**THE CENTER FOR ADVANCED TECHNOLOGY AND EDUCATION**

**TABLE OF CONTENTS**

**PART I: ORGANIZATION, TRENDS AND GOALS** ................................................................. 2

A. ORGANIZATIONAL ISSUES ................................................................................................. 2

B. EXTERNAL TRENDS ............................................................................................................. 3

C. STRATEGIC DIRECTIONS AND AREAS OF EMPHASIS .................................................. 3

  Vision of the Unit ............................................................................................................... 3

D. LONG RANGE GOALS AND ANNUAL OPERATIONAL GOALS ......................................... 4

  Long-range Goal 1............................................................................................................... 4
  Long-range Goal 2............................................................................................................... 5
  Long-range Goal 3............................................................................................................... 6
  Long-range Goal 4............................................................................................................... 7
  Long-range Goal 5............................................................................................................... 8

E. MATRICES- EXCELLENCE IN PURSUIT OF UNIVERSITY GOALS AND THEMES ........... 9

**PART II: BUDGET, PERSONNEL, AND INFRASTRUCTURE** .................................................... 10

A. INFRASTRUCTURE ............................................................................................................. 10

B. EXTERNAL FUNDING ......................................................................................................... 10

C. BUDGET AND PERSONNEL ............................................................................................. 11

**PART III: SUCCESS INDICATORS** ..................................................................................... 12

A. RESEARCH/SCHOLARSHIP/CREATIVITY ......................................................................... 12

B. FACULTY INTEGRATION/COLLABORATION/SUPPORT .................................................. 12

C. GRADUATE STUDENT SUPPORT ..................................................................................... 13

D. UNDERGRADUATE STUDENT SUPPORT ....................................................................... 14

E. EDUCATION AND TRAINING .......................................................................................... 14

F. UNIVERSITY AND PUBLIC SERVICE ................................................................................ 16

G. PUBLIC RECOGNITION ..................................................................................................... 16

H. SELF SUFFICIENCY ............................................................................................................ 17

I. QUALITY ASSURANCE ....................................................................................................... 17

J. ADDITIONAL CRITICAL ISSUES WHICH NEED TO BE ADDRESSED ............................ 17
PART I: ORGANIZATION, TRENDS AND GOALS

A. ORGANIZATIONAL ISSUES

This section provides an organizational chart that delineates the functions of faculty and staff and includes advisory boards.

DIRECTOR:
Malek Adjouadi, Ph.D.- Image processing and computer vision; man-machine interfaces, and microprocessors

MANAGER:
Patricio Vidal, Ph.D. candidate – Image processing and computer vision

COORDINATOR, STUDENT RECRUITMENT:
Ms. Nola Garcia, Recruiting Officer and Miami-Dade Coordinator for US FIRST Robotics

CURRENT SUPPORT STAFF
Julio Blandón, Assistant Manager and M.Sc. student
Erika Suarez, M.Sc. student
Daniela Viegas, M.Sc. student
Danmary Sanchez, M.Sc. student
Claudia Rodriguez, B.S. student
Luz Camacho, B.S. student

FACULTY
Armando Barreto, Ph.D. – Digital signal processing; Biosignals and Human-Computer Interface research
Maria Martínez, Ph.D. – Parallel processing and distributed processing
Gustavo Roig, Ph.D. – Diversity and international programs
Ana Pasztor, Ph.D. – Learning methodologies, and cognitive processes
James Story, Ph.D. – Microprocessor-based designs and senior design projects
Mark Weiss, Ph.D. – Software engineering and data structures

RESEARCH ASSOCIATE –POSTDOC
Gualberto Cremades, Ph.D. – Psychophysiology and EEG-Brain research

RESEARCH PARTNERS:
Beckman-Coulter
Baptist Hospital
Fraunhofer Institute
Intelligent Hearing Systems,
University of Wisconsin at Madison
University of Houston-Downtown
University of Pittsburgh

CONSULTANTS:
Julie Jacko, University of Wisconsin at Madison;
Richard Alo, University of Houston Downtown; and
Kurt Vanlehn, University of Pittsburgh

Changes in administrative structure in past year and proposed changes

This year, we hired a Pre-College coordinator and recruiter, Ms. Nola Garcia, who is also a Miami-Dade Coordinator for US FIRST Robotics

Future recruitment for key administrative positions
A Postdoctoral fellow and secretarial help

Current advisory board members and Industry Advisors.
We have chosen administrators of a high level to work with the faculty members in seeing that the proposed activities are carried out to their successful end. These administrators are:

Advisory board members
- Thomas A. Breslin, Vice President for Research and Graduate Studies;
- Gordon Hopkins, Dean, College of Engineering;
- Ms. Cathy Thurman, Director of Sponsored and Training (DSRT); and
- Douglas Backman, Associate Director of Sponsored and Training (DSRT)

Industry Advisors
- Dr. Jack A Ziffer, M.D.; Medical Director of Nuclear Medicine and Positron Emission Tomography; Baptist Hospital
- Dr. Rafael Delgado, Ph.D.; Director of Software Systems; Intelligent Hearing Systems
- Niall Bowman, Ph.D.; Project Manager, Electrical Engineering Functional Group; Beckman-Coulter
- Rainer Schmitt, Ph.D.; Executive Director, Fraunhofer Technology Center; Head of the Ultrasound Department, Fraunhofer Institute for Biomedical Engineering

B. EXTERNAL TRENDS
What external trends may influence your programs or operations over the next five years?
How do you intend on adjusting to these?

C. STRATEGIC DIRECTIONS AND AREAS OF EMPHASIS

Vision of the Unit
The NSF-funded Center for Advanced Technology and Education - CATE - provides a multidisciplinary research environment engaging researchers as well as facilitating classroom and laboratory-based instruction in key technology areas. CATE constitutes an infrastructure that is viable for cutting-edge educational activities in support of both undergraduate and graduate students, with funding allocated to carryout the following special research areas of emphasis:
- Image Processing and Computer Vision
- EEG-Based Imaging,
- Human-Computer and Brain-Computer Interface Research
- Robotics for Motion Planning with Integrated Sensory Modalities
- Real-time and Multidimensional Signal Processing
- Confocal Microscopy
- Flow Cytometry for Blood Cell Classification

The CATE center’s vision is to focus on two central educational themes: (1) the integration of software development and hardware design towards the solution of real-world problems, and (2) the creation of a strong link between instructional activities and research activities, with such a link benefiting both undergraduate and graduate studies.

In carrying-out research topics in these disciplines, researchers have at their dispositions the following modern equipment:

**The Electric Signal Imaging** – 256 channel system (ESI-256) for brain research provides acquisition and data processing for large electrode arrays in a wide range of applications, including short and long latency evoked potentials, event-related potentials, EEG, EMG and more. This ESI-256 System is the second unit sold in the world and the first to be installed in an academic research setting in North America – refer to the web page [http://www.neuro.com/neuroscan/index.htm](http://www.neuro.com/neuroscan/index.htm).

**The Onyx Supercomputer**: The Onyx supercomputer offers true supercomputing power that combines a parallel CPU subsystem. The Onyx system provides a computing platform for advanced 3D graphics and visualization and for the development of parallel software algorithms for real-time processing.

**The Confocal Microscope**: The RCM 8000 real-time confocal microscope main system integrates a multi-line visible Krypton Argon Ion laser capable of creating 3-D displays of microscopic specimens, behaving like a “CATScanner” of specimens under visualization.

**A Flow Cytometer**: This is a Coulter Corporation EPICS Profile II Cytometer, which is capable of measuring light scatter (fluorescence or laser) with up to 10,000 microscopic particles per second.

**Nomadic Roving Robot**: The Nomad 200 is an integrated mobile robot system with four sensory modules. These consist of a tactile module consisting of pressure sensitive sensors, an infrared sensing module providing a 360° environment coverage, an ultrasonic module providing range information, and a structured light vision system.

**Eye-Gaze Tracking Systems**: Eye-Gaze tracking systems are available with both remote and head-mounted optics. Images of the eye and the scene or computer screen fixated by the eye gaze are both displayed in different display monitors. The applications involve a host of human-computer interface research issues.

In retrospect, based on the two central educational themes stated above, researchers in the CATE center will focus on the strategic directions of information processing and health in relation to biomedical applications. Our efforts will be directed at bringing our research findings to the realm of practicality and in service to our society. Special areas of emphasis in which we expect to be known for excellence will be in the development of new algorithms and techniques for such things as diagnostics in medical applications, robotic automation for exploring hazardous environment, and human-computer and brain-computer interfaces that will better the lives of those among us who live with disabilities (such as visual impairment or blindness, and loss of motor functions).

**D. LONG RANGE GOALS AND ANNUAL OPERATIONAL GOALS**

**Long-range Goal 1**
Involvement of both undergraduate and graduate students in research early in their career and continue in our efforts to increase the number of degrees awarded.

**Measurable Outcome**
Number of undergraduate and graduate students supported by the NSF-CATE center
Number of terminal degrees awarded
1998-99 Objective:

Attempt to reach an annual 20% increase in the number of degrees awarded

1998-99 Outcome

(a) Student Support

- MS STUDENTS: Julio Blandón, Erika Suarez, Daniela Viegas, Peterjohn Hugh, Marco Midon, Marlin Brinson, Christophe Godefroy, Ana Maria Rodriguez, Euton Lyons, Ovidio Alfanso,
- UNDERGRADUATES: Claudia Rodriguez, Luz Camacho, Meika Webster, Christine Bedia, Danmary Sanchez, Celco Duran, and Robert Hazbun

(b) Degrees Granted This Year

3 MS degrees: Scott Scargle, Ana Maria Rodriguez, and Christophe Godefroy
3 BS degrees: Danmary Sanchez (Summa Cum Laude), Meika Webster, and Celco Duran.

This brings us to the following total of degrees granted since 1993: 2 Ph.D., 17 MS and 16 BS

Use of Results for Program Improvement:

We need to extend more efforts on the recruitment and retention fronts to reinforce our student pipeline. Although two of our Ph.D students will graduate by the end of spring 2000, we need to attract more graduate students at the Ph.D. level. Substantial grants obtained in the past two years will come to strengthen our student pipeline and to enhance the prospects of such efforts. We note that as we maintain excellence in research, students in CATE are attracting other students to join the CATE center. In fact, some of our students are involved directly in the recruiting process. Another important aspect that we learned recently is that direct partnerships and mutual visits with our local industry and hospitals is now used to entice more students to go on with their graduate studies all the way to the Ph.D. level.

New 1999-2000 Objective:

We must improve significantly the number of degrees awarded at the Ph.D. level. We need to graduate 2 Ph.D. and 4 MS students in the 1999-2000 academic year.

****************

Long-range Goal 2

As a research center that is getting more recognition for every year that passes, The CATE center needs to contribute commensurate with the efforts of our institution to achieve a higher Carnegie Foundation Research status

Measurable Outcome

Amount of externally funded research dollars
Number of Ph.D. students graduating and in the Pipeline

1998-99 Objective
In this case, the NSF-CATE center will have to extend more efforts in research funding and bring an average of $800,000 per year for the next two years, and an annual of $1 Million per year for the next three years after that. Our theme of greatest funding prospects is in information processing and application of computer-based technologies.

1998-99 Outcome

Although the 1998-1999 outcome in funding is rather modest, we have already secured for the next five years the sought after average of $800,000 per year. For example, the table given below indicates the amount already secured for 1998-99 and 1999-2000 to contrast the progress made. Details are provided in the contracts and grants of PART II of this report.

<table>
<thead>
<tr>
<th>Period</th>
<th>Funded Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998-1999</td>
<td>Total = $378,055</td>
</tr>
<tr>
<td>1999-2000</td>
<td>Total = $719,188</td>
</tr>
</tbody>
</table>

We have helped graduate 2Ph.Ds since 1993. We will graduate 2 Ph.D. by the end of spring 1999. Also, 5 Ph.Ds will be in the pipeline.

Use of Results for Program Improvement

Given the funding trends of the past, we need to enhance further our access to funding agencies such as the department of Defense, the Department of Education, NASA, the Department of Energy, the National Institute of Health, and the Whitaker Foundation, to name a few. We already have strong ties with the National Science Foundation and we should maintain and even reinforce such ties.

On the Ph.D programs, we need to also secure some form of funding in terms of tuition waivers, teaching assistanships, and some stipends to provide opportunity to help foreign nationals pursue their graduate studies.

New 1999-2000 Objective

Maintain the set goal of $800,000 per year for the 1999-2000 year in externally funded research. Secure more industry support as added measure to support foreign nationals in graduate studies. This last measure is considered in view of the fact that all of our funding from federal grants targets US citizens and US residents.

****************

Long-range Goal 3

Be known as the research center that recruits and supports both undergraduates and graduates from underrepresented groups to overcome the low enrollment of women and African Americans.

Measurable Outcome (Assessment Criteria and Procedures)

Participation trends and support of minority students with the NSF-CATE center.

1998-99 Objective:

Diversify our student body here at FIU to reflect the ethnic makeup of the US population and to overcome the critical trend in minority student attrition rates in the workforce as well as in the graduate programs.

1998-99 Outcomes
The CATE center has currently in the pipeline 5 Ph.D. students (2 female Hispanics, 2 male Hispanics, and 1 male White); 10 MS students (3 Female Hispanics, 2 male Hispanics, 4 African American and 1 male White); and 7 undergraduates (4 female Hispanics, 1 female African American, 1 male African American and 1 male Hispanic).

**Use of Results for Program Improvement:**

Since we have not seen an increase in the number of African Americans and women in the graduate programs, we have established a strong student pipeline backed by educational/research program supported by both the National Science Foundation (NSF) and the Office of Naval Research (ONR). Addressing the attrition rates in critical courses in SEM courses, designing summer programs, and involving students early in research are some of the improvement we have made to address some of these problems. Through the ONR support, we have hired a Pre-college Coordinator and Recruiter, Ms. Nola Garcia, who is also a Miami-Dade Coordinator for US FIRST Robotics to enhance our recruiting efforts of underrepresented groups in engineering.

**New 1999-2000 Objective**

Increase by 25% annual the representation of women and African Americans in both the undergraduate and graduate participation in the NSF-CATE center.

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**Long-range Goal 4**

Take a leadership role in the human-computer interface research to help people with disabilities. This goal is in line with our university’s mission to "solve critical health, social, educational and environmental problems through education, research and service, FIU’s health emphasis is on wellness, rehabilitation, environmental health, and disease prevention, and with a focus on training health professionals to serve urban and international health needs". This long range goal is also in line with the profound calls of the National Science Foundation on the issue of *Universal Access*, the National Research Council *Towards every citizen interfaces to the nation’s information infrastructure* Steering Committee, and of the Assistive Technology Act of 1998 (Public Law 100-407).

**Measurable Outcome (Assessment Criteria and Procedures)**

Software development and experimental evaluation for automating interaction between user and computer

Hardware development and experimental evaluation for interfacing the user to the computer workstation

Feasibility studies and user feedback of designed prototypes

**1998-99 Objective**

This objective focuses on the design of an integrated assistive real-time system as an alternate human computer interface that can be used by individuals with severe motor disabilities

Design working prototypes that are based on eye-gaze-tracking systems

Design working prototypes that are base on EEG-brain signals

**1998-99 Outcomes**

On the design of working prototypes that are based on eye-gaze-tracking systems, we have purchased two necessary eye-gaze systems, one that is portable and the other that is remote-based. We have so far developed the necessary software to begin experiment on human-computer interaction.
Use of Results for Program Improvement

Our experience in this area of research led us so far to the design of two working prototypes, one based on eye gaze tracking and the other on EMG (Electro-Myo-Gram) signal processing;

We determined that a more sound approach is one that integrates these technologies. The integrated aspect of the design is based on exploiting the merits of both eye-gaze and EMG based technologies, overcoming their unique drawbacks when used in disjunction.

We have also secured close collaboration with the Veterans Administration and the Neuroscience center with Miami Children’s Hospital here in Miami. Such close collaboration would allow for feasibility and control studies, involving a large and diverse population of patients making use of the proposed integrated system design. Furthermore additional data provided by the Neuroscience center which may come in another format still can be used to augment our understanding of how to exploit such signals to drive the computer interface such as to impact on the technology’s ease of use and on the facilitation of access.

*******

Long-range Goal 5

Consolidate our relationship with our industry partners to respond to industry demands, enhance the prospects of our students for high-paying jobs, and enhance our prospects for more funding.

Measurable Outcome

Number of industry partners collaborating with the NSF-CATE center
Number of the NSF-CATE students participating in industry internships and obtain federal fellowships
Collaboration with industry in funded research

1998-99 Objective:

Attempt to reach an annual 20% increase in the number of degrees awarded

1998-99 Outcome

(a) Industry Partners

Beckman-Coulter
Baptist Hospital, Nuclear Medicine
Children’s Hospital of Miami, Neuroscience center
Fraunhofer Institute
Intelligent Hearing Systems

(b) Internships for the Summer of 1999

Danmary Sanchez: Motorola, Global Software Division, Ft. Lauderdale, Florida. Description of work: defect prevention and requirements documentation for software-platform components used in cellular phones.

Patricio Vidal: IBM Corp., Almaden Research Center, San Jose, California. Description of work: Performance analysis and optimization of control algorithms for high-end server disk drives.

Erika Suarez: International Business Machines (IBM), Logic & Physical Design Group, Burlington, Vermont. Description of work: Maintain and enhance SKILL routines for use in the Cadence Design Environment for the customization of electrical and physical design representations.


Marco Midon: NASA Goddard, Mission Management Test Group, Greenbelt, Maryland. Description of work: Help in the development of a telemetry receiver for a compact automated ground station. Also, investigate the design aspects of a tactile array to help blind people.

(c) Collaboration with Industry in Funding

With the collaboration of our industry partners, we have secured the following 5-year grants this year:

**PROJECT TITLE:** Development of an Institutional Infrastructure with Special Focus on Human-Computer Interfaces and Information Processing
Source of Support: National Science Foundation and Award Amount: $1,437,770

**PROJECT TITLE:** Educational Innovations in Science, Engineering and Mathematics, with a Comprehensive Student Pipeline from Re-college to Graduate Studies: Promoting Recruitment, Retention and Academic Excellence
Source of Support: Office of Naval Research and Award Amount: $1,274,000

Also, we are currently negotiating our return in conducting research and consulting with Beckman-Coulter.

We are also in the process of submitting a multi-million dollar proposal to the National Science Foundation with the collaboration of Children’s Hospital of Miami, Neuroscience center

(d) Fellowships Obtained 1998-1999

National Science Foundation Graduate Fellowships

- Erica Suarez, 1998-2001; and
- Danmary Sanchez, 1999-2002

Use of Results for Program Improvement

We are doing well in this area. We should maintain these efforts to continue making the expected yearly improvements. Two additional NSF fellowships will be sent this year.

E. Matrices for Excellence In Pursuit Of University Goals And Strategic Themes
PART II: BUDGET, PERSONNEL, AND INFRASTRUCTURE

On the following pages are specific topics that are of importance for the management of our programs. Feel free to add qualitative statements and comments as needed to convey your intentions.

A. INFRASTRUCTURE

Proposed program changes in campus locations: None – We are located in EAS 2220 within the College of Engineering in the Center for Engineering and Applied Sciences

Proposed space for new staff (faculty, adjunct, graduate students, and support staff): New Office within the College of Engineering for our new Pre-college recruiter, Ms. Nola Garcia is already in place.

Proposed space for relocations of present staff (faculty, adjunct, graduate students, and support staff): None

B. EXTERNAL FUNDING

1. Contracts and Grants: The University goal is to increase by 17% per year.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>95-96</th>
<th>96-97</th>
<th>97/98</th>
<th>98/99</th>
<th>99/00</th>
<th>00/01</th>
<th>01/02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td>383,915</td>
<td>395,317</td>
<td>261,065</td>
<td>350,000</td>
<td>378,055</td>
<td>600,000</td>
<td>705,000</td>
</tr>
</tbody>
</table>

Private Sector Fund Raising Funding, Restricted Gifts, Cash and In-Kind Services by Calendar Year (January 1 to December 31). Total Dollars. Please confer with Vice President Gallagher to develop, refine your development plans and goals for 1999, 2000, and 2001

<table>
<thead>
<tr>
<th>PRIVATE SECTOR FUND RAISING</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESTRICTED GIFTS RECEIVED BY CALENDAR YEAR</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>Actual</td>
</tr>
</tbody>
</table>

Actuals reflect new gifts, cash, pledge payments and in-kind gifts received during the calendar year from Jan 1 to Dec. 31.
C. BUDGET AND PERSONNEL

Enter into the following Budget and Personnel Report your budget and personnel request. See Academic Plans web page for Appendix I: Instructions for completing Budget and Personnel Forms. The BOR checks these figures, so make sure they total and balance correctly. Rate is defined in Appendix I. If you have questions call Academic Affairs budget office: Matilda (305) 348-2168. These forms are in the excel file attached.

If there are expenditures and position allocations from accounts outside of unit, please note these on a page following the table. Be sure to note actual in 1998/99 and requests for 1999/2000 and 2000/2001 on the following individual pages. Discuss your budget and position justifications and comments following the Budget and Personnel Report.

SEE ATTACHED FORMS 4 File: Excel Forms are provided in a separate file for the Following Periods:

a. 1998-1999
b. 1999-2000
c. 2000-2001
PART III: SUCCESS INDICATORS

(These specify goals for each of the success indicators noted in Academic Affairs policy 13.0, soon to be revised to 13.20)

A. RESEARCH/SCHOLARSHIP/CREATIVITY

(Publications and other media are produced, or faculty productions give credit to the center/institute/museum for its support).

1. Number of publications and other media produced, or faculty productions which give credit or acknowledgment to the unit for its support.

<table>
<thead>
<tr>
<th>Number of publications and other media produced, or faculty productions which give credit or acknowledgment to the unit for its support</th>
<th>95/96 Actual</th>
<th>96/97 Actual</th>
<th>97/98 Actual</th>
<th>98/99 Goal</th>
<th>98/99 Actual</th>
<th>99/00 Goal</th>
<th>00/01 Goal</th>
<th>01/02 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Books authored and published</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
<td>#</td>
</tr>
<tr>
<td>Articles published in refereed journals</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

List categories most appropriate

| Conference articles | 9 | 16 | 5 | 5 | 3 | 6 | 6 | 8 |

B. FACULTY INTEGRATION/COLLABORATION/SUPPORT

(Academic faculty are an integral part of the unit. The center/institute/museum provides forums for the presentation of faculty research and supports faculty teaching, research and service interests).

- The following are the faculty involved in research. Their research area is identified
  - Armando Barreto, Ph.D. – Digital signal processing; Biosignals and Human-Computer Interface research
  - Maria Martinez, Ph.D. – Parallel processing and distributed processing
  - Gustavo Roig, Ph.D. – Diversity and international programs
  - Ana Pasztor, Ph.D. – Learning methodologies, and cognitive processes
  - Mark Weiss, Ph.D. – Software engineering and data structures

- Support for student academic issues are provided by our associate Dean in the College of Engineering:
  - James Story, Ph.D. – Microprocessor-based designs and senior design projects

- Support on recruitment and retention issues are provided by our associate Dean in the College of Engineering and Director of diversity and international programs, and the Director of multicultural services
  - Gustavo Roig, Ph.D. – Diversity and international programs
  - Robert Coatie, MS – Office of Multicultural Services
• Support as Research Associate
  Gualberto Cremades, Ph.D. – Psychophysiology and EEG-Brain research
• Support of faculty partners from other institutions serving as consultants:
  Julie Jacko, University of Wisconsin at Madison;
  Richard Alo, University of Houston Downtown; and
  Kurt Vanlehn, University of Pittsburgh

C. GRADUATE STUDENT SUPPORT

(Provides graduate student employment (.25 FTE or more) to enrolled University graduate students).

1. Number of Graduate Students supported with funds from the unit. Funding from all sources is to be included in this count. The goal is to increase the number of graduate students who stay on campus enhancing the educational experience.

<table>
<thead>
<tr>
<th></th>
<th>Fall 95/96 Actual</th>
<th>Fall 96/97 Actual</th>
<th>Fall 97/98 Actual</th>
<th>Fall 98/99 Goal</th>
<th>Fall 98/99 Actual</th>
<th>Fall 99/00 Goal</th>
<th>Fall 00/01 Goal</th>
<th>Fall 01/02 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>12</td>
<td>13</td>
<td>14</td>
<td>14</td>
<td>12</td>
<td>14</td>
<td>15</td>
<td>15</td>
</tr>
</tbody>
</table>

2. Number and percent of above graduate students who are Black:

<table>
<thead>
<tr>
<th></th>
<th>Fall 95/96 Actual</th>
<th>Fall 96/97 Actual</th>
<th>Fall 97/98 Actual</th>
<th>Fall 98/99 Goal</th>
<th>Fall 98/99 Actual</th>
<th>Fall 99/00 Goal</th>
<th>Fall 00/01 Goal</th>
<th>Fall 01/02 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>#</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>7</td>
<td>1</td>
<td>7</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>%</td>
<td>0</td>
<td>0</td>
<td>6.25</td>
<td>5.78</td>
<td>0.71</td>
<td>0.71</td>
<td>1.33</td>
<td>14</td>
</tr>
</tbody>
</table>

Total amount of graduate student support (OPS):

<table>
<thead>
<tr>
<th></th>
<th>Fall 96/97 Actual</th>
<th>Fall 97/98 Goal</th>
<th>Fall 98/99 Goal</th>
<th>Fall 99/00 Goal</th>
<th>Fall 00/01 Goal</th>
<th>Fall 00/02 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>$</td>
<td>90,000</td>
<td>51,000</td>
<td>110,000</td>
<td>157,034</td>
<td>160,000</td>
<td>200,000</td>
</tr>
</tbody>
</table>

13
D. UNDERGRADUATE STUDENT SUPPORT

(Provides undergraduate student employment (.25 FTE or more) to enrolled University undergraduate students).

1. Number of Undergraduate Students supported with funds from the unit. Funding from all sources is to be included in this count. The goal is to increase the number of undergraduate students who stay on campus enhancing the educational experience.

<table>
<thead>
<tr>
<th></th>
<th>Fall 95/96 Actual</th>
<th>Fall 96/97 Actual</th>
<th>Fall 97/98 Actual</th>
<th>Fall 98/99 Goal</th>
<th>Fall 99/00 Actual</th>
<th>Fall 00/01 Goal</th>
<th>Fall 01/02 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>14</td>
<td>16</td>
</tr>
</tbody>
</table>

2. Number and percent of above undergraduate students who are Black:

<table>
<thead>
<tr>
<th></th>
<th>#</th>
<th>%</th>
<th>#</th>
<th>%</th>
<th>#</th>
<th>%</th>
<th>#</th>
<th>%</th>
<th>#</th>
<th>%</th>
</tr>
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<tbody>
<tr>
<td>Fall 95/96 Actual</td>
<td>2</td>
<td>25</td>
<td>3</td>
<td>37</td>
<td>3</td>
<td>37</td>
<td>2</td>
<td>28</td>
<td>4</td>
<td>28</td>
</tr>
<tr>
<td>Fall 96/97 Actual</td>
<td>3</td>
<td>37</td>
<td>3</td>
<td>37</td>
<td>4</td>
<td>28</td>
<td>5</td>
<td>31</td>
<td>6</td>
<td>33</td>
</tr>
</tbody>
</table>

Total amount of undergraduate student support (OPS):

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</tr>
</thead>
<tbody>
<tr>
<td>Fall 96/97 Actual</td>
<td>40,000</td>
<td>20,000</td>
<td>40,000</td>
<td>30,000</td>
<td>50,000</td>
<td>60,000</td>
<td>70,000</td>
</tr>
</tbody>
</table>

E. EDUCATION AND TRAINING

(Sponsorship of FTE Generating Courses, Supporting Continuing Education Activities, Training Contact Hours, Conferences, Certificates, etc.).

(If unit does not sponsor courses, write Non-Applicable and delete remainder of section)
1. Off-Campus and Distance Learning Goals:

Specify your long term goals and strategic directions for off-campus or distance learning programs. Please include any expected changes in the content, location or governance of existing programs.

2. Number of formally registered certificate students and certificates awarded.

This is not applicable to CATE center

<table>
<thead>
<tr>
<th>Registered Certificate Students</th>
<th>96/97 Actual</th>
<th>97/98 Actual</th>
<th>98/99 Goal</th>
<th>98/99 Actual</th>
<th>99/00 Goal</th>
<th>00/01 Goal</th>
<th>01/02 Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Certificates Awarded</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

3. Continuing Education FTEs

<table>
<thead>
<tr>
<th>UNIT NAME</th>
<th>Actual 96/97</th>
<th>Actual 97/98</th>
<th>Goal 98/99</th>
<th>Actual 98/99</th>
<th>Goal 99/00</th>
<th>Goal 00/01</th>
<th>Goal 01/02</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ungrad Gra</td>
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</tr>
<tr>
<td>TOTAL</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

4. Continuing Education Units (CEUs) Generated - Noncredit Programs

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>CEUs</td>
<td>Participants</td>
<td>CEUs</td>
<td>Participants</td>
<td>CEUs</td>
<td>Participants</td>
<td>CEUs</td>
</tr>
<tr>
<td>CATE</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
5. Development and delivery of distance learning programs (telecommunications)

This is not applicable to the CATE center

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>NA NA NA</td>
<td>NA NA NA</td>
<td>NA NA NA</td>
<td>NA NA NA</td>
<td>NA NA NA</td>
<td>NA NA NA</td>
</tr>
</tbody>
</table>

6. New courses for professionals - credit and non-credit

Not Applicable

7. Additional opportunities for non-traditional students

Not Applicable

F. UNIVERSITY AND PUBLIC SERVICE

(Contributions of expertise and technical skills to address the needs of the University, professional organizations, community or greater society).

The NSF-CATE center receives regular visits from our community high schools, industry and academic partners. The NSF-CATE center helped other centers and laboratories in research proposals and has served as a startup platform for other faculty and students to get their research going pending their funding quests.

G. PUBLIC RECOGNITION

(Positive public attention is drawn to the University by the activities of the center/institute/museum through newspapers, television and other forms of public media).

- The NSF-CATE center has become a model center from the viewpoint of the National Science Foundation. Other Institutions who have received funding from the CISE division of the NSF like we have, or are about to submit proposals to this division are told to visit us as a model center.
- We were recognized as a model center during the NSF-PI meeting in Las Cruces, New Mexico.
- We were featured in the newscast of channel 69 WAMI as research of the future using ESI machine for brain research
- The CATE Director was invited as a member of a Committee of Visitors (COV) to the National Science Foundation, in recognition to all the efforts of the CATE center.
H. SELF SUFFICIENCY

(Grant, Contract, and other extramural income which generates external support.)

The goal is to expand non-State funding. From the data you entered in the budget pages earlier As Expenditures for the Institute/Center/Museum calculate the percent of your total budget that is derived from Education and General dollars.

<table>
<thead>
<tr>
<th>E&amp;G Percent of Total Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Actual 97/98</strong></td>
</tr>
<tr>
<td>Total Budget $</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>319,658</td>
</tr>
<tr>
<td>863,544</td>
</tr>
</tbody>
</table>

I. QUALITY ASSURANCE

(Employ systematic methods of continuously improving the effective and efficient provision of programs and services especially the achievement of constituent satisfaction).

Quality Assurance applies to every unit and must be responded to. This is required for SACS Accreditation. Your response will be provided to Susan Himburg, the FIU Self-Study Director, for compliance with Criteria for Accreditation, Section III: Institutional Effectiveness).

A. Discuss the ways you assessed the quality of your programs in 1998-99. Please attach a printed copy of your Quality Assurance Plan that specifies the guidelines, procedures and assessment instruments used to evaluate the effectiveness of your programs. Attach program evaluation reports, especially if they contain recommendations for program improvement that demonstrate your use of the results. (For assistance in developing a quality assurance plan contact the office of continuous improvement 348-6090.)

This is our first report – We will elaborate on this item next year.

B. Discuss the ways in which these assessments were used to improve the quality of your programs. (Specifically discuss 2 improvements resulting from program assessments. Be sure to make clear how these are related to program evaluation results and unit goals).

This is our first report – We will elaborate on this item next year.

C. Detail the faculty/staff involvement in the planning/evaluation process. Who participated in or reviewed this planning and accountability report?

This is our first report – We will elaborate on this item next year.

J. ADDITIONAL CRITICAL ISSUES WHICH NEED TO BE ADDRESSED

(Or comments on future activities which have not been addressed above) - None at this time.