about engineering and technology by providing opportunities that enable high school students to make informed career decisions. JETS' activities and services allow students to try on engineering and technology careers while in high school

The JETS's program provides high school students and teachers with a coordinated, integrated sequence of activities that encourage and support systemic change within the mathematics-science-technology arena. It emphasizes group activities, reasoning, problem solving and connections with the real world

JETS/UNITE is a program for any high school student (9-12) who has previously been in a summer pre-engineering experience conducted by FIU. It is our intent to support continuity rather than focus on specific grade levels. This program also serves any student who is educationally disadvantaged. It is assumed that a majority of such students will be from those groups that are underrepresented in engineering.

General UNITE Program requirements:

- It must be at least four weeks long
- Program enrolls at least 20 students
- It must be rigorously academic-based, not supplemental or enrichment-base.
- Classroom intensive.
- Program must be targeted at academically talented students, not remedial.
- Programs must have an ROTC presentation.

Funding \$30,000.00/year



JETS/TEAMS (Junior Engineering Technical Society) (11th - 12th graders)

This program targets middle and high school students from private and public schools. We are one of the largest sites in the nation. In 1998 we served 21 High schools.



JETS/NEDC (National Engineering Design Challenge).

The National Engineering Design Challenge (NEDC) is an exciting high school engineering-based program in which teams of students design, build and demonstrate a working model of a new product. NEDC challenges students to apply mathematics, science, and technology to a real-world engineering situation.

Through NEDC, students learn to use skills similar to those used by engineering team members, including:

- Creative thinking
- Cooperative teamwork;
- Higher order thinking skills
- Application of knowledge; and
- Effective communication



Engineering and Technology Industry Focus Center I & II (9th – 12th graders)

The purpose of this program is to identify thirty high school students from the Greater Miami Area who are socially and economically disadvantaged, interested in becoming scientists and engineers, and provide them with academic enrichment and reinforcement in the pursuit of these fields. The students have the opportunity to earn one high school credit through the course entitled Leadership Skill Development.

The Engineering and Technology Industry Focus Center is implemented as part of the Training and Employment Council of South Florida, and The Summer Youth Training Program.

Academic program:

- Introduction to Engineering.
- Computer Technology.
- Career Awareness.
- Labs and Special Projects.
- Leadership Skill Development.
- Field Trips.

Funding \$75.849.00/year



FCETP (Florida Collaborative for Excellence in Teacher Preparation)

The Florida Collaborative for Excellence in Teacher Preparation is a collaboration between the Florida Department of Education, several Florida colleges/universities/community colleges and K-12 school districts. It is designed to:

Recruit and support a substantially increased number of college students, who train to become middle and high school science and mathematics teachers and accept positions in Florida school districts. Modify the pre-service teacher education curriculum to include a multidisciplinary, exploratory focus in the teaching of science and mathematics courses, provide an inclusion of early student exposure to the classroom-teaching setting, and provide summer experiential science and mathematics exposure for all participating teacher preparation students.

FCETP Institutions:

- Florida A&M University (lead institution)
- Florida State University
- University of Central Florida
- Florida International University
- University of West Florida
- University of North Florida
- University of Florida
- Bethune-Cookman College
- Miami-Dade Community College
- Tallahassee Community College
- Florida Community College at Jacksonville

Funding \$47,874.00/year



SECME / District Olympiad

This program is in conjunction with Miami-Dade County Public Schools and other local universities and colleges. It serves middle and high school students in a variety of competitions such as: egg drop, mousetrap car, bridge, brain bowl, etc. The College of Engineering at FIU is a co-sponsor of this activity in Miami-Dade County.

Funding \$ /year



Project VISION (Phase II) – NASA/Kennedy Space Center

In conjunction with the Universidad del Turabo in Caguas, Puerto Rico, the College of Engineering at Florida International University in Miami, Bethune-Cookman College in Daytona Beach and Florida Memorial College in Miami, has designed this program to provide enhanced training to middle school teachers on the latest in computer software and on accessing the Internet. Also these middle school teachers will receive training on presenting to their students learning modules that contain hands-on and minds-on activities.

Funding \$200.000.00/year

GEAR UP Homestead Program



This five (5) program consists of a collection of partner organizations from academia, a local school district, government agencies, non-profit organizations, private industry and parents/guardians of the intended target student cohorts in the Homestead area at Miami-Dade County, Florida.

The program will use the expertise and experience of each of the partner organizations to assure the cohort students are prepared academically, mentally, emotionally, and have knowledge of financial options to attend college.

Goals:

- Increased awareness by students and parents/guardians of possible college careers, including academic requisites, and financial costs and opportunities.
- Increased pre-college academic preparation of students to assure the possibility of pursuing a college/university degree.
- Advanced curriculum reform and improvement.
- Enhanced teachers' and counselors' skills, knowledge, techniques and resources.
- Increased parental/guardian involvement in student academics and school activities.
- Increased student exposure to mentors, role models, and other professionals that could provide a positive influence.
- Increased community involvement in all aspects of the educational process.
- Maintain capable administration and documentation of program activities so as to achieve an effective program evaluation, and also for program dissemination purposes.

GEAR UP Homestead Summer Academy:

The purpose of the summer academy is to assure that the 6th and 7th grade students from Homestead Middle School, are prepared academically, mentally, emotionally, and have knowledge of viable career options with a college education.

Academic Program

- Career Talk
- Computer Technology
- Science
- Non-Violence
- Personal Development and Healthy Relationships - Proyecto MUJER
- Mathematics
- Hands-on Activities
- Keyboarding
- Analytical Thinking
- Language Arts

Funding \$7,548,154.00



ENLACE Miami!

This grant represent phase one of the W.K. Kellogg Foundation's six year, ENLACE (Engaging Latino Communities for Education) initiative. ENLACE is an educational initiative that will positively impact the performance of Hispanics and all children attending the Coral Park Senior High School feeder pattern.

ENLACE will strengthen the educational pipeline, so that more Hispanic youth will enter and complete college through sustainable partnerships among higher education institutions and local communities.

Funding: \$1,500,000.00

SHAPE-NASA HONORES Program

This program is designed to increase the presence of U.S. citizens enrolled in Hispanic Serving Institutions (HSIs) in the fields of science, mathematics, and engineering or computer science compatible with the NASA mission.

Goals:

- Attract these students to careers paths in the areas of science and engineering relevant to NASA's mission.
- Retain these individuals through the completion of their undergraduate studies at selected Hispanic Serving Institutions (HSIs).
- Interest them in the field of research.
- Encourage them to pursue graduate degrees and research related and/or teaching careers.

The purpose of this program is to increase the number of minorities, primarily of Hispanic heritage that embark in science, math, engineering and technology undergraduate studies in fields of interest to NASA at HSIs, successfully completing their studies, while developing an interest in research-related, graduate studies, and/or teaching careers.

Funding: \$48,000.00