

Self-Study Report
APPENDIX II
Institutional Profile

ABET
ENGINEERING CRITERIA 2000

In Preparation for the
2002-2003 First Semester Visit

Appendix II

Institutional Profile

A. Background Information Relative to the Institution

1. General Information

a. Name and address of the institution.

University of Puerto Rico, Mayaguez Campus

b. Name and title of the chief executive officer of the institution

Dr. Jorge Velez Arocho, Chancellor

c. Name and official position of the person submitting the completed questionnaire

Dr. Ramon Vasquez Espinosa, Dean of Engineering

2. Type of Control

Land-grant institution under state control

3. Regional or Institutional Accreditation

The Middle States Association of Colleges and Secondary Schools (MSA)

The Council of Higher Education (CES)

4. Faculty and Students

See Table II-1

5. Mission, Aims, and Objectives

Within the philosophical framework established by the University of Puerto Rico Act, the Mayagüez campus directs its efforts towards the development of educated, cultured citizens, capable of critical thinking, and professionally qualified in the fields of agricultural, social, and natural sciences, engineering, humanities and business administration. They should be able to contribute in an efficient manner to the cultural, social, and economic development of the Puerto Rican and international community. This process is aimed at endowing our alumni with a strong technical and professional background and to instill a strong commitment to Puerto Rico and our hemisphere. Our alumni should have the necessary skills and knowledge to participate effectively in the search for solutions to the problems facing us, to promote the enrichment of the arts and culture, the development and transfer of technology as well as to uphold the essential attitudes and values of a democratic society.

We should also note that the Agricultural Experiment Stations have been provided with 56kbps dedicated lines that allow them to communicate with the University of Puerto Rico, Mayaguez Campus, and elsewhere. The Agricultural Extension Service Offices have access to local Internet Service Providers (ISPs), which allow them access to the internet and the UPR communications system.

Internet communication at Mayagüez Campus has increased exponentially in recent years. Actually, part of our communications with the outside world is done through the Central Administration Office using two T1 lines. Those lines are used for “Commodity Internet” access. The other part of our communications with the outside world is done through the Internet 2 infrastructure that consists of one OC3 line.

The primary computer center of the Mayagüez Campus has two primary operating systems to support the institution’s academic and administrative functions, respectively. A Compaq ES40 computing system maintains and provides support for the administrative functions while a Digital VAX 6610 and a Compaq DS20 are dedicated to the academic functions of the university. A couple of Sun Server 450 provide specific administrative services, like e-mail services and online courses support. The different academic colleges and departments have been expanding their computing and technological equipment to allow them to better prepare their students in these areas, and to allow a greater internet and e-mail access to faculty, students, and employees. In terms of the overall computing resources available to the academic community within the Mayagüez Campus, there are currently 55 computer laboratories or centers with a total of 827 personal computers that are available for teaching courses. All graduate and undergraduate students, as well as faculty members have regular access to these facilities.

It is noteworthy that the University of Puerto Rico Mayagüez Campus has been working since 1999 to restructure the Campus Computer Center in order to improve its performance and the services that are rendered to the academic community in the administrative, academic, and research areas. The new Center for Technology and Information will have various departments or offices with specific objectives and functions. For example, the Database Department will be responsible for the management and development of the administrative processes and personnel on the Campus; the Systems Department will attend to the day-to-day functions of a computer center, such as installation of new equipment, creation of new accounts, backups, security issues, etc.; the Department of Technical Services will have the sole responsibility for the maintenance of computer equipment and communications, and it will also evaluate new technological innovations, equipment, and software for implementation. The

Help Desk will provide technical assistance and support to all our “users”. Finally, the Web Developer Services will be responsible for creating, updating and maintaining the web services.

ii. Departmental Computing Facilities

Each department within the College of Engineering operates one or more computer facilities to provide additional support for its courses.

• *Department of Chemical Engineering*

Faculty

4 Pentium 1.4, 256 MB RAM, 2 Pentium 800, 128 MB RAM, 3 Pentium 350 MHz, 128 MB RAM, 7 AMD 266, 64 MB RAM, Pentium 350, 128 MB RAM, 2 G4 Macintosh, 4 Sun Microsystems, Pentium 90, 32 MB RAM, Printer Lexmark 412, Printer Lexmark Z22, Printer Hp DeskJet 672C, 2 Printer DeskJet 600, 2 Printer HP LaserJet 4L, Printer Hp 5L, Printer DeskJet 810C, Printer HP 694C, 3 Printer Hp DeskJet 895Cse, Printer HP LaserJet 1100, Scanner ScanJet5470C, Printer Stylewriter II, Printer HP 722 C

Administration

1 G4 Macintosh, 1 AMD 350 MHz, 128 MB RAM, 5 AMD 266, 64 MB RAM, 5 Pentium1.2 GHz, 128 MB RAM, 1 Power Macintosh 6500, 1 Printer 4050 TN, 1 Printer 2100, 1 Printer HP-895 Cse, 1 Printer Hp-6L, 2 HP Office Jet Printer Fax, 1 Plotter Hp-Design Jet 500, 1 Scanner HP-5P, 2 Printer 990 Cse, 1 Printer HP 812C

Graduate Students Center and On-line Computer Courses (IQ-105-H)

14 Pentium II-350 MHz, 128 MB RAM, Printer 694 C, Printer HP-672C

Undergraduate Students Computer Center (IQ-105-I)

19 PentiumII-350 MHz, 128 MB RAM, 1 Printer 895 Cse, 5 Pentium 1.4 GHz, 128 MB RAM, 1 Server Pentium III 1.3 GHz, 512 MB RAM, 1 Server Pentium II 500, 512 MB RAM

PhD Students Computer Center (IQ-203-D2)

3 Silicon Graphics, 2 Pentium III 1.4 GHz, 256 MB RAM

Microcalorimetry Laboratory (IQ-01-G)

Apple Macintosh Lc II, Printer

Maintenance Shop IQ-01-I

Apple Macintosh LC III

Instrumentation Laboratory (IQ-101-AB)

AMD 133 MHz, 32 Mb RAM, AMD 266 MHz, 64 MB RAM, Pentium 90, 32 MB RAM, Pentium 100, 32 MB RAM, Printer Okidata Microlin 320

Research Laboratory (IQ-101-H)

Pentium-266, 64MB RAM, HP Vectra P350, 64 MB RAM, Printer HP895 Cse, Printer HP DeskJet 694C, Scanner Plustek Optic Pro

Research Laboratory (IQ-101-I)

Pentium 800, 128 MB RAM, Printer HP DeskJet 540, Printer HP DeskJet 660

Research Laboratory (IQ-101-J)

Pentium 266, 32 MB RAM, Pentium 800, 128 MB RAM, 486 Dx-66, 16 MB RAM, Printer Compaq 1J300, Printer HP DeskJet 560, Printer EPSON LQ-520

Research Laboratory (IQ-101-M)

2 Apple Iie, Pentium 350, 32 MB RAM, Printer HP- DeskJet 500

Research Laboratory

Pentium Igh, 256 MB RAM, Pentium 500, 128 MB RAM, Pentium 800, 128 MB RAM, Printer EPSON 660

Research Laboratory (IQ-101-O)

Pentium 90, 16 MB RAM, Pentium 800, 128 MB RAM

Research Laboratory (IQ-102-ABC)

2 Pentium 350, 64 MB RAM, Clone Pentium 500, 128 MB RAM, Pentium 90, 64 MB RAM, Pentium 800, 128 MB RAM, Pentium 650, 128 MB RAM, Pentium 800, 256 MB RAM, Printer HP 870Cse, Printer HP PSC 750, Plotter Design Jet 250C, Printer EPSON LQ-510, Printer HP- LaserJet 5L, Printer HP DeskJet 600, Printer DeskJet 610

Research Laboratory (IQ-102-DE)

Apple Power Macintosh, Macintosh LC III, Pentium 133, 16 MB RAM, Pentium 233, 32 MB RAM, AMD 166, 16 MB RAM, Printer laser Writer, 4 Printer Apple Style Writers II, Printer Color Style Writer 2500, Printer HP DeskJet 550C

Unit Operations Laboratory (IQ-103-AB)

Pentium 1.4, 128 MB RAM, Pentium 350, 64 MB RAM, 2 AMD 266, 32

MB RAM, Pentium 350, 64 MB RAM, Pentium 266, 32 MB RAM, 486 Dx, 16 MB RAM, Scanner ASTRA 3400, Printer-Fax Canon B640, Printer HP DeskJet 660 C, Printer HP DeskJet 500, Printer DeskJet 600C

Unit Operations Equipment Shop (IQ-103-D)

Pentium 90, 16 MB RAM, Pentium 350, 64 MB RAM, Pentium90, 16 MB RAM, Printer LQ-510

Pharmaceutical Operations Laboratory (IQ-104-A)

Pentium 266, 32 MB RAM, Pentium 1 GHz, 256 MB RAM, Printer EPSON LX-300, Printer LQ-570

AICHe/IIQPR Students Center IQ-104-B

Pentium 750, 128 MB RAM, AMD 266, 32 MB RAM

- **Department of Electrical & Computer Engineering**

PRIMARY SERVER

Electrical & Computer Engineering (ECE) Server: ece Sun Sparc Ultra Enterprise 450, 4 x 300 MHz, 2GB RAM, 100GB HD, Solaris

ACADEMIC LABORATORIES

Linux Programming & OS Laboratory

Server: Amadeus Dell PowerEdge 1300 PII 400, 256 MB RAM, 27GB HD, Linux

Workstations: 50 Compaq Deskpro, PIII 500, 128MB RAM, 10GB HD, 17" Monitor, Linux

Other Equipment: 2 HP LaserJet 2100m

Software: GNU compiler & programming tools, JAVA JDK

PC Laboratory (CRAI)

Primary Server: ecenet Dell Dual Pentium Xeon 600, 512MB RAM, 72GB HD, Windows 2000 Advanced Server

Secondary Server: inelicom Dell Dual Pentium 300, 384 MB RAM, 27 GB HD, 17" Display, Windows NT 4 Server

Workstations: 42 Compaq Deskpro PIII 500, 128MB RAM, 10 GB, 17" Display, Windows NT4

Other Equipment: HP LaserJet 5SI, Lexmark Optra SE 3455

Software: Matlab, PSpice, MASM, JDK, MS Office, SystemView, Lithonia Lighting Visual Planner, ADS, Visual Studio, Project, Front Page, Others.

Computer Assisted Instructional Laboratory (INCADEL)

Primary Server: ecenet Dell Dual Pentium Xeon 600, 512MB RAM, 72GB HD, Windows 2000 Advanced Server

Secondary Server: inelicom Dell Dual Pentium 300, 384 MB RAM, 27 GB HD, 17" Display, Windows NT 4 Server

Workstations: 26 Dell PII-400, 64 MB RAM, 4 GB SCSI HD, 17" Display, Windows NT Workstation

Other Equipment: HP LaserJet 5SI, Lexmark Optra SE 3455

Software: Matlab, PSpice, MASM, JDK, MS Office, SystemView, Lithonia Lighting Visual, Planner, ADS, Others.

Applied Database and Software Engineering Laboratory (ADASEL)

Server: adasel Dell Dual Pentium 500, 384 MB RAM, 27 GB HD, 17" Display, Windows 2000 Server

Server: adasel Sun Sparc Ultra Enterprise 250, 2 x 400 MHz, 4GB RAM, 36GB HD, Solaris

Workstations:

15 Dell Pentium III500, 256 MB RAM, 20 GB HD, 19" Display, Windows 2000 Pro.

15 Dell Pentium III 1GHz, 256 MB RAM, 20 GB HD, 19" Display, Windows 2000 Pro

Other Equipment: HP LaserJet 4000, Data Display

Software: MS Office, Rational Rose, Visual Studio, Other development tools

Process Instrumentation and Control Laboratory

Primary Server: ecenet Dell Dual Pentium Xeon 600, 512MB RAM, 72GB HD, Windows 2000 Advanced Server

Secondary Server: inelicom Dell Dual Pentium 300, 384 MB RAM, 27 GB HD, 17" Display, Windows NT 4 Server

Workstations: 7 Gateways 4DX2-66, 16 MB RAM, 340 MB HD, 15" Display,

Windows NT

2 Gateways 4DX2-66, 16 MB RAM, 340 MB HD, 15" Display, Windows NT

1 Gateway P4D-66, 16 MB RAM, 340 MB HD, 15" Display, Windows 95

1 Gateway P5-100, 32 MB RAM, 2 GB HD, 15" Display, Windows 95

1 Dell Dimension PIII-933, 128 MB RAM, 8 GB HD, 17" Display

8 Gateway E4200 PII-400, 128 MB RAM, 8 GB HD, 17" Display

1 Gateway Pentium 133, 32 MB RAM, 17" Display

Other Equipment: Data Acquisition Equipment, HP LaserJet 5P

Software: Matlab, LabView, Visual Basic, ARENA, MS Office

Microprocessors Laboratory

Primary Server: ecenet Dell Dual Pentium Xeon 600, 512MB RAM, 72GB HD, Windows 2000 Advanced Server

Server: inelicom Dell Dual Pentium 300, 384 MB RAM, 27 GB HD, 17" Display, Windows NT 4 Server

Workstations: 13 Dell PII-400, 32 MB RAM, 3 GB HD, 17" Display, Windows NT

2 Compaq Deskpro PIII 500, 128 MB RAM, 10 GB HD, 17" Display

Other Equipment: 808x Emulators, EPROM Programmings, Electronic Test & Development Equipment

Software: Matlab, PSpice, Visual Basic, XyLogic, MS Office, MS Macro Assembler, Microcontrollers development tools

Integrated Circuits Design Laboratory (ICDL)

Servers: icdl Sun Sparc Ultra Enterprise 450, 4 x 400 MHz, 1.6GB RAM, 54 GB HD, Solaris

Workstations: 15 PIII-Celeron 500, 128 MB RAM, 6 GB HD, 15" Display

Software: Pspice, MS Office, Visual Studio, Project, Front Page, Cadence, Other integrated circuits design tools.

Software Research Laboratory (SOREL)

Servers: sorel Sun Sparc Ultra Enterprise 420R, 4 x 400 Mhz, 4GB RAM, 72GB HD, Solaris

Workstations:

8 PIII-500, 256 MB RAM, 20 GB HD, 19" Display

2 PIII-600, 256 MB RAM, 20 GB HD, 19" Display

Software: MS Office, Rational Rose, Visual Studio, MS Project, MS FrontPage, Java Builder, Other development tools.

Tools and Toys

Workstations:

12 P-4 1.4 GHz, 256 MB RAM, 40 GB HD, 19" Display

Other Equipment: Color LaserJet 4550, Laser Jet 4050

Software: Office, Matlab, C and Fortran Compilers

DSP Laboratory

Workstations: 14 PIII-550, 256 MB RAM, 10 GB HD, 19" Display

Software: MS Office, Visual Studio, Project, Front Page, Other DSP board development tools.

Other Equipment: TI DSP boards, Signal generators, Oscilloscopes, Multi-meters

PaSCoR

Workstations:

5 PII-400, 128 MB RAM, 10 GB HD, 19" Display

8 PIII-600, 256 MB RAM, 15 GB HD,

1 P-133, 64 MB RAM, 4 GB HD, 21" Display

2 Gateway P5-100

1 Gateway 4DX2-66, 16 MB RAM, 340 MB HD, 15" Display

Other Equipment: HP 2500C Color Printer, HP 4M Plus Laser Jet, 1 Microtek ScanMaker III.

Software: Arc View, Arc Info, Photoshop

Rapid Prototyping Laboratory

Workstations: 11 PIII-900, 128 MB RAM, 20 GB HD

Software: Pspice, MS Office, Visual Studio, Project, Front Page, Other FPGA design tools.

Radiation Laboratory

Workstations:

2 PII-400, 384 MB RAM, 20 GB HD

1 P-233, 64 MB Ram, 10 GB HD

HP Visualize 2 Pa-Risc x 500 MHz, 4GB RAM, 3 x 18 GB HD

IBM RS/6000 2 PowerPC, 1GB, 2 x 18 GB HD

Other Equipment: Printer HP Deskjet 880C

Software: MS Office, Agilent ADS, Other microwave design tools.

Precise

Workstations:

2 SUN Ultra 10 Creator

7 PIII-833, 512 MB RAM, 20 GB HD

6 PIII Xeon 500, 512 MB RAM, 18 GB HD

1 Bewoulf Cluster, 8 nodes, 16 processors

Other Equipment: Hewlett Packard LaserJet 8100N and one Hewlett Packard LaserJet 4M Plus

Software: Matlab, JDK, MS Office, Visual Studio, Project, Front Page, Others.

• **Department of Mechanical Engineering**

CAD Laboratory / General Computing Room (L-120)

Forty computers in a Windows 2000 network are available to the students of the Mechanical Engineering Department; Five Gateway computers, Pentium 2, 400 MHz, 64MB RAM, Hard Drive Capacity 3.6GB; Twenty

five Dell computers, Pentium 2, 350MHz, 128MB RAM, Hard Drive Capacity 3.0GB; Ten Dell computers, Pentium 3, 550MHz, 128MB RAM, Hard Drive Capacity 3.5GB; One Dell program server, Pentium 2, 400MHz, 236MB RAM, Hard Drive 2 x 9.0GB; One Micron Proxy Server, Pentium Pro, 200MHz, 96MB RAM, Hard Drive 6.0GB.

CAD Laboratory (L-236A)

Twenty-one computers in a Windows 2000 network are available to the students enrolled in the INME 4058 (CAD) course; Nine Dell computers, Pentium 2, 350MHz, 128MB RAM, Hard Drive Capacity 3.0GB; Twelve Dell computers, Pentium 3, 350MHz, 128 MB RAM, Hard Drive Capacity 3.5GB.

Graduate Students Room (L-243)

Five computers are available for general use. One Dell computer, Pentium 3, 350MHz, 128MB RAM, Hard Drive 3.5GB; Two Gateway computers, Pentium 3, 500MHz, 128 MB RAM; Two Micron computers, Pentium Pro 3, 200MHz, 96MB RAM, Hard Drive Capacity 6.0GB.

Dynamics of Machines Laboratory (L-126)

Seven computers are available for the faculty and students involved in research; Two Dell computer, Pentium 3 DUAL, 800MHz, 512MB RAM, Hard Drive Capacity 40GB, One Clone computer, Pentium 3, 800MHz, 491MB RAM, Hard Drive Capacity 40GB; One Dell computer, Pentium Pro, 200MHz, 96MB RAM, Hard Drive Capacity 6GB; Two Gateway computer, Pentium 2, 400MHz, 64MB RAM, Hard Drive Capacity 3GB.

Graduate Students Computer Laboratory (L-121)

Six computers are available for the graduate students involved in research; One Dell computer, Pentium 3, 800MHz; One Gateway computer, Pentium 2, 450MHz, 128MB RAM, Hard Drive Capacity 5GB; One Clone computer, Pentium Pro, 200MHz, 40MB RAM, Hard Drive Capacity 6GB; One Gateway computer, Pentium, 120MHz, 64MB RAM, Hard Drive Capacity 5GB; One Gateway computer, Pentium 2, 400MHz, 96MB RAM, Hard Drive Capacity 6GB; One IBM computer, Pentium 2, 266MHz, 64MB RAM, Hard Drive Capacity 4 GB.

Controls Laboratory (L-131)

Six computers are available for the students enrolled in INME 4009 (Control class) and for students involved in research; Four Gateway computers, Pentium 2, 400MHz, 64MB RAM, Hard Drive Capacity 3.6 GB.; Two Gateway computers, Pentium Pro, 200MHz, 64MB RAM, Hard Drive Capacity 3.6 GB.

Instrumentation Laboratory (L-132)

Three computers used for dedicated applications and for the students enrolled in INME 4031 (Mech Eng Lab I); Two Compaq computers, 120MHz, 64MB RAM, Hard Drive Capacity 3.6 GB; One Dell computer, Pentium 3, 500MHz, 128MB RAM, Hard Drive Capacity 19GB.

• **Department of Industrial Engineering**

The Department of Industrial Engineering counts on the following computing facilities for use by their students and staff.

General Computer Laboratory

Thirty six (36) Dell Computers (300MHz, 128MB, 6.4GB), one HP LaserJet 5Si (printer), one HP LaserJet 8000 (printer), one DesignJet 650C (plotter), one Umax Vista S12 (scanner), one Dell PowerEdge Server, Dell PowerEdge Server (web server), seven Hubs, one Bridge, and one Patch panels.

Quality Control Laboratory

Twenty (20) Dell Computers (800MHz, 256MB, 20GB), one Data Display, and one Patch panel.

Manufacturing Automation Laboratory

Nine (9) Dell Computers (866MHz, 128MB, 9GB); Three Compaq Computers (400MHz, 64MB, 6GB); Six Pentium (133MHz, 16MB, 1GB); One Pentium (166MHz, 16MB, 1GB); Four Pentium (75MHz, 16MB, <1GB); one HUB22, and (Program Logic Computer) PLC Direct Logic 205

Human Factors/Ergonomics Laboratory

Five (5) Dell Computers (933MHz, 128MB, 14GB); One Pentium III (866MHz, 128MB, 10GB); One Pentium (133MHz, 32MB, 800MB),and One Pentium 1.0GHz 512 MB 206 B.

Manufacturing Laboratory

Two (2) Dell Computers (866MHz, 128MB, 10GB); One Pentium (233 MHz, 96 MB, 3 GB); One Pentium (75 MHz, 24 MB, 2 GB); One Pentium (75 MHz, 16 MB, 800 MB); One 486 (66 MHz, 16 MB, 341 MB), and One 386 (133 Hz, 8 MB, 324 MB).

Graduate Students Computer Laboratory

Six (6) Dell Computers (933MHz, 128MB, 14GB); and one HUB.

Administration

Six (6) AMD (1.1 GHz, 128 MB, 4 GB; One HP LaserJet 4P (printer); One HP DeskJet 1600 (printer); One HP LaserJet 4Si (printer); Three Artec AM12S (scanners); and One HP Server.

Student Organizations

One IBM Aptiva (75MHz, 40MB, 1.5GB).

- **Department of Civil Engineering & Surveying**

The Department of Civil Engineering and Surveying counts on the following computing facilities:

Room CI-108 - Undergraduate Computer Center

Thirty four (34) PC's in Novell Netware version 4.01 with two network printers; an HP Laserjet 8150. It also counts on two plotters, a Xerox 2230Ij and a Roland Digital Drafting Plotter GRX-400 AR. All computers have access to internet. The computer center also has one HP Scan Jet. Capacity for 34 users.

Room CI-109 - Computer Aided Instruction and Research Laboratory (CAIREL)

Twenty six (26) PC's in Novell Netware 4.01 with two network printer; 1) HP Laserjet 8100N 2) HP Laserjet 5si. One HP Scan Jet. This laboratory is used for class instruction and special communication skill development for undergraduate and graduate students. All computers have access to internet. Capacity for 25 users and the instructors.

Room CI-104-C - Civil Infrastructure Research Center

Ten (10) Dell Dimension Stations with PIII 600Mhz processors. 64 MB memory and 6GIGA hard Disk, two MICRON Pentium Pro Stations with 64MB memory and #GIGA hard disk. Also 8 Gateway stations with 90 to 166 MHz, 32 MB to 64 memory and 2 to 4 GB hard disk. One server Dell Power Edge 6300 with 4 processors PIII Xeon of 500 MHz, 2.5 GB memory and 32 GB hard disk. Server with PII 350 MHz, 128 MB memory and 16 GB hard disk. 1 Laser Jet 4 Plus, 1 HP LaserJET 8100 DN, 1 HP Scanjet 3C

Administrative Computational Room

The main administrative office has 9 PC's in Novell Netware version 4.01 with one network printer (HP Laserjet 8000DN) and three (3) additional local printers as follows: an HP Laserjet 4M, and HP Deskjet 870C, and an HP Laserjet series III. All computers are connected to the Alpha mainframe

computer for administrative purposes which give on lines access to student files, accounting programs and other university software. The room also counts on an HP 5M color printer and a laser printer.

Materials Laboratory

Three (3) computers; one printer HP Desk Jet 882C

Geo-technical Laboratory

One HP Laserjet 4050; two computers; one printer HP Deskjet 692C.

Transportation Laboratory

Six computers; one printer Deskjet 690

Structures Laboratory

Nine computers and one printer HP Deskjet 932

Faculty and other administrative personnel offices

There is one desktop computer for each faculty and administrative personnel.

Computer Communication Network

The Department has a fiber optic network with a star architecture distributed through switch boys and hubs. The network runs at 10/100 MBPS. All classrooms, laboratories, offices and other facilities are serviced by this LAN.

• **Department of General Engineering**

The computing facilities of the Department of General Engineering are distributed as follows:

The College of Engineering Computer Center

The College of Engineering Computer Center is located on the second floor of the Luis Stefani Building (S-208.) It is open 5 days a week for a total of 75 hours. The Center is open to the entire campus academic community. The computing resource consists of 73 Pentium II and Pentium III PC's running Windows 2000 XP connected via a 10 Base T network to a server running Windows 2000 server. A heavy-duty Manessman Tally printer and an HPSi laser printer, provide printing services to the users. A tape unit and a UPS provide backup. The server is connected to the campus backbone and has full access to internet and world wide web. Student-consultants give introductory seminars in the use of the system and its programs, and assist users. All users must have individual account numbers, which are provided, upon request, to faculty for their classes. Student accounts are valid for only one semester at a time. On the average about 2,000 accounts are issued per semester. Programs available to users include: spreadsheet, word processors, mathematical toolkits, programming languages, and various

specialized engineering applications programs among others. Student use of the facilities depends upon the time of the semester: relatively light at the beginning, heavy during mid-term and final weeks of the semester, and moderate the rest of the time.

Fluid Mechanics Computer Laboratory

The Fluid Mechanics Computer Laboratory is the hardware component of the Computer Aided Instruction in Fluid Mechanics (CAIFIM) project. It is located at the Luis Stefani Building room S-112. The computer center is open from Monday through Friday, from 7:30 am to 4:30 pm. These computer facilities are used to provide assistance in the computations required as part of the analysis of experimental data measured during the fluid mechanics laboratory sessions; as well as, to assist students in supplementing their class material through interactive multimedia lessons. The laboratory equipment includes seven (7) Pentium II PC's forming a small network run in Windows 98. One printer is connected to every two computers, for a total of three inkjet printers for student's use plus one printer for the network administrator. Other accessories available include backups and scanner. As part of their laboratory report, students use the programs developed in-house and controlled by the CaiFim interface. Moreover, CaiFim also includes lessons in fluid mechanics topics programmed for auto-instruction, word processor, spreadsheet and presentations software. Students from the mechanical and civil engineering programs use these facilities in the Fluid Mechanics Laboratory course. The students from the Fluid Mechanics theory course also benefit from the auto-instruction lessons available in CaiFim.

Computer Graphics Laboratories

There two computer graphics laboratories that are dedicated exclusively for students taking the Graphics and Computer Graphics courses: Computer Graphics laboratories in **Rooms S-209** and **S-316**. Both laboratories handle the classes INGE3011, INGE3012, and INGE3017. These facilities are open from 7 AM to 10:30 PM Monday through Friday. Both **Room S- 209** and **S- 316** have 26 computers each, with the following specifications: 26 Micron PCs Pentium IV 1.5 GHz, 256 MB SDRAM, 20 G hard drive, floppy & CD ROM drives, and 32 MB video card. The printing resources for each room include 1 HP LaserJet 1200 and 1 Heavy Duty HP 2200D.

- **Department of Mathematics**

Although this department is not part of the College of Engineering, it provides all the courses in mathematics for all the engineering programs. The

department is well equipped with 32 SUN workstations for conference courses, 23 PC's with windows for conference courses, 16 PC's with LINUX, and 22 SUN Ray. The department will be installing additional 40 PC's with windows for use in pre-calculus and calculus courses. The computing facilities in Mathematics Department are available to all students with priority assigned to those registered in mathematics courses.

The department also counts on the use of two research labs, although graduate students generally use these. These are: (a) Advanced Computation Lab, with 4 Sun Sparc stations with Solaris, and a Sparc 450 server with 4 processors and 4 gigs of RAM, and (b) Visualization Lab, with 10 SGI Linux boxes and one SGI Octane.

Library Facilities

Library acquisitions and resources are shown in Table A.1

Library expenditures for the past three years are shown in Table A.2.

There is no separate Engineering Collection in this library. Resources on engineering and related sources are integrated with other materials. Books are housed on the fourth floor, whereas, magazines and journals are housed on the first and second floors. Government documents are located on the third floor. Databases on CD-ROM are kept in the Center of Electronic Resources Collection. Videotapes are housed in the Video Collection Area located in the Nursing Building, and films are located at the Film Collection on the second floor of Sánchez Hidalgo Building. All resources are cataloged and classified using the LC and SutDocs classifications, and can be accessed through the online public catalog.

Reference services are offered by fifteen (15) professional librarians who are assigned to the following collections: two (2) to Marine Sciences; three (3) each to Reference, Periodicals, and Puerto Rican Section; and four (4) to Documents and Maps. Reference services are also offered at the Film, Video and Music Collections.

Interlibrary loan services are offered to the academic community Monday through Friday from 7:30 am to 3:30 pm. The Online Computer Library Center (OCLC) system is used for the transmittal of 60 percent of the loan requests. The ARIEL system was acquired for the electronic delivery of documents. FAX transmission service is also available. Interlibrary loans are offered as free services.

Professional librarians assist students and faculty in their study and research endeavors. A program of bibliographic instruction has been in operation for

the benefit of students and faculty. Bibliographic guides are prepared and distributed among the attendees. An information desk service serves as a guide to students and patrons in the effective use of the online catalog and of the resources, facilities and library services. The information desk is located in the lobby. Service is offered Monday through Friday from 9:00 to 11:30 a.m. and from 1:30 to 4:00 p.m. Orientation on the use of library facilities is offered to freshmen, high school students, and anyone requesting such service. The library is also a coordination agency of the Puerto Rico Census Data Center. It is a depository of all census publications with access to the academic community and the general public.

The Collection of the Center of Electronic Resources (CRE) is made up of online databases and in CD-ROM format. The following databases provide not only bibliographic information, but full text and graphics as well: Academic Search Business Source Master File Premier Professional Development, EBSCO Online ABI/Inform Academic Research Social Sciences Plus Applied Science IEEE/IEE Chemical Abstracts Biotechnology Abstracts Ei Village.

At the Documents Room, many resources are received in CD-ROM format, among them USA Pat, Tiger/Line (the Coast to Coast Digital Map Database), several census databases, as well as various databases from the U.S. Geological Survey, the National Oceanic and Atmospheric Administration and others. The library is registered for Government Printing Office (GPO) access online service. The databases available through this service are: Federal Register Congressional Record, Congressional Bills, United States Code, Public Laws, and General Accounting Office (GAO) Reports. Many other databases will be available since these will be either online or in CD format.

The library was designated on March 10, 1995 as a United States Patent and Trademark Depository Library. It has a collection of over 2.5 million U.S. Trademarks. In addition it receives patent abstracts from the Patent Office of Japan and the European Union, as well as publications from the World Intellectual Property Organization.

The library also has a "Model Gateway Library." The GPO's Model Gateway Library" program is intended to expand the services available to off-site users. In this context, off-site is defined as beyond campus or institutional boundaries, not simply outside the library's walls. Thus, a gateway allows remote users not permanently linked to the library's server to have access, whereas a server provides access to those workstations on the server's network.

The College of Engineering counts on the recommendations of a library committee, which is made up of individual departmental representatives. A similar procedure exists in the College of Arts and Sciences, where such committees exist in the Biology, Chemistry, Geology and Physics departments.

The library maintains the following daily service:

Monday – Thursday	7:30 a.m. - 10:00 p.m.
Friday	7:30 a.m. – 4:30 p.m.
Saturday	10:00 a.m. – 3:00 p.m.
Sunday and Holidays	3:00 p.m. – 8:00 p.m.

During the period of final exams, services are extended until midnight.

The reference services are available during the same hours the library is open. The stacks are open, except for the Puerto Rican and the Music Collections. The following collections are open as indicated:

Film Collection	7:30 a.m. – 6:00 p.m.
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Music and Video Collection	7:30 a.m. – 11:30 a.m. and from 1:00 p.m. – 4:30 p.m.
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The library staff consists of 24 faculty members, 50 non-professional support librarians and 10 technicians, all committed to help the users in their information and research needs. The library services – circulation, reference, documents, Puerto Rico Census Data Center services, periodicals and journals, computer search services, interlibrary loans, research and bibliographic institutions and audiovisual services are integrated to serve the entire Mayagüez Campus community.

The seating capacity of the library as of August 15, 2001 was as follows:

Main Library	950 seats
Marine Science Collection	22 seats
AV Projection Classrooms	170 seats

Although the library facilities do not fully comply with the American with Disabilities Acts (ADA) requirements, the library administration has provided alternatives and is working towards solving some of the problems. The library administration is contemplating to substitute all terminals with microcomputers in order to migrate to the new version of the library automation system DRA-TAOS to enhance search capabilities. There are

two map-collections: one located at the Documents and Maps Collection, and another at the Puerto Rican Collection. A Video Collection is kept in Room 110 in the Nursing Building. Facilities for transmission of closed circuit TV and satellite are also available. Interactive teleconferences are offered for faculty and students. A program for distance learning was begun on the Campus. The library is an active collaborator in providing both physical (projection rooms) and human resources. Microfiches are kept at the following collections: Reference, Serials, and Documents and Maps. Phonographic records and audio resources are located at the Music and Oral History Collection.

Physical facilities in this library provide for:

Eighteen (18) closed study carrels for graduate students; Six (6) study rooms for group discussion; Two (2) library instruction rooms; One micro-format room in the Serials Collection.

All library functions are automated. A total of 22 terminals and 150 computers are distributed throughout the library. In addition, there are four CD-ROM units of the online catalog. Three local databases on MARC format are currently being developed. The library actually has three local databases: SAMDP (provides access to local newspapers); INREF (provides access to biographies); and MARINE (provides access to reprints).

Eleven (11) photocopying machines are centralized on the second floor of the library. Additional machines are located at Puerto Rican Collection, Circulation Collection, Alvarez Nazario Collection, Business Reading Room, Nursing Reading Room and at the Administrative Offices.

TABLE A
LIBRARY ACQUISITIONS, RESOURCES, AND EXPENDITURES
1. ACQUISITIONS AND RESOURCES

	ACQUISITIONS DURING THE LAST THREE (3) YEARS		CURRENT COLLECTION RESOURCES	
	Books	Periodicals	Books	Periodicals
Entire Institutional Library	6,872 v.	6 t	221,490 v.*	5,424 t **
In the following fields (included above) Engineering	242 v.	0	26,241 v.***	811 t **
Chemistry	135 v.	0	5,169 v.***	189 t **
Mathematics	117 v.	0	15,028 v.***	228 t **
Physics	61 v.	0	8,244 v.***	161 t **

Other Specialty Area (Specify)- (GEOLOGY)	55 v.	0	5,274 v. ***	47 t **
All of the above specialty areas (last three years)	AV Material (videos, films, etc.) 133 t			

2. LIBRARY EXPENDITURES

	1998-1999	1999-2000	2000-2001
Total Library Current Funds	\$4,143,280.	\$4,914,789.	\$4,955,291.
Expenditures for the Engineering Unit (Total)	\$357,006.	\$406,552.	\$476,079.
Books	0	\$22,826.	\$27,172.
Periodicals	\$134,741.	\$139,771.	\$181,562. ***
Other Engineering-related Services ****	\$222,265.	\$243,955.	\$267,345. ***

Note: Sub-categories should add to total for the engineering unit.

* Figures as of April 30, 2001

** Figures as of August 2001

*** Estimated

**** Includes chemistry, mathematics, physics and geology books; periodicals and audio-visual materials. Does not include expenditure in the acquisition of reference books.

B. Background Information Relative to the Engineering Unit

1. Engineering Educational Unit

- i. The organization chart of the Mayagüez Campus is shown in Table II-2, as suggested, towards the end. As illustrated, there is an Administrative Board at a hierarchical level immediately below that of the Chancellor. As per the University Law, the Board serves as an advisory body to the Chancellor on the general operation of the Campus.
- ii. The College of Engineering is organized into six academic departments: Chemical Engineering, Civil Engineering and Surveying, Electrical & Computer Engineering, Industrial Engineering, Mechanical Engineering, and General Engineering. Of these, General Engineering is a non-degree granting department, which offers the core courses, which are common to all programs. The Department of Electrical and Computer Engineering offers two separate programs in Electrical Engineering and Computer Engineering. The Department of Civil Engineering and Surveying also offers two separate programs in Civil Engineering and Surveying. The Surveying program is a four-year non-accredited program. A Research & Development Center and the Cooperative Education Program also form part of the College of Engineering.

iii. The following constitute the administrative corps of the College of Engineering:

Dr. Ramón E. Vasquez Espinosa	Dean
Dr. Andres Calderon Colon	Associate Dean (Academic Affairs)
Dr. Jose A. Colucci Rios	Associate Dean (Research)
Prof. Juan R. Caro Moreno	Associate Dean (Administrative Affairs)
Dr. Anand D. Sharma	Faculty ABET Coordinator & Special Assistant to the Dean
Dr. David Suleiman	Director, Dept. of Chemical Engineering
Prof. Federico Padrón	Associate Director, Dept. of Chemical Engineering
Prof. Ismael Pagán Trinidad	Director, Dept. of Civil Engineering & Surveying
Dr. José A. Martinez Cruzado	Associate Director, Dept. of Civil Engineering & Surveying
Prof. Héctor Monroy Ayala	Director, Dept. of Electrical & Computer Engineering
Dr. J. Fernando Vega Rios	Associate Director, Dept. of Electrical & Computer Engineering
Dr. Isidoro Couvertier	Associate Director, Dept. of Electrical & Computer Engineering
Dr. Marco A. Arocha	Director, Dept. of General Engineering
Prof. Miguel A. Cruz Arocho	Associate Director, Dept. of General Engineering
Dr. Jorge Gonzalez	Director, Dept. of Mechanical Engineering
Dr. Agustín Rullán	Director, Dept. of Industrial Engineering
Dr. Viviana Cesani	Associate Director, Dept. of Industrial Engineering

iv. All engineering programs are offered by the College of Engineering. The Department of General Engineering does not offer any academic programs, whereas, the Department of Electrical & Computer Engineering offers two separate programs; namely, Electrical Engineering and Computer Engineering respectively. The Department of Civil Engineering & Surveying also offers two separate programs: a program in Civil Engineering, and a non-engineering program in Surveying & Topography.

v. The following mission statements of the College of Engineering were approved by the faculty in its general meeting held on May 8, 2001.

Provide Puerto Rico, our neighbors, and the rest of the world with professionals having a strong education in engineering and related areas, with rich environmental, ethical, cultural, and social

sensitivities; with capacity for critical thinking and for becoming leaders in their fields.

It is also our mission to conduct research, expand and disseminate knowledge, promote an entrepreneurial spirit, provide service to the community, and pursue the innovation and application of technology for the benefit of our global society, with particular emphasis on Puerto Rico.

2. Programs Offered and Degrees Granted

Refer to Table II-3 (Parts 1 and 2)

3. Information Regarding Administrators

The summary *curriculum vitae* (limited to only one page) of the Dean of Engineering, and his associates who have faculty status, including of those in responsible charge of a major service unit or function, are appended on the following pages.

Also appended at the end of this report are condensed curriculum vitae of faculty members of the General Engineering Department who, also form part of the College of Engineering. The General Engineering Department does not offer any academic program, but is responsible for the offering of common core courses.

4. Supporting Academic Departments

Refer to Table II-4

5. Engineering Finances

The fiscal year at the University of Puerto Rico begins on July 1st of a given calendar year and concludes the following June 30th. The cost of the summer programs is not included in the budgetary assignment that the different academic units of the University receive at the start of a fiscal year. It is instead defrayed through a special assignment and economies from the concluding fiscal year. For support expenditures, refer to Table II-5

6. Engineering Personnel and Policies

a. Personnel

Table II-6 shows the number of personnel and students for the College of Engineering.

b. Faculty Salaries, Benefits, and Other Policies

i. Promotion and tenure system:

Promotion

Upon the respective recommendations of the Personnel Committee of the Department, the Department Director, the Personnel Committee of the Faculty and the Dean of the Faculty; action is then taken by the Administrative Board toward the promotion of the candidate. The minimum service requirements for promotion and the salary adjustments that go with them, as per the 2002-2003 salary scale for engineers and architects, are presently as follows:

Ph.D's	Service Requirement	Monthly Increase
Instructor to Assistant Professor	4 years	\$334
Assistant Professor to Associate Professor	6 years	\$556
Associate Professor to Professor	8 years	\$738
Upon special recommendation (discretion):		
Instructor to Assistant Professor	1 years	\$334

Assistant Professor to Associate Professor	3 years	\$556
Associate Professor to Professor	5 years	\$738
Master's		
Instructor to Assistant Professor	6 years	\$268
Assistant Professor to Associate Professor	8 years	\$555
Associate Professor to Professor (Promotion not contemplated)		
Upon special recommendation: (discretionial):		
Instructor to Assistant Professor	4 years	\$268
Assistant Professor to Associate Professor	5 years	\$555
Associate Professor to Professor	6 years	\$623

Tenure

After a minimum of five years of service, and upon recommendation from the Personnel Committee of the Department, the Department Director, the Personnel Committee of the Faculty, and the Dean of the College, the Administrative Board will extend or deny tenure. Tenure by itself does not convey a salary adjustment.

ii. *Policy regarding faculty salaries, merit adjustments, and performance review procedures.*

Faculty salaries

Faculty salaries, throughout the University of Puerto Rico system, are established by the Board of Trustees. The salary scales are uniform, and depend on the rank of the professor, his/her academic degree, and the number of years of service with the institution. Revisions in salary scales occur at the discretion of the Board of Trustees.

The Board's policy is to maintain uniform salary scales throughout the University System. Exceptions to this rule are those professional fields in which faculty recruiting is difficult: medical health sciences, engineering, architecture, law, and planning. As a result, faculty salaries in the Mayagüez Campus are higher in the College of Engineering than in the Colleges of Arts and Sciences, Business Administration, and Agricultural Sciences.

The total INCOME that a faculty member receives from the University can be substantially higher than the SALARY specified in the scale for his/her

rank, academic preparation, and years of service. This is so because extra compensations are paid for administrative work, for teaching in excess of the 12 credit hours regular teaching load, for research in sponsored projects if the faculty member carries a full teaching load, and for teaching or research during summers. In overview, they demonstrate that there are mechanism in place to reward productivity and hard work, and that faculty income can reach levels competitive enough to assure an adequate stability of the teaching body.

Merit adjustments

There is no established systematic procedure for adjustments in faculty salaries in the entire University of Puerto Rico system. The current University regulations do not include specific provisions to permit such adjustments. A proposal to implement a plan whereby annual merit-based salary increases could be awarded to deserving faculty members, which was pending final consideration by the Council of Higher Education was transferred to the Board of Trustees and has not been acted upon. The only mechanisms now available to recognize merit in financial terms is to grant early promotion in rank to outstanding faculty who are not yet full professors or to award productivity bonuses. These bonuses, however, are a lump sum reward, not a salary increase.

Performance review procedures

All faculty members in Engineering are evaluated by their students. Evaluation forms are filled anonymously in the classroom at the end of every semester. The results, upon analysis, are notified by the department director to the faculty members at the beginning of the following semester.

Faculty members are evaluated for promotion or tenure following the "Evaluation Procedure for Academic Personnel" which the faculty has adopted. This procedure takes into consideration the evaluation of the professor by his/her students, evaluations by the departmental personnel committee and by the head of the department and a self-evaluation. All recommendations for personnel actions, from the departmental personnel committee and the head of the department, are submitted to the Dean of Engineering.

iii. Faculty benefits associated with salary compensation

Retirement program

The University has a retirement program with variable benefits for its employees. Retirement with full benefits occurs after 30 years of service. At least 10 years of service are needed for retirement with reduced benefits. The University contributes 14.6 percent of the employee's salary to the cost of the program. The employee share is nine percent. For retirement

purposes, salaries have a \$50,000 per year ceiling, which is adjusted periodically.

Personnel with more than 20 years of service as of July 1, 1979 may retire after 30 years of service and at a minimum age of 58 years with an annuity equivalent to 75 per cent of the average of 36 highest monthly salaries. Very few people, who fall in this category, if any, remain in active service in the College of Engineering.

Personnel who as of July 1, 1979, had less than 20 years of credited services may retire after 30 years of services and a minimum age of 58 years with an annuity equivalent to 75 per cent of the average of 36 highest monthly salaries up to a maximum of \$2,916.67 monthly. A recent change in retirement policies allows retirement after 30 years of service and 55 years of age. Personnel who wish to change to this option must reimburse the retirement plan.

Health insurance:

The University contributes \$250.00 a month to the cost of the health insurance program of each of its employees.

Social Security:

The University contributes 7.65 percent of the salaries of its employees to the Social Security System, to the salary ceiling fixed every year by the Federal Government.

Other benefits:

All University employees are entitled to free tuition for their children and spouses enrolled in the institution. They also receive a 10 percent discount on all purchases at the Campus bookstore, and a Christmas bonus, which varies every year. For this past Christmas the bonus was \$730.00.

iv. Faculty Salaries:

Table II-7 shows the faculty salary data for the institution as a whole, the College of Engineering as a whole, and each engineering program being evaluated. In all cases the annual salaries are paid over a 12-month period. Faculty members who choose to teach or to do research during the summer receive extra pay for such work.

*c. **Faculty Workload***

The formal teaching load of a faculty member is twelve academic credit hours. Depending on the interest of the particular faculty member and the needs of the school, this load may consist of a combination of teaching, research, and administrative duties. The teaching load is computed according to the Table of Equivalent Credit Hours for academic activities shown below.

Any teaching, research or administrative duty assigned above the normal twelve credit hours entails extra compensation.

EQUIVALENT CREDIT HOURS FOR ACADEMIC

ACTIVITIES

Activity	Contact Hours per week	Equivalents Credit Hours
Coursework: Conference or Discussion	1	1
Coursework: Laboratory	1	1
Coursework: Computation	2	1
Coursework: Seminar	1	1
Supervised Research	3	1
Tutoring – Special Problems	3	1
Thesis or Project Direction	1	1/sem
Research Work, Divulcation, Administrative Tasks and Services	3	1
Workshops	15 sem hrs	

d. Supervision of Part-time Faculty

Part-time engineering faculty members are evaluated each semester by all of their students. The Department Director discusses the results with the faculty members, and gives advice and suggestions for improving their performance whenever applicable. Part-time faculty members are required to be available for student consultations during a specified number of hours per week, and at hours during the day, which are made known to the students during the first week of classes.

7. Engineering Enrollment and Degree Data

Refer to Table II-8

8. Definition of Credit Unit

The University of Puerto Rico's definition of a semester credit for courses falls within the context of EAC's assumption that one semester credit hour represents one class hour or three laboratory hours per week, and that one academic year normally represents at least 28 weeks of classes, exclusive of final examinations. At the University of Puerto Rico in Mayaguez, each of the two semesters comprises 15 weeks of classes.

9. Admission and Graduation Requirements, Basic Programs

A. Admission of Students

1. Candidates for admission must meet the following requirements:

- Secondary School Certificate: The candidate must have completed satisfactorily a secondary school program in an institution duly accredited by the Department of Public Education of Puerto Rico.
- Entrance Examination: Applicants for admission must take the College Entrance Examination, the Spanish equivalent of SAT, which is administered by the College Entrance Examination Board (CEEB). English speaking candidates may take the Scholastic Aptitude Test (SAT).
- A satisfactory knowledge of both English and Spanish languages is required. Admission is granted on the basis of a minimum admission index established for each particular academic program by the University Administrative Board (*Junta Administrativa*).
- Admission is granted on the basis of a minimum admission index established for each particular academic program by the University Administrative Board. Full details are given under “Admission Standards for Students Directly from High School.” There is no official policy on admission of students with conditions to the College of Engineering. These are extremely rare cases, which are handled individually when they arise. They correspond to students who would have qualified for admission to the University at the time they graduated from high school, but chose to apply for reconsideration of admission to Engineering. Upon recommendation of the head of the department, these students may be granted admission.
- Each year, the College of Engineering receives applications from an average of 1800 of Puerto Rico’s best high school students. Over 900 students are admitted to the six engineering programs offered by the College, which are: Civil, Chemical, Computer, Electrical, Industrial, and Mechanical Engineering; and to the Surveying and Topography program.
- Table II-9 shows admission standards for students enrolled in engineering programs directly from high school for the last six (6) years.
- The University of Puerto Rico requires all applicants for admission to take the test administered by the College Entrance Examination Board. In addition to the Spanish Scholastic Aptitude Test, the Spanish version of the CEEB Achievement Test in English, Spanish, and Mathematics

are required. If students decide to take the SAT instead of the CEEB, these will be converted to equivalent CEEB scores.

- Admission to the Mayagüez Campus of the University of Puerto Rico is based on an admission index formula, which takes into account the weighted scores as follows: High School GPA (50%), CEEB Verbal Score on the Aptitude Test (25%), and CEEB Mathematics Score on the Aptitude Test (25%). The General Admission Index (GAI) of students is calculated as illustrated below by an example.

If a student has a high school GPA of 3.83, this corresponds to a Scale Conversion Index (SCI) of 775 as per Table II-11(A). Multiplying this number by its weight factor of 0.5 yields 387.50. If the student then obtains 598 as the CEEB Verbal Score on the Aptitude Test, then this is multiplied by its weight factor of 0.25; and similarly, the CEEB Mathematical Score on the Aptitude Test (say 718) is also multiplied by 0.25. The resulting total of $387.50 + (0.25 \times 598) + (0.25 \times 718) = 716.50$ is then rounded to 717. This is referred to as the Raw Score (RS), which is converted to a General Admission Index (GAI) of 343 as per Table II-11(B). Admission is granted to students whose GAI strictly complies with the minimum value established by the Administrative Board of the Campus for the program for which the students apply. This varies from year to year and depends on demand for the program and the number of students who can be admitted.

- Before any application is processed, each department estimates the number of students it will be able to admit for the following academic year. The estimated capacity per engineering program is used in conjunction with the General Index to determine each department's Admission Index, from highest to lowest. The application form allows students to make-three program choices in order of priority on any campus of the UPR system. They can also select other campuses of the UPR system as fallback choices. The procedure initially uses the Admission Indexes for the previous year along with the estimated departmental capacities for the year in question. Each student's application is evaluated and if the GAI qualifies the student for entrance into the first-choice department, he or she is admitted to it. If the GAI is not high enough, the simulation repeats the procedure for the department listed as second choice.
- If the number of student admitted to a program according to the previous year's Admission Index is greater or less than the program's estimated capacity for the year in question, the Admission Index is increased or lowered until the desired results in terms of capacity are obtained. The

lowest General Admission Index qualifying students for entrance into a program becomes that program's new Admission Index. Table II-12 shows the Admission Indexes for the last six years for each department of the College of Engineering.

- Students who are not admitted to either of their two choices of department on the Mayagüez Campus have their applications evaluated by the campus of the UPR system, which they have specified as an alternate choice. The admissions evaluation procedure is expected to be the same as the one described above, but the whole process will be conducted by a new UPR Central Administration computer system.
- This admission selection procedure is simple, efficient, and effective. The General Admission Index has shown itself to be a highly reliable predictor of a student's ability to succeed in engineering studies. The College of Engineering at Mayagüez has one of the highest admission standards in all the UPR System and the whole Island. Table II-9 shows the information regarding the student's scores in Spanish version of the College Entrance Examination Board and the High School averages. Table II-9 shows the program's General Admission Indexes for the past six years.
- Engineering students may also be admitted to an Engineering Student Transfer Program administered by the College of Engineering and offered at UPR Ponce Campus and UPR Bayamón Campus. Admission to these two programs has been decreasing from a maximum of 90 students to this year's low of 60 students per program. The students entering this program are admitted under the same quality standards used at UPR-Mayagüez and using the admission procedure described above. It is important to note that students admitted to this program qualify for admission to the Mayagüez Campus; however, students who live close to the cities of Ponce and Bayamón choose to enter this program to stay close to home for two years and then move to the Mayagüez Campus. The courses taught, course contents and textbooks used in this program are the same as for the College of Engineering at the Mayagüez Campus, and these programs are closely monitored by the engineering administration at UPR-Mayagüez. This guarantees the excellence and quality of the program, and the participating students.

2. *History of Admissions Standards for Freshmen*

Refer to Table II-9.

3. Admission to advanced placement

- An admission application for advanced placement is forwarded by the Admissions Office to the Associate Dean of Academic Affairs of the College of Engineering who, in turn, refers it to the Department concerned. The respective Department studies each case individually and makes recommendations to the Associate Dean of Academic Affairs, who then transmits his/her decision back to the Admissions Office.
- Non-engineering credits from a non-ABET accredited curriculum may be accepted upon individual review of each case by the department concerned, provided that the institution of origin has been certified by some accrediting body.
- Students transferring from other accredited institutions of higher learning must meet one of the following institutional criteria of eligibility:
 - Have completed at least 48 academic credits with a grade index of 3.00 or higher, nine (9) of these credits must have been taken in Chemistry, Mathematics, Physics or Engineering courses with a grade index of 3.0 or
 - Students, who at the time of admission to the University of origin, had the admission index required by the Engineering program selected at UPR, Mayagüez, may be admitted if they have accumulated 48 academic credit hours with a grade point average (GPA) of 3.0 or higher.

4. Requirements for entry into the upper division

Admission into upper division follows the same procedure described above for admission to advanced placement.

5. Admission of transfer students

- At the University of Puerto Rico student transfers are classified as External and Internal Transfers. Both types require a fairly high grade point average and with at least 24 approved credit hours. Each program or department sets up the required GPA for transfer students. In certain cases the College of Engineering considers the overall grade point average along with the grade point average in mathematics, science, and engineering courses; the latter has been found to be the best predictor of how successful a student is or could be in the engineering program. For example, if a student enrolled at the Mayagüez Campus, regardless of which College, wants to be admitted to the Chemical Engineering Department, he or she must have 24 credit hours in courses with a GPA of 3.00 or better and at least 9 credit hours in science, mathematics and

engineering with 3.00 average; if the same student has 48 credit hours of courses, then he or she must have an overall GPA of 3.00 or higher and 12 credit hours in science, mathematics, and engineering with a GPA in those courses of at least 3.00. An additional requirement in both cases is that the student must have completed at least 75 percent of the courses for which he or she registered. In case of external transfers, i.e. students coming from institutions other than UPR system, they must have completed at least 48 credit hours with the courses and have 18 credit hours in mathematics, science or in engineering with a GPA of 3.00 or better.

6. History of transfer students.

Refer to Table II-10.

B. Requirements for Graduation

1. Process to certify compliance with ABET graduation criteria

- All engineering programs offered by the University have been designed to comply with ABET's criteria regarding curricular content. The elective courses in the various programs may contribute to meeting the required years of study for some of the ABET categories. The student counselors in each department carry the responsibility of advising each student on the courses to take each semester, and authorizing their formal registration in them. The selection of courses over the time each student is enrolled is done so as to comply with ABET's criteria for each category.
- There is no standard form for the College of Engineering to check student compliance with ABET criteria. Each department has its own form that students use to keep track of courses for graduation. The original forms used (in Spanish) are appended at the end of this report.
- **School term used:** The school term at the University of Puerto Rico is the semester. A period of fifteen week of class-work constitutes a semester. The work effort associated with earning a credit hour is one hour of lecture-discussion, or two to four hours of laboratory practice, language drill, seminar, or any other work of a similar nature each week during the semester.

2. *Non-traditional on-campus experience*

- Co-op programs: The College of Engineering does not offer any Co-op program leading to a Co-op degree in engineering. All the departments offer a Co-op course, involving Co-op experience with industry or government, accounting for 3 to 6 credits of free electives.
- Programs offered in other alternative modes: All programs of the College of Engineering are offered in only one mode: on-campus, full-time day programs.

3. *Grade-point average required for graduation*

The grade point average required for graduation is 2.00. In addition, engineering graduates must have earned a grade point average of 2.00 in the courses taken within their major fields as per the stipulations of the College of Engineering. However, no such conditions exist at the institutional level.

10. *Non-academic Support Units*

Several comprehensive programs on the campus have a special impact on research and education as a whole. Some of these are as follows:

1. *Academic Excellence Program:*

This is an experimental program designed for freshmen engineering students in which they interact with student mentors, as well as faculty coordinators. Given the difficulties encountered by freshmen in adapting to university environment, the program seeks to develop individual problem solving skills and good study habits. Participation in this program is voluntary, and all engineering freshmen are invited to join, but it is made very clear to them that this program is not a remedial program and that they should only join if they are willing to put an extra effort and time in their work. Efforts such as these are important since the University of Puerto Rico is a leading Hispanic institution. The Academic Excellence Program was implemented during the 1997-98 academic year with support from the Puerto Alliance for Minority Participation (PR-AMP). The program does seem to have an impact when students undertaking this program are compared with those who aren't. The program provides mentorship in courses such as calculus, physics, statics and dynamics.

2. *Cooperative Education Program:*

The Cooperative Education Program is a planned and progressive educational program that gives students the opportunity to test their career interests in jobs generally related to the field of study being pursued in college. And, the student is paid for the experience gained on the job. The word "cooperative" in the name of the Program is derived from the cooperation between the University and community organizations and industries. The University teaches basic facts,

theories, and principles, and the employing organizations provide practical work experience, which supplements what the students learn in the classroom. The educational advantages of the Program are obvious; it helps young people narrow down their professional career goals and also helps them to mature.

Ever since its inception almost 25 years ago, this program has nearly tripled in terms of the number of participating students, representing two-thirds of all those who qualify from their junior year and above. As a consequence of this experience, not only many of them acquire practical experience before graduation, but they also end up getting employed in the company where they undertook their internships. With the University of Puerto Rico at Mayaguez being the 18th largest institution in the nation in terms of the number of bachelor's degrees awarded in 1999-2000 (ASEE 2000 Edition – Profiles of Engineering & Engineering Technology Colleges), we believe that our cooperative experience provides a win-win situation. **The Cooperative Education Program at the University of Puerto Rico, Mayaguez was recently awarded the 2002 QEM Exemplary Program Award for Mathematics, Science & Engineering Education at the 11th Annual National QEM/MSE Network Conference in Washington, D.C., on February 23, 2002.**

3. *Partnership for Spatial and Computational Research:*

The University of Puerto Rico at Mayagüez has established, through NASA Grant, a program called Partnership for Spatial and Computational Research (PaSCoR). The main goal of this five year project is to strengthen academic programs and integrate research at the undergraduate level in various science, math and engineering/technology (SMET) disciplines, following the strategy of the Learning Factory model implemented by the NSF Manufacturing Engineering Education Partnership. PaSCoR program is outcomes-based and student centered, focused on hands-on learning activities provided throughout the student's academic career. The program's outcomes will be a SMET graduate that is knowledgeable of the technology and applications of remote sensing (RS) and geographical information systems (GIS), and, possesses the necessary skills either to enter graduate school or becomes a successful professional in these areas. The program also aims at developing values such as diversity, teamwork, global awareness and communication. PaSCoR goals will be achieved through five tasks, namely: 1) curriculum development, 2) undergraduate research & student mentoring, 3) industry collaboration, 4) outreach, and, 5) assessment. Students from the following SMET departments at the University of Puerto Rico at Mayaguez will be able to earn a certificate in RS/GIS upon completion of 12 credit-hours in course work, 6 credit-hours in undergraduate research and a summer internship: Agricultural Sciences, Biology, Geology, Electrical & Computer Engineering, Civil Engineering, and Mathematics. Courses and resources are open to all SMET students on Campus. Currently, there are eight

(8) faculty members involved in student mentoring and course innovation/development, more than 30 students engaged in undergraduate research and more than 750 students taking RS/GIS interdisciplinary courses. NASA site visitors have recognized this project as a model program in the US.

4. *Transportation Technology Transfer Center:*

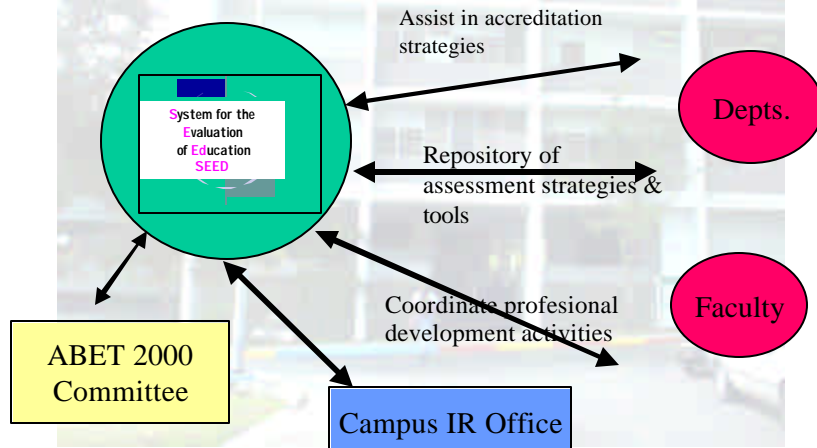
In order to promote research and development in highway related activities in Puerto Rico and the Virgin Islands, the Transportation Technology Transfer Center was created on April 1, 1986 in the Civil Engineering Department of the University of Puerto Rico at Mayagüez. The Center is one of 57 centers throughout the United States under the Local Technical Assistance Program. The Puerto Rico Transportation Technology Transfer Center program provides service and technical information to local officials of the 78 municipalities, Department of Transportation and Public Works of Puerto Rico and the Virgin Islands Department of Public Works. The Center's activities and operation expenses are funded from several sources, such as the Federal Highway Administration, the Department of Transportation of Puerto Rico, and the U.S. Virgin Islands Department of Public Works. The Puerto Rico Transportation Technology Transfer Center is evolving with new ideas and initiatives such as sponsoring the following student research programs: the Entrepreneurial Training and Technical Assistance Program (ETTAP) and the *Tren Urbano* - UPR/MIT Human Resources Development Program. The Center is committed to start and support distance - learning programs and have our first group of graduates from our new Road Scholar Program.

5. *System for the Evaluation of Education:*

The System for the Evaluation of Education Office (SEED) was established in mid-year 2001, as a culminating product, having evolved after nearly two and a half years of committee meetings and related workshops, with the goal of developing assessing strategies for the undergraduate engineering programs. The principal goals of this office are to:

- *Establish and facilitate a strategy for continuous evaluation of engineering programs and student learning outcomes assessment.*
- *Coordinate with engineering departments and accreditation committees (ABET EC2000 and the Middle States Association) the College of Engineering's activities regarding accreditation processes, including their implementation strategies.*
- *Assess outcomes of the College of Engineering's Strategic Plan.*
- *Become the College of Engineering's repository of assessment strategies, assessment instruments, and assessment results and reports.*
- *Coordinate professional development activities concerning evaluation and assessment.*
- *Disseminate assessment results to stakeholders and decision-makers for their information and decision-making.*

The System for Evaluation of Education (SEED)



The SEED Office counts on the services of a Coordinator on a half-time basis, a computer expert in-charge of database management and webpage maintenance, and a full-time administrative secretary. The Coordinator reports to the Dean of Engineering. At the present time, the most pressing matter for the College of Engineering is to deal with the ABET's EC2000 accreditation process, which requires working in close collaboration with the Campus-wide Office of Institutional Research.

6. *Learning Factory Program:*

This is an outcomes-driven program that has been successfully institutionalized at the three collaborating universities; Penn State, University of Puerto Rico at Mayaguez, and University of Washington. This program developed from an earlier effort called MEEP (Manufacturing Engineering Education Partnership). The partnership draws on the special strengths of each member institution, and provides a unique opportunity to share physical and intellectual resources while exploring diverse educational approaches. MEEP developed and implemented a new curriculum in design and manufacturing with integrated laboratory facilities in strong collaboration with industry. The course development was planned to provide students with a continuous exposure to design and manufacturing from the freshman through the senior year. Critical emphasis was given to the development of "soft skills" such as problem solving, communication and teamwork. A list of curriculum themes (knowledge and skills) was developed in collaboration with industry, which helped in the development of courses.

7. ***Industrial Affiliates Program:***

The Industrial Affiliates Program (IAP) is an organization that is geared toward enriching and enhancing the educational experience of interested undergraduate students. IAP offers creative technical experience the educational experience to complement the university's strong Electrical and Computer Engineering curriculum. The program was founded in 1989 and is fully sponsored by several global corporations working in tandem with the faculty at the University of Puerto Rico. This joint collaboration has resulted in the ability for many of our students to gain increased exposure to the field of engineering through direct involvement in educational outreach opportunities, technical projects, and research efforts. Thus, students acquire a broader knowledge and practical working expertise in state-of-the-art technologies; coupled with their formal academic studies, undergraduates expand their intellectual and personal breadth and scope. Sponsoring companies are interested in recruiting these unique talents. The IAP strategic plan has as one of its main objectives the development of guidelines, which will enhance the work being performed in the following areas:

Development of an environment to foster the active participation of undergraduate students in research projects, and projects dealing with state-of-the-art technology.

Greater participation by faculty of the Electrical and Computer Engineering Department in IAP.

Development of new laboratories, and improvement of the existing ones to facilitate the work done by professors and students.

Development of close interaction between Electrical and Computer Engineering faculty members, and IAP industry members.

8. ***The Entrepreneurial and Technical Assistance Program:*** The Entrepreneurial Training and Technical Assistance Program (ETTAP) is administered by the Office of Small and Disadvantaged Business Utilization. The program, through Partnership Agreements with Minority Educational Institutions (MEIs) including Historically Black Colleges and Universities and Hispanic Serving Institutions, combines the efforts of MEIs, government, and the private sector to focus on providing transportation-related assistance and procurement information to small, women-owned and disadvantaged businesses. Further, the program also provides training and development to students in transportation-related fields through the use of internships and fostering interdisciplinary opportunities for students in the field of transportation. ETTAP focuses on the following three transportation-related areas: (1) Training/technical assistance on the use of and access to Electronic Commerce and the Internet, (2) Transportation-related student internships, and (3) Information dissemination and outreach activities regarding the Presidential Welfare to Work Initiative to hire individuals off the welfare rolls, and to

support the U.S. Department of Transportation Garrett A. Morgan Technology and Transportation Futures Programs. (Source:<http://osdbuweb.dot.gov/about/ettap.html>). The most significant objective of this project is to promote greater opportunities for students and students with disabilities through the use of Electronic Commerce, and access and use of the Internet. A secondary objective is to support and encourage the training and development of disadvantaged students in transportation related fields through the use of internships.

9. ***Tren Urbano/UPR/MIT Professional Development Program:*** This program was designed to help students to gain the capacity to plan, design, operate and maintain a world-class transit system for the San Juan Metropolitan Area. The program is guided by three fundamental objectives: to develop a cadre of bilingual experts in the development of turnkey transit system; to establish a model for cross-disciplinary cooperation among the UPR faculty, working together with experts from government and industry to apply an integrated systems approach to the development of a major urban infrastructure project; and, to strengthen education and applied research in the most important infrastructure-related disciplines of the University of Puerto Rico at Mayaguez. Other important objective of the program is to establish a strong collaborative relationship between UPR and MIT based on the education and research fields that can be used as a model for others cooperative programs between two universities. Our program has produced three valuable long-term benefits for Puerto Rico: (1) strengthened teaching and research programs in the College of Engineering, the School of Architecture, and the Graduate School of Planning of the University of Puerto Rico, (b) significantly expanded human resources in urban planning, design, transportation, and civil engineering, and (3) valuable exportable expertise: the cadre of bilingual professionals benefiting from participation in this program will be able to export consulting services in advanced infrastructure planning, design, and engineering.

10. ***Outreach Programs:***

- i. ***Pre-College Engineering Program:*** The College of Engineering has been very active in terms of outreach activities, particularly as far as K-12 outreach is concerned. The centerpiece of the College of Engineering's outreach activities is the Pre-College Engineering Program. The Pre-College Engineering Program (PCEP) is a two-week summer-residential program designed to introduce talented high school students to the engineering profession. The main objective of the program is to motivate participants to select and pursue a career in engineering. The program is designed to assist participants in making an informed career selection. This is accomplished by thoroughly exposing them to the engineering profession through a series of enhancing activities. Upon completion of the Program, participants are able

to decide if they really want to study engineering, and if so, which specific engineering discipline they prefer and why. The program has served a total of 500 students. The success of the Program is evidenced by the fact that almost 94 percent of the students served who went on to pursue careers in engineering have either completed their degree, or are still active students in an engineering program. Mostly corporate institutions provide funding for the program. Engineering students play a large role in the success of this Program. A total of eight engineering students serve as full-time PCEP staff members during the conduct of the Program. These mentors live with the high school students in the college dorm rooms and participate with them in all program activities. In addition, approximately 50 other engineering students participate as resources in various seminars, panels, and lab presentations that form part of the PCEP experience. Participating as resources in PCEP affords engineering students the opportunity to communicate what they are learning, a process that requires reflection on their learning as a whole. An extension of the PCEP is a one-day activity sponsored by IEEE, which is designed to reach more high school students and their teachers. During this event, information on engineering disciplines and college life is presented to high school students. Volunteer student members from professional student associations offer the seminars, lab tours, and workshops of each discipline. Approximately 250 high school students and 20 teachers are impacted on a yearly basis. This activity provides engineering students with an opportunity to develop teamwork skills through the planning, fund raising and coordination of the seminars, tours, and workshops that comprise the Program. They are also able to exercise their written and oral communication skills in a meaningful community service undertaking.

ii. SMET Middle School Summer Camp: The Middle School Science, Mathematics, Engineering, and Technology (SMET) Summer Camp is a new three-week initiative based on the teaching of SMET topics in a practical, hands on manner to seventh and eighth graders from the western coast of Puerto Rico. The program is guided by middle school teachers and engineering faculty members. Students meet for 4 hours, four days a week during the three-week session. A very interesting aspect of this program is that it brings together under- and over-achieving students in the same classroom in an effort to lift the under-achieving students' grasp of SMET topics. The first offering of this program took place in June 1999, with 35 students from the Elpidio H. Rivera Middle School. Prof. Rocket Caraballo served as the Middle School faculty mentor. Various engineering faculty members and students served as engineering mentors.

iii. Teacher Training and Enhancement: The NSF-sponsored Center for

Educational Excellence in Mathematics, Science, and Engineering (CE²MCI by its Spanish acronym) is a year-round center for teacher training and enhancement at all educational levels, although the present focus is placed on the high-school level. One of the primary objectives of the CE²MCI project is to incorporate the use of technology tools (graphing calculators, programmable calculators, and computers) into the high-school curriculum and to create synergy between mathematics and science educators so that an integrated approach towards problem solving can be developed. In particular, the Center provides a series of workshops on how to incorporate technology tools into particular core courses in the curriculum. The mission of this Center is to respond to the decentralized philosophy toward education that is being adopted by the Puerto Rican Government under the “Community Schools” initiative. Under this initiative, individual schools are given enhanced flexibility in making curriculum decisions and determining how their funds will be used to enhance the educational value of their course offerings. This decentralized philosophy allows CE²MCI to have a significant influence on the incorporation of mathematics, science, and engineering principles into the high-school curriculum, by providing the necessary course materials and teacher training programs. In this way, the Center will have significant impact in the long run on the number of qualified minority individuals who seek and successfully complete careers in mathematics, science, and engineering. Engineering students play an important role in the planning, preparation, and coordination of CE²MCI’s teacher training workshops. In particular, the students help in the development of suitable engineering related problems that are included in the workshops and serve as tutors in the actual training sessions.

iv. Future Scientists and Engineers of America: FSEA is National, non-profit organization that provides the structure, project materials, documentation, and workshop training necessary to establish after-school technology clubs in K-12 schools. FSEA gives students a practical, hands-on opportunity to engineering and science projects that challenge student teams to creatively solve problems. FSEA clubs consist of 25 students in elementary, middle, or high school. Each club is sponsored by industry organizations. We are currently in the process of establishing FSEA clubs throughout Puerto Rico. As of this writing, we have a total of 12 elementary, middle and high schools involved in the FSEA. A total of 24 engineering students will serve as mentors to these clubs (two per club). The students will work alongside the club’s teacher in the conduct of weekly hands-on engineering projects that will be performed by club members. In addition, the students will collaborate in the development of new projects that will complement the current 35-projects in the catalog produced by FSEA.

v. ***Summer Transportation Institute:*** The Civil Infrastructure Research Center (CIRC) of the University of Puerto Rico at Mayagüez offered the first Summer Transportation Institute at the University of Puerto Rico during the summer of 2001. The objective of this program was to expose a group of junior year high school students to a variety of academic experiences designed to motivate them toward professions in the field of transportation. The activities were very diverse and included two field trips to San Juan, each time with an overnight stay. Besides these and other daylong field trips, the institute provided class sessions in transportation related topics, as well as participatory working sessions for the students to develop their summer projects. The participants also learned to write technical reports and prepare presentations, and about opportunities to study and work in the areas related to transportation. A number of sports activities, competitions, and motivational activities complemented the academic activities. The summer institute is part of a national effort funded by the Federal Highway Administration and administered by the National Summer Transportation Institute Resource Center. The proposal to get funding for the 2002 Summer Transportation Institute has already been submitted.

vi. ***Exploring Interests in Technology and Engineering:*** The EXITE! summer camp program was sponsored by IBM Corporation, the Chancellor's Office and the College of Engineering of the University of Puerto Rico, Mayagüez Campus (UPRM), designed to introduce girls from middle schools from the western area of Puerto Rico to the engineering and technological fields. The students participated in workshops applying scientific and engineering concepts, as well as hands-on experiments in a laboratory environment. The workshops were designed to expose participants to engineering and computer sciences and to provide participants with a better understanding of the concept of working in teams, making hard engineering decisions, ethical behavior, and problem solving. During these workshop activities, the students had an opportunity to interact with faculty, laboratory technicians, young professional engineers, scientists, and undergraduate and graduate engineering students who shared their experiences with them. A major component of EXITE! was the creativity and design competition. All these activities made EXITE! a way to make engineering a realistic career option for the girls. Assessment of the camp indicated that it was highly successful and had a great impact on the participants and their parents. The female population in the College of Engineering is one of the highest in the nation, around 38 percent, as opposed to the national average of 20 percent. The February 22, 2002 issue of *The Chronicle of Higher Education*, in an article titled ***Engineering a Warmer Welcome for Female Students***, stated that, "Hands-on projects are a rarity at most engineering schools." Programs

such as EXITE! will definitely help in the recruitment of female students to choose engineering as a career option.

TABLES

II-1	Faculty and Student Count for Institution
II-2(A)	Organization Chart of the University of Puerto Rico, Mayaguez Campus
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II-4	Supporting Academic Departments
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II-6 (1)	Personnel and Students for the College of Engineering
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II-9	History of Admissions Standards for Freshmen
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II-12	Admission Indexes for the College of Engineering

Table II-1. Faculty and Student Count for Institution

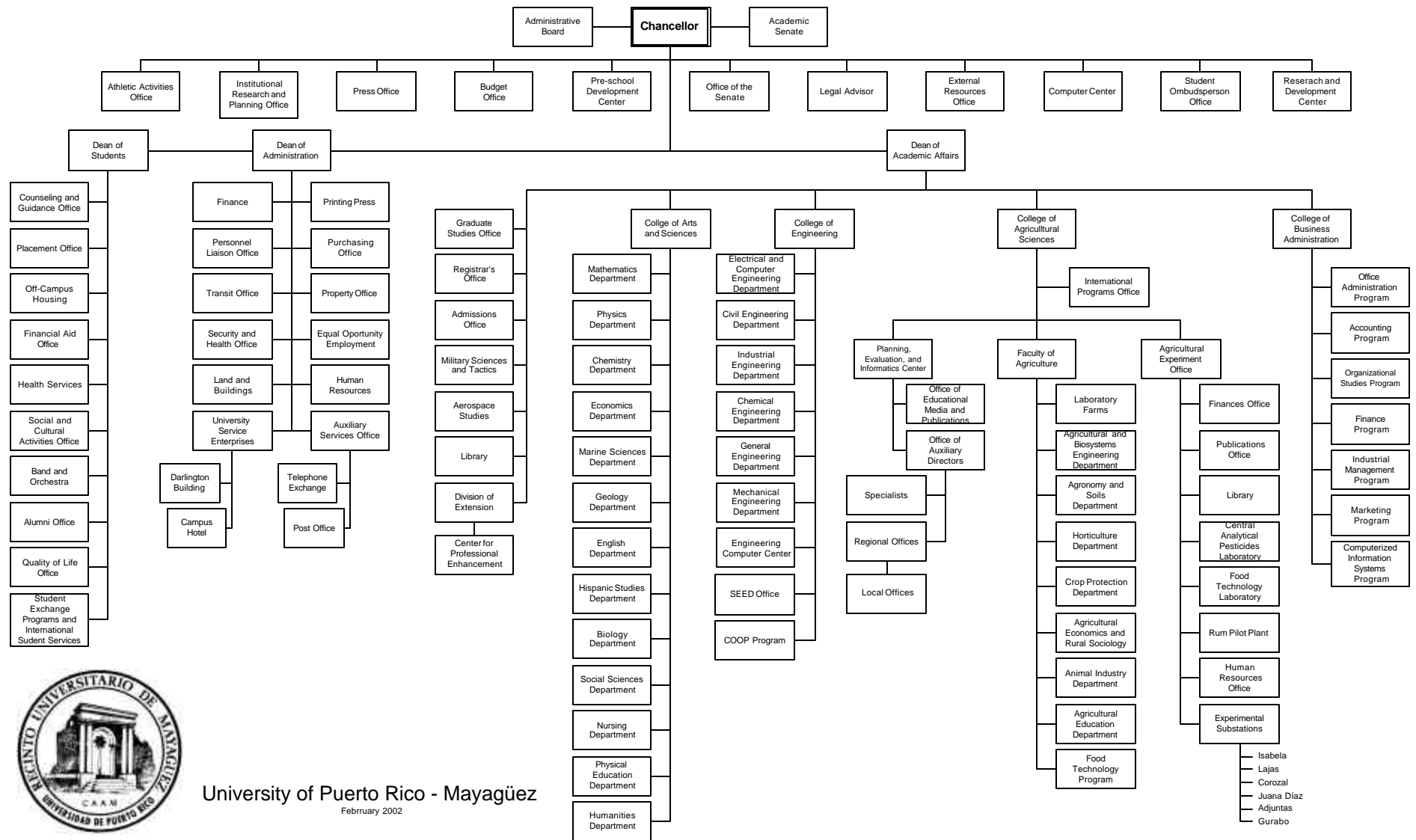
School Year: 2001-2002

FIRST SEMESTER

	HEAD COUNT		FTE*	TOTAL STUDENT CREDIT HOURS
	FT	PT		
Tenure Track Faculty	695	0	712.10	
Other Teaching Faculty (excluding student assistants)	61	45	82.80	
Student Teaching Assistants	0	344	156.09	
Undergraduate Students	10449	902	11,050.9	165,763
Graduate Students	641	252	327.8	4,917
Professional Degree Students	0	0	0	0

* For student teaching assistants, 1 FTE equals 18 hours per week of work (or service); FTE calculated based on an academic load of 12 credit hours similar to that of faculty members. A full-time undergraduate student is defined as one enrolled in 12 credits or more, and a full-time graduate student is defined as one enrolled in 9 credits or more. Full-time equivalent (FTE) for undergraduate and graduate students calculated based on 15 credit hours per term of institutional course work, meaning all courses--engineering, humanities and social sciences, etc.

TABLE II-2(A) ORGANIZATION CHART OF THE UNIVERSITY OF PUERTO RICO MAYAGUEZ CAMPUS



University of Puerto Rico - Mayagüez
February 2002

Table II – 2(B) Organization Chart of the College of Engineering

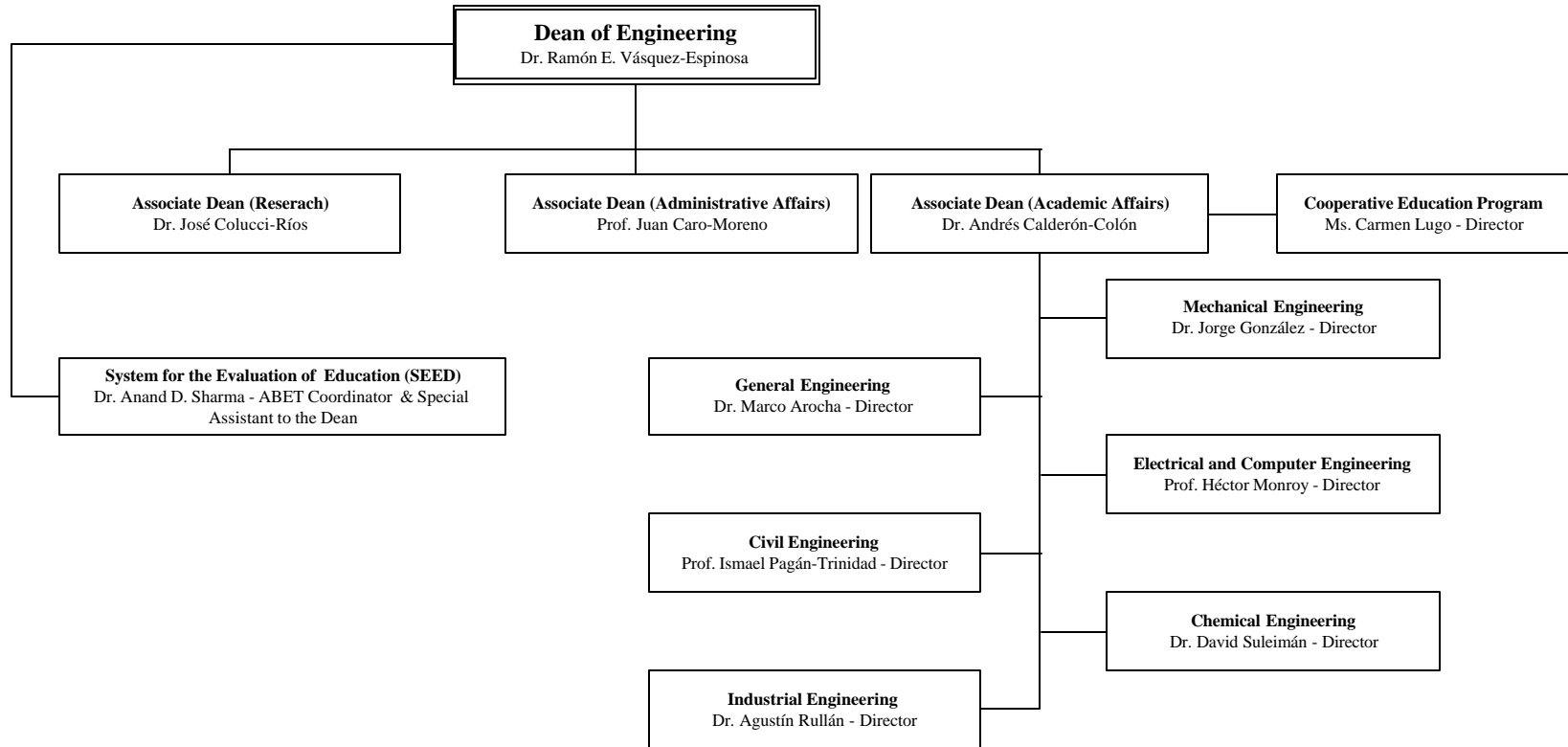


Table II-4. Supporting Academic Departments
For Academic Year: 2002-2003
FIRST SEMESTER

Department or Unit	1 Full-time Faculty Head Count [#]	2 Part-time Faculty Head Count [*]	3 FTE Faculty [*]	Teaching Assistants	
				4 Head Count	5 FTE ^{**}
1. Chemistry	45	2	53.29	35	17.50
2. Economics	11	7	15.75	0	0.00
3. English	40	1	43.33	7	3.5
4. General Engineering ***	33	5	35.83	11	5.58
5. Geology	9	0	9.67	5	2.50
6. Humanities	41	5	47.75	0	0.00
7. Mathematics	49	1	58.58	25	12.50
8. Physical Education	22	0	25.67	0	0.00
9. Physics	28	1	30.33	22	13.33
10. Social Sciences	35	5	44.58	0	0.00
11. Spanish	25	3	32.58	6	4.50

- # Includes faculty members with tenure, tenure-track and temporary appointments. Excludes those on any type of leave of absence.
- * For faculty members, 1 FTE equals 12 credit hours of academic load per semester. In the calculation of FTE for faculty, the total load was taken into account, including any overload (extra compensation or ad honorem).
- ** For student teaching assistants, 1 FTE equals 18 hours per week of work (or service); FTE calculated based on an academic load of 12 credit hours similar to that of faculty members.
- *** General Engineering is a non-degree granting department, which offers the core courses in engineering, which are common to all engineering programs.

**Table II-5 (1). Support Expenditures
College of Engineering***

	1	2	3	4
Fiscal Year	(prior to previous year)	(previous year)	(Current year)	(year) "of visit"
Expenditure Category	1999-00	2000-01	2001-02	2002-03 ⁽⁵⁾
Operations (1) (not including staff)	\$522,068.60	\$419,373.00	\$589,123.63	\$333,151.00
Travel (2)	\$140,281.91	\$122,172.00	\$102,700.20	\$50,000.00
Equipment (3)				
(a) Institutional Funds	\$914,583.53	\$505,481.00	\$1,088,655.50 ⁽⁶⁾	\$357,942.00
(b) Grants and Gifts (4)	\$485,226.30	\$808,298.89	\$2,376,613.24	
Graduate Teaching Assistants	\$516,400.45	\$609,797.00	\$725,025.69	\$282,500.00 ⁽⁷⁾
Part-time Assistance (other than teaching)	\$0.00	\$0.00	\$0.00	

* Reflects support expenditures related with undergraduate programs and the Office of the Dean

1. Statistics from the audited account statements in columns 1 and 2. Column 3 reflects up to date adjusted figures as of June 30, 2002.
2. Institutionally sponsored travel.
3. Major equipment (institutional funds and donations).
4. Grants and Gifts category includes donated cash, equipment and service.
5. Budgeted amounts assigned on July 1, 2002.
6. Includes an amount of \$500,000.00 that was additionally assigned in June 2002 to meet the needs of labs in each department. Distributed amount not reflected in individual tables.
7. Reflects assignment for First Semester.

**Table II-5 (2). Support Expenditures
Department of Chemical Engineering**

Fiscal Year	1	2	3	4
	(prior to previous year)	(previous year)	(current year)	(year) "of visit"
Expenditure Category	1999-00	2000-01	2001-02	2002-03 ⁽⁵⁾
Operations (1) (not including staff)	\$108,579.35	\$41,321.00	\$68,270.30	\$10,000.00
Travel (2)	\$10,034.47	\$5,460.00	\$8,203.68	\$5,000.00
Equipment (3)				
(a) Institutional Funds	\$103,636.09	\$82,248.00	\$130,901.58	\$20,000.00
(b) Grants and Gifts (4)	\$91,065.70	\$121,843.64	\$75,725.00	
Graduate Teaching Assistants	\$102,056.84	\$81,688.00	\$69,885.28	\$42,128.00 ⁽⁷⁾
Part-time Assistance (other than teaching)	\$0.00	\$0.00	\$0.00	

**Table II-5 (3). Support Expenditures
Department of Civil Engineering & Surveying**

Fiscal Year	1	2	3	4
	(prior to previous year)	(previous year)	(current year)	(year) "of visit"
Expenditure Category	1999-00	2000-01	2001-02	2002-03 ⁽⁵⁾
Operations (1) (not including staff)	\$48,860.94	\$26,214.00	\$32,322.99	\$25,000.00
Travel (2)	\$26,389.31	\$18,983.00	\$18,580.80	\$5,000.00
Equipment (3)				
(a) Institutional Funds	\$81,135.47	\$70,947.00	\$142,518.68	\$20,000.00
(b) Grants and Gifts (4)	\$21,884.00	\$30,135.25	\$24,046.99	
Graduate Teaching Assistants	\$87,279.42	\$69,910.00	\$81,873.82	\$41,365.00 ⁽⁷⁾
Part-time Assistance (other than teaching)	\$0.00	\$0.00	\$0.00	\$0.00

Table II-5 (4). Support Expenditures
Department of Electrical and Computer Engineering

Fiscal Year	1	2	3	4
	(prior to previous year)	(previous year)	(current year)	(year) "of visit"
Expenditure Category	1999-00	2000-01	2001-02	2002-03 ⁽⁵⁾
Operations (1) (not including staff)	\$45,944.03	\$138,075.00	\$157,432.50	\$45,000.00
Travel (2)	\$1,927.25	\$20,022.00	\$6,367.99	\$5,000.00
Equipment (3)				
(a) Institutional Funds	\$199,549.25	\$178,641.00	\$105,672.98	\$30,000.00
(b) Grants and Gifts (4)	\$325,776.40	\$309,870.00	\$231,760.00	
Graduate Teaching Assistants	\$118,317.75	\$174,287.00	\$235,384.14	\$87,611.00 ⁽⁷⁾
Part-time Assistance (other than teaching)	\$0.00	\$0.00	\$0.00	\$0.00

Table II-5 (5). Support Expenditures
Department of Industrial Engineering

Fiscal Year	1	2	3	4
	(prior to previous year)	(previous year)	(current year)	(year) "of visit"
Expenditure Category	1999-00	2000-01	2001-02	2002-03 ⁽⁵⁾
Operations (1) (not including staff)	\$68,765.01	\$54,651.00	\$53,531.70	\$15,000.00
Travel (2)	\$9,879.10	\$13,221.00	\$6,025.00	\$5,000.00
Equipment (3)				
(a) Institutional Funds	\$27,152.44	\$55,533.00	\$60,491.00	\$20,000.00
(b) Grants and Gifts (4)	\$0.00	\$51,600.00	\$2,025,281.25	
Graduate Teaching Assistants	\$81,140.82	\$112,918.00	\$126,422.61	\$44,800.00 ⁽⁷⁾
Part-time Assistance (other than teaching)	\$0.00	\$0.00	\$0.00	\$0.00

**Table II-5 (6). Support Expenditures
Department of Mechanical Engineering**

	1	2	3	4
Fiscal Year	(prior to previous year)	(previous year)	(current year)	(year) "of visit"
Expenditure Category	1999-00	2000-01	2001-02	2002-03 ⁽⁵⁾
Operations (1) (not including staff)	\$75,974.69	\$57,760.00	\$73,465.00	\$25,000.00
Travel (2)	\$4,487.37	\$15,353.00	\$13,480.50	\$5,000.00
Equipment (3)				
(a) Institutional Funds	\$101,514.90	\$95,013.00	\$82,439.81	\$20,000.00
(b) Grants and Gifts (4)	\$43,500.00	\$274,850.00	\$16,500.00	
Graduate Teaching Assistants	\$99,985.95	\$104,226.00	\$138,782.84	\$46,596.00 ⁽⁷⁾
Part-time Assistance (other than teaching)	\$0.00	\$0.00	\$0.00	\$0.00

**Table II-5 (7). Support Expenditures
Department of General Engineering**

	1	2	3	4
Fiscal Year	(prior to previous year)	(previous year)	(current year)	(year) "of visit"
Expenditure Category	1999-00	2000-01	2001-02	2002-03 ⁽⁵⁾
Operations (1) (not including staff)	\$23,034.50	\$35,097.00	\$30,409.61	\$15,000.00
Travel (2)	\$8,449.35	\$1,723.00	\$7,437.51	\$5,000.00
Equipment (3)				
(a) Institutional Funds	\$45,925.01	\$22,950.00	\$44,733.96	\$20,000.00
(b) Grants and Gifts (4)	\$3,000.00	\$0.00	\$3,300.00	
Graduate Teaching Assistants	\$27,619.67	\$66,768.00	\$66,771.62	\$20,000.00 ⁽⁷⁾
Part-time Assistance (5) (other than teaching)	\$0.00	\$0.00	\$0.00	\$0.00

Table II-6 (1). Personnel and Students

**College of Engineering
FIRST SEMESTER 2001-2002¹**

	HEAD COUNT		FTE (2)	RATIO TO FACULTY (3)
	FT	PT		
Administrative (4)	1	19	10.75	
Faculty (tenure-track)	120	17	139.96	
Other Faculty (excluding student assistants)	25	20	34.10	
Student Teaching Assistants	0	97	42.25	0.24
Student Research Assistants	0	104	48.96	0.28
Technicians/Specialists*	27	0	27	0.16
Office/Clerical Employees*	67	0	67	0.38
Others (5)*	5	0	5	0.03

Undergraduate Student enrollment Includes freshmen and sophomores	4316	167	4542.50	26.02
Graduate Student enrollment	241	60	121.8	0.70

* Includes staff members from the offices of the dean and associate deans of engineering

1. **Data for the First Semester immediately preceding the visit.**
2. **For student teaching assistants, 1 FTE equals 18 hours per week of work (or service); FTE calculated based on an academic load of 12 credit hours similar to that of faculty members. In the calculation of FTE for faculty, all excess load was taken into account (extra compensation or ad honorem). A full-time undergraduate student is defined as one enrolled in 12 credits or more, and a full-time graduate student is defined as one enrolled in 9 credits or more. Full-time equivalent (FTE) for undergraduate and graduate students calculated based on 15 credit hours per term of institutional course work, meaning all courses--engineering, humanities and social sciences, etc.**
3. **FTE in each category divided by total FTE faculty, excluding administrative FTE.**
4. **FTE fraction according to joint administrative/faculty appointment. Administrative load refers to positions that are officially designated as such. Excludes those who simply perform administrative tasks.**
5. **Any other category**

Table II-6 (2). Personnel and Students
Chemical Engineering Program
FIRST SEMESTER 2001-2002¹

	HEAD COUNT		FTE (2)	RATIO TO FACULTY (3)
	FT	PT		
Administrative (4)	0	4*	2.25	
Faculty (tenure-track)	16	4	20.96	
Other Faculty (excluding student assistants)	3	0	3.04	
Student Teaching Assistants	0	8	4	0.17
Student Research Assistants	0	11	5.5	0.23
Technicians/Specialists	4	0	4	0.17
Office/Clerical Employees	8	0	8	0.33
Others (5)	3	0	3	0.13

Undergraduate Student enrollment Includes freshmen and sophomores	717	17	748.20	31.18
Graduate Student enrollment	30	2	11	0.46

* Two faculty members in administration outside the department as Dean of Graduate Studies with an FTE of 0.75, and as Director of R&D Center with an FTE of 0.5.

Table II-6 (3). Personnel and Students
Civil Engineering Program
FIRST SEMESTER 2001-2002¹

	HEAD COUNT		FTE (2)	RATIO TO FACULTY (3)
	FT	PT		
Administrative (4)	0	2*	1	
Faculty (tenure-track)	24	1	28.92	
Other Faculty (excluding student assistants)	3	4	4.29	
Student Teaching Assistants	0	16	5	0.15
Student Research Assistants	0	43	17.17	0.52
Technicians/Specialists	6	0	6	0.18
Office/Clerical Employees	9	0	9	0.27
Others (5)	0	0	0	0

Undergraduate Student enrollment Includes freshmen and sophomores	752	30	801.10	24.12
Graduate Student enrollment	72	12	33	0.99

* One faculty member in administration outside the department as Associate Dean of Academic Affairs with an FTE of 0.5.

**Table II-6 (4). Personnel and Students
Computer Engineering Program
FIRST SEMESTER 2001-2002¹**

	HEAD COUNT		FTE (2)	RATIO TO FACULTY (3)
	FT	PT		
Administrative (4)	1*	2	1.75	
Faculty (tenure-track)	10	1	12.13	
Other Faculty (excluding student assistants)	0	0	0	
Student Teaching Assistants	0	7	3.25	0.27
Student Research Assistants	0	19	9.50	0.78
Technicians/Specialists**	2	0	2	0.16
Office/Clerical Employees**	6	0	6	0.49
Others (5)**	2	0	2	0.16

Undergraduate Student enrollment Includes freshmen and sophomores	528	21	568.3	46.85
Graduate Student enrollment	45	11	23.40	1.93

* One faculty member in administration outside the department as Dean of Engineering with an FTE of 1.

** Common staff of the Electrical and Computer Engineering Department

**Table II-6 (5). Personnel and Students
Electrical Engineering Program
FIRST SEMESTER 2001-2002¹**

	HEAD COUNT		FTE (2)	RATIO TO FACULTY (3)
	FT	PT		
Administrative (4)	0	3*	1.5	
Faculty (tenure-track)	29	3	33.29	
Other Faculty (excluding student assistants)	3	3	4.54	
Student Teaching Assistants	0	28	13.25	0.35
Student Research Assistants	0	14	9.83	0.26
Technicians/Specialists**	2	0	2	0.05
Office/Clerical Employees**	6	0	6	0.16
Others (5)**	2	0	2	0.05

Undergraduate Student enrollment Includes freshmen and sophomores	827	26	862.40	22.8
Graduate Student enrollment	35	12	19.30	0.51

* One faculty member in administration outside the department as Associate Dean of Engineering (Administration) with an FTE of 0.75.

** Common staff of the Electrical and Computer Engineering Department

Table II-6 (6). Personnel and Students**Industrial Engineering Program
FIRST SEMESTER 2001-2002¹**

	HEAD COUNT		FTE (2)	RATIO TO FACULTY (3)
	FT	PT		
Administrative (4)	0	2	1	
Faculty (tenure-track)	9	2	9.03	
Other Faculty (excluding student assistants)	4	8	7.31	
Student Teaching Assistants	0	14	7.75	0.47
Student Research Assistants	0	5	2.71	0.17
Technicians/Specialists	1	0	1	0.06
Office/Clerical Employees	5	0	5	0.31
Others (5)	0	0	0	0

Undergraduate Student enrollment Includes freshmen and sophomores	577	36	599.50	36.69
Graduate Student enrollment	26	13	12.8	0.78

Table II-6 (7). Personnel and Students**Mechanical Engineering Program
FIRST SEMESTER 2001-2002¹**

	HEAD COUNT		FTE (2)	RATIO TO FACULTY (3)
	FT	PT		
Administrative (4)	0	2	1	
Faculty (tenure-track)	11	2	12.38	
Other Faculty (excluding student assistants)	4	3	5.67	
Student Teaching Assistants	0	17	5.5	0.30
Student Research Assistants	0	12	4.25	0.24
Technicians/Specialists	6	0	6	0.33
Office/Clerical Employees	6	0	6	0.33
Others (5)	0	0	0	0

Undergraduate Student enrollment Includes freshmen and sophomores	765	31	805.10	44.60
Graduate Student enrollment	33	10	22.3	1.24

Table II-6 (8). Personnel and Students
General Engineering Department
FIRST SEMESTER 2002-2003¹

	HEAD COUNT		FTE (2)	RATIO TO FACULTY (3)
	FT	PT		
Administrative (4)	0	5*	2.75	
Faculty (tenure-track)	24	5	27.00	
Other Faculty (excluding student assistants)	4	5	7.83	
Student Teaching Assistants	0	11	5.58	0.160
Student Research Assistants	0	0	0	0
Technicians/Specialists	3	0	3	0.086
Office/Clerical Employees	3	0	3	0.086
Others (5)	0	0	0	0

* Three faculty members in administration outside the department as Associate Dean of Engineering (Academic Affairs) with an FTE of 0.75, as Special Assistant to the Dean of Engineering with an FTE of 0.5, and as Special Assistant to the Chancellor with an FTE of 0.5.

**Table II-7. Faculty Salary Data
FIRST SEMESTER 2001-2002**

1. For the Institution as a Whole*

	Professor	Associate Professor	Assistant Professor	Instructor
Number	303	162	115	74
High	67,090.80	64,665.12	48,408.00	38,088.00
Mean	56,069.16	46,831.80	40,643.88	32,662.08
Low	46,560.00	40,068.00	34,308.00	27,456.00

2. For the Engineering Educational Unit as a Whole*

	Professor	Associate Professor	Assistant Professor	Instructor
Number	80	32	33	22
High	67,090.80	64,665.12	48,408.00	36,228.00
Mean	62,053.89	54,375.39	45,644.27	35,839.09
Low	46,920.00	48,288.00	34,796.88	32,472.00

3. Average Percent Salary Raises Given to Continuing Faculty Members for the Past Six (6) Years.

Unit	Year 1996-1997	Year 1997-1998	Year 1998-1999	Year 1999-2000	Year 2000-2001	Year 2001-2002
Institution as a Whole	6.00	4.50	4.00	4.00	4.50	5.00
Engineering Education Unit as a Whole	4.81	3.68	3.30	3.31	3.74	4.16

*Salary and Number reflect only those on full-time and annual salary basis. Part-time appointments are on semester basis, and hence excluded from above tables. Also excluded are those who are on any type of leave of absence (medical, personal, study) and not drawing any salary. Includes faculty members from the Department of General Engineering.

(continued)

TABLE II-7 (Continued)

4. For Each Program Submitted for Evaluation

Program		Professor	Associate Professor	Assistant Professor	Instructor
Chemical Engineering	Number	14	4	3	3
	High	65,736.00	54,072.00	47,376.00	35,988.00
	Mean	62,340.86	54,012.00	43,182.96	35,988.00
	Low	47,868.00	53,832.00	34,796.88	35,988.00
Civil Engineering	Number	16	4	8	1
	High	65,988.00	54,372.00	47,376.00	35,988.00
	Mean	61,133.25	54,162.00	44,398.50	35,988.00
	Low	46,920.00	53,832.00	39,336.00	35,988.00
Computer Engineering	Number	7	2	3	0
	High	64,548.00	54,372.00	47,616.00	0
	Mean	62,996.57	54,102.00	47,456.00	0
	Low	61,068.00	53,832.00	47,376.00	0
Electrical Engineering	Number	18	7	7	3
	High	66,240.00	54,072.00	47,376.00	35,988.00
	Mean	61,414.45	53,969.14	47,376.00	35,988.00
	Low	53,304.00	53,832.00	47,376.00	35,988.00
Industrial Engineering	Number	5	5	2	3
	High	64,728.00	54,732.00	48,408.00	35,988.00
	Mean	63,360.00	54,168.00	48,012.00	34,816.00
	Low	62,928.00	53,832.00	47,616.00	32,472.00

(continued)

TABLE II-7 (Continued)

Program		Professor	Associate Professor	Assistant Professor	Instructor
Mechanical Engineering	Number	10	3	4	2
	High	67,090.80	64,665.12	47,616.00	35,988.00
	Mean	63,627.48	57,603.04	47,456.00	35,988.00
	Low	62,808.00	54,072.00	47,376.00	35,988.00
	Number				
	High				
	Mean				
	Low				
	Number				
	High				
	Mean				
	Low				
	Number				
	High				
	Mean				
	Low				
	Number				
	High				
	Mean				
	Low				
	Number				
	High				
	Mean				
	Low				

Table II-8 (1). Enrollment and Degree Data

**College of Engineering
FIRST SEMESTER**

C U R R E N T	Academic Year		Enrollment Year					Total Undergrad	Total Grad	Degrees Conferred			
			1st	2 nd	3 rd	4 th	5th			BS	MS	Ph.D.	Other
N T	2001-2002	FT	828	683	710	712	1383	4316	241				
		PT	15	14	9	14	115	167	60				
1	2000-2001	FT	747	727	715	730	1318	4237	249	695	69	2	
		PT	16	8	14	29	223	290	6				
2	1999-2000	FT	791	720	732	842	1237	4322	244	646	63	0	
		PT	18	10	18	26	212	284	2				
3	1998-1999	FT	780	752	871	836	1164	4403	261	665	49	3	
		PT	7	11	10	23	171	222	4				
4	1997-1998	FT								627	67	1	
		PT											
5	1996-1997	FT	744	795	741	783	1055	4418	242	671	50	1	
		PT	2	7	8	23	162	202	7				

Table II-8 (2). Enrollment and Degree Data
Civil Engineering Program
FIRST SEMESTER

C U R R E N T	Academic Year	Enrollment Year					Total Undergrad	Total Grad	Degrees Conferred			
		1st	2 nd	3 rd	4 th	5th			BS	MS	Ph.D.	Other
2001-2002	FT	154	120	117	123	238	752	72				
	PT	6	6	2	3	13	30	12				
1 2000-2001	FT	133	136	109	105	261	734	63	143	120	2	
	PT	5	0	2	3	26	36	2				
2 1999-2000	FT	135	106	121	137	243	742	72	99	19	0	
	PT	4	2	4	1	16	27	0				
3 1998-1999	FT	124	129	141	135	244	763	77	148	16	3	
	PT	4	4	3	6	20	37	2				
4 1997-1998	FT								105	19	1	
	PT											
5 1996-1997	FT	195	139	115	105	240	794	67	36	6	1	
	PT	1	0	0	2	26	29	1				

**Table II-8 (3). Enrollment and Degree Data
Electrical Engineering Program
FIRST SEMESTER**

C U R R E N T	Academic Year	Enrollment Year					Total Undergrad	Total Grad	Degrees Conferred				
		1st	2 nd	3 rd	4 th	5 th			Bachelor	Master	Doctor	Other	
N T	2001-2002	FT	127	111	122	168	299	827	35				
		PT	3	0	0	4	19	26	12				
1	2000-2001	FT	117	122	167	151	268	825	35	137	9	0	
		PT	1	1	2	7	40	50	1				
2	1999-2000	FT	128	145	146	126	272	827	35	123	10	0	
		PT	3	2	4	11	27	47	2				
3	1998-1999	FT	168	149	150	153	235	855	42	124	11	0	
		PT	0	1	2	3	24	30					
4	1997-1998	FT								137	7	0	
		PT											
5	1996-1997	FT	179	116	129	124	202	750	40	125	10	0	
		PT	0	0	1	3	36	40	1				

**Table II-8 (4). Enrollment and Degree Data
Industrial Engineering Program
FIRST SEMESTER**

C U R R E N T	Academic Year	Enrollment Year					Total Undergrad	Total Grad	Degrees Conferred				
		1st	2 nd	3 rd	4 th	5 th			Bachelor	Master	Doctor	Other	
N T	2001-2002	FT	109	86	95	101	186	577	26				
		PT	2	1	3	1	29	36	13				
1	2000-2001	FT	96	102	101	78	202	579	41	99	1	0	
		PT	1	1	2	6	40	50	1				
2	1999-2000	FT	113	121	88	122	185	619	36	107	9	0	
		PT	2	4	3	2	51	62	0				
3	1998-1999	FT	122	97	131	143	174	667	43	113	9	0	
		PT	1	0	2	2	47	52	1				
4	1997-1998	FT								84	15	0	
		PT											
5	1996-1997	FT	161	149	126	97	146	679	39	105	4	0	
		PT	0	4	1	2	43	50	0				

**Table II-8 (5). Enrollment and Degree Data
Mechanical Engineering Program
FIRST SEMESTER**

C U R R E N T	Academic Year		Enrollment Year					Total Undergrad	Total Grad	Degrees Conferred			
			1st	2nd	3 rd	4 th	5 th			Bachelor	Master	Doctor	Other
N 2001-2002		FT	116	140	121	119	269	765	33				
		PT	0	5	0	0	26	31	10				
1 2000-2001		FT	147	114	121	142	260	784	37	137	12	0	
		PT	3	1	2	7	51	64	0				
2 1999-2000		FT	123	119	141	155	239	777	29	129	6	0	
		PT	3	2	3	6	58	72	0				
3 1998-1999		FT	133	135	158	141	219	776	25	110	3	0	
		PT	0	3	0	5	33	41	0				
4 1997-1998		FT								116	16	0	
		PT											
5 1996-1997		FT	188	126	127	115	193	749	37	124	10	0	
		PT	1	1	1	5	34	42	0				

Table II-8 (6). Enrollment and Degree Data

Chemical Engineering Program

FIRST SEMESTER

C U R R E N T	Academic Year		Enrollment Year					Total Undergrad	Total Grad	Degrees Conferred			
			1st	2nd	3 rd	4 th	5 th			Bachelor	Master	Doctor	Other
N T	2001-2002	FT	140	123	122	108	224	717	30				
		PT	1	1	2	1	12	17	2				
1	2000-2001	FT	133	136	128	119	175	691	32	88	12	0	
		PT	0	2	2	2	39	45	1				
2	1999-2000	FT	149	126	121	151	157	704	39	115	14	0	
		PT	3	0	2	3	40	48	0				
3	1998-1999	FT	142	122	167	114	166	711	40	93	6	0	
		PT	0	3	0	5	33	41	0				
4	1997-1998	FT								112	5	0	
		PT											
5	1996-1997	FT	228	120	123	128	182	781	38	131	17	0	
		PT	0	2	2	2	19	25	1				

**Table II-8 (7). Engineering Enrollment and Degree Data
Computer Engineering Program
FIRST SEMESTER**

C U R R E N T	Academic Year	Enrollment Year					Total Undergrad	Total Grad	Degrees Conferred				
		1st	2 nd	3 rd	4 th	5th			Bachelor	Master	Doctor	Other	
N T	2001-2002	FT	131	76	96	58	167	528	45				
		PT	1	1	1	2	16	21	11				
1	2000-2001	FT	85	83	63	85	152	468	31	60	13	0	
		PT	1	0	2	3	29	35	1				
2	1999-2000	FT	95	61	104	83	141	484	33	55	5	0	
		PT	1	0	2	1	20	24	0				
3	1998-1999	FT	64	101	91	92	126	474	36	63	4	0	
		PT	2	1	0	2	13	18	1				
4	1997-1998	FT								48	5	0	
		PT											
5	1996-1997	FT	118	97	96	70	92	473	25	32	3	0	
		PT	0	0	2	4	4	10	1				

Table II-9. History of Admissions Standards for Freshmen*

Academic Year	CEEB Mathematics Aptitude			CEEB Verbal Aptitude			Number of New Students Enrolled
	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	
2001-2002	496	800	689.5	437	787	624.3	809
2000-2001	479	800	694.0	365	773	623.8	744
1999-2000	454	800	698.1	433	800	622.4	782
1998-1999	470	800	700.3	415	786	622.1	762
1997-1998	466	800	682.4	403	787	610.0	973
1996-1997	502	800	680.5	371	763	601.1	898

Academic Year	CEEB Mathematics Achievement			CEEB English Achievement			CEEB Spanish Achievement			Number of New Students Enrolled
	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	MIN.	MAX.	AVG.	
2001-2002	451	800	676.5	348	790	601.3	376	767	568.4	809
2000-2001	466	800	684.5	311	797	593.2	360	797	572.8	744
1999-2000	450	800	672.6	347	780	588.5	338	784	575.8	782
1998-1999	477	800	674.1	324	794	586.8	383	770	586.0	762
1997-1998	458	800	674.5	310	790	580.6	407	800	593.1	973
1996-1997	454	800	682.2	254	794	570.4	398	800	593.0	898

Table II-10. History of Transfer Engineering Students*

Academic Year	Number of Transfer Students Enrolled
2001-2002	196
2000-2001	186
1999-2000	192
1998-1999	200
1997-1998	144
1996-1997	177

* Reflect external transfers, that is, those transferring from other faculties and other universities to the College of Engineering at UPR-Mayagüez

Table II-11 (A) Conversion of High School Grade Point Average (GPA) to Scale Conversion Index (SCI)*

GPA	SCI	GPA	SCI	GPA	SCI	GPA	SCI	GP A	SC I	GP A	SC I	GP A	SC I	GP A	SC I
0.0	200	2.28	542	2.86	629	3.44	716	1.95	493	2.57	586	3.15	673	3.73	760
0.1	215	2.29	544	2.87	631	3.45	718	2.00	500	2.58	587	3.16	674	3.74	761
0.20	230	2.30	545	2.88	632	3.46	719	2.01	502	2.59	589	3.17	676	3.75	763
0.30	245	2.31	547	2.89	634	3.47	721	2.02	503	2.60	590	3.18	677	3.76	764
0.40	260	2.32	548	2.90	635	3.48	722	2.03	505	2.61	592	3.19	679	3.77	766
0.50	275	2.33	550	2.91	637	3.49	724	2.04	506	2.62	593	3.20	680	3.78	767
0.60	290	2.34	551	2.92	638	3.50	725	2.05	508	2.63	595	3.21	682	3.79	769
0.70	305	2.35	553	2.93	640	3.51	727	2.06	509	2.64	596	3.22	683	3.80	770
0.80	320	2.36	554	2.94	641	3.52	728	2.07	511	2.65	598	3.23	685	3.81	772
0.90	335	2.37	556	2.95	643	3.53	730	2.08	512	2.66	599	3.24	686	3.82	773
1.00	350	2.38	557	2.96	644	3.54	731	2.09	514	2.67	601	3.25	688	3.83	775
1.05	358	2.39	559	2.97	646	3.55	733	2.10	515	2.68	602	3.26	689	3.84	776
1.10	367	2.40	560	2.98	647	3.56	734	2.11	517	2.69	604	3.27	691	3.85	778
1.15	373	2.41	562	2.99	649	3.57	736	2.12	518	2.70	605	3.28	692	3.86	779
1.20	380	2.42	563	3.00	650	3.58	737	2.13	520	2.71	607	3.29	694	3.87	781
1.25	388	2.43	565	3.01	652	3.59	739	2.14	521	2.72	608	3.30	695	3.88	782
1.30	395	2.44	566	3.02	653	3.60	740	2.15	523	2.73	610	3.31	697	3.89	784
1.35	403	2.45	568	3.03	655	3.61	742	2.16	524	2.74	611	3.32	698	3.90	785
1.40	410	2.46	569	3.04	656	3.62	743	2.17	526	2.75	613	3.33	700	3.91	787
1.45	418	2.47	571	3.05	658	3.63	745	2.18	527	2.76	614	3.34	701	3.92	788
1.50	425	2.48	572	3.06	659	3.64	746	2.19	529	2.77	616	3.35	703	3.93	790
1.55	433	2.49	574	3.07	661	3.65	748	2.20	530	2.78	617	3.36	704	3.94	791
1.60	440	2.50	575	3.08	662	3.66	749	2.21	532	2.79	619	3.37	706	3.95	793
1.65	448	2.51	577	3.09	664	3.67	751	2.22	533	2.80	620	3.38	707	3.96	794
1.70	455	2.52	578	3.10	665	3.68	752	2.23	535	2.81	622	3.39	709	3.97	796
1.75	463	2.53	580	3.11	667	3.69	754	2.24	536	2.82	623	3.40	710	3.98	797
1.80	470	2.54	581	3.12	668	3.70	755	2.25	538	2.83	625	3.41	712	3.99	799
1.85	478	2.55	583	3.13	670	3.71	757	2.26	539	2.84	626	3.42	713	4.00	800
1.90	485	2.56	584	3.14	671	3.72	758	2.27	541	2.85	628	3.43	715		

* GPA = High School Grade Point Average on a 4.0 point Scale

SCI = Scale Conversion Index on a Scale from 200 - 800

Table II-11(B). Conversion of Raw Scores (RS) to General Admission Index (GAI)

RS	GAI	RS	GAI	RS	GAI	RS	GAI	RS	GAI	RS	GAI	RS	GAI	RS	GAI	RS	GAI
200	2	268	47	336	92	404	137	472	182	540	226	608	271	676	316	744	361
201	3	269	48	337	92	405	137	473	182	541	227	609	272	677	317	745	362
202	3	270	48	338	93	406	138	474	183	542	228	610	273	678	317	746	362
203	4	271	49	339	94	407	139	475	184	543	228	611	273	679	318	747	363
204	5	272	50	340	94	408	139	476	184	544	229	612	274	680	319	748	364
205	5	273	50	341	95	409	140	477	185	545	230	613	275	681	319	749	364
206	6	274	51	342	96	410	141	478	185	546	230	614	275	682	320	750	365
207	7	275	52	343	96	411	141	479	186	547	231	615	276	683	321	751	366
208	7	276	52	344	97	412	142	480	187	548	232	616	277	684	321	752	366
209	8	277	53	345	98	413	143	481	187	549	232	617	277	685	322	753	367
210	9	278	53	346	98	414	143	482	188	550	233	618	278	686	313	754	368
211	9	279	54	347	99	415	144	483	189	551	234	619	279	687	313	755	368
212	10	280	55	348	100	416	145	484	189	552	234	620	279	688	324	756	369
213	11	281	55	349	100	417	145	485	190	553	235	621	280	689	325	757	370
214	11	282	56	350	101	418	146	486	191	554	236	622	281	690	325	758	370
215	12	283	57	351	102	419	147	487	191	555	236	623	281	691	326	759	371
216	13	284	57	352	102	420	147	488	192	556	237	624	282	692	327	760	372
217	13	285	58	353	103	421	148	489	193	557	238	625	283	693	327	761	372
218	14	286	59	354	104	422	149	490	193	558	238	626	283	694	328	762	373
219	15	287	59	355	104	423	149	491	194	559	239	627	284	695	329	763	374
220	15	288	60	356	105	424	150	492	195	560	240	628	284	696	329	764	374
221	16	289	61	357	106	425	151	493	195	561	240	629	285	697	330	765	375
222	17	290	61	358	106	426	151	494	196	562	241	630	286	698	331	766	376
223	17	291	62	359	107	427	152	495	197	563	242	631	286	699	331	767	376
224	18	292	63	360	108	428	152	496	197	564	242	632	287	700	332	768	377
225	19	293	63	361	108	429	153	497	198	565	243	633	288	701	333	769	378
226	19	294	64	362	109	430	154	498	199	566	244	634	288	702	333	770	378
227	20	295	65	363	110	431	154	499	199	567	244	635	289	703	334	771	379
228	20	296	65	364	110	432	155	500	200	568	245	636	290	704	335	772	380
229	21	297	66	365	111	433	156	501	201	569	246	637	290	705	335	773	380
230	22	298	67	366	112	434	156	502	201	570	246	638	291	706	336	774	381
231	22	299	67	367	112	435	147	503	202	571	247	639	292	707	337	775	382
232	23	300	68	368	113	436	158	504	203	572	248	640	292	708	337	776	382
233	24	301	69	369	114	437	158	505	203	573	248	641	293	709	338	777	383
234	24	302	69	370	114	438	159	506	204	574	249	642	294	710	339	778	383
235	25	303	70	371	115	439	160	507	205	575	250	643	294	711	339	779	384
236	26	304	71	372	116	440	160	508	205	576	250	644	295	712	340	780	385
237	26	305	71	373	116	441	161	509	206	577	241	645	296	713	341	781	385
238	27	306	72	374	117	442	162	510	207	578	241	646	296	714	341	782	386
239	28	307	73	375	118	443	162	511	207	579	252	647	297	715	342	783	387
240	28	308	73	376	118	444	163	512	208	580	253	648	298	716	343	784	387
241	29	309	74	377	119	445	164	513	209	581	253	649	298	717	343	785	388
242	30	310	75	378	119	446	164	514	209	582	254	650	299	718	344	786	389
243	30	311	75	379	120	447	165	515	210	583	255	651	300	719	345	787	389
244	31	312	76	380	121	448	166	516	211	584	255	652	300	720	345	788	390
245	32	313	77	381	121	449	166	517	211	585	256	653	301	721	346	789	391
246	32	314	77	382	122	450	167	518	212	586	257	654	302	722	347	790	391
247	33	315	78	383	123	451	168	519	213	587	257	655	302	723	347	791	392
248	34	316	79	384	123	452	168	520	213	588	258	656	303	724	348	792	393
249	34	317	79	385	124	453	169	521	214	589	259	657	304	725	349	793	393
250	35	318	80	386	125	454	170	522	215	590	259	658	304	726	349	794	394
251	36	319	81	387	125	455	170	523	215	591	260	659	305	727	350	795	395

252	36	320	81	388	126	456	171	524	216	592	261	660	306	728	350	796	395
253	37	321	82	389	127	457	172	525	217	593	261	661	306	729	351	797	396
254	38	322	83	390	127	458	172	526	217	594	262	662	307	730	352	798	397
255	38	323	83	391	128	459	173	527	218	595	263	663	308	731	352	799	397
256	39	324	84	392	129	460	174	528	218	596	263	664	308	732	353	800	398
257	40	325	85	393	129	461	174	529	219	597	264	665	309	733	354		
258	40	326	85	394	130	462	175	530	220	598	265	666	310	734	354		
259	41	327	86	395	131	463	176	531	220	599	265	667	310	735	355		
260	42	328	86	396	131	464	176	532	221	600	266	668	311	736	356		
261	42	329	87	397	132	465	177	533	222	601	267	669	312	737	356		
262	43	330	88	398	133	466	178	534	222	602	267	670	312	738	357		
263	44	331	88	399	133	467	178	535	223	603	268	671	313	739	358		
264	44	332	89	400	134	468	179	536	224	604	269	672	314	740	358		
265	45	333	90	401	135	469	180	537	224	605	269	673	314	741	359		
266	46	334	90	402	135	470	180	538	225	606	270	674	315	742	360		
267	46	335	91	403	136	471	181	539	226	607	271	675	316	743	360		

Table II-12. Admission Indexes for the College of Engineering

Department	2002-03	2001-02	2000-01	1999-00	1998-99	1997-98	1996-97
Chemical	325	315	315	318	320	316	310
Civil	320	320	319	320	325	315	318
Computer	341	333	348	342	354	339	335
Electrical	330	329	330	330	330	319	325
Industrial	315	315	315	315	325	315	318
Mechanical	336	334	323	329	330	325	322
Surveying	310	310	310	310	315	310	308

**DEPARTMENTAL FORMS USED
TO CHECK COMPLIANCE WITH
GRADUATION CRITERIA**

ITEM: I. 2(a)

DEPARTAMENTO DE INGENIERÍA QUÍMICA
RECORD DE APROVECHAMIENTO

Nombre _____

Rev. Sept. 01 /LFL

Número de Estudiante _____

MATEMATICAS - 19

Precalc 1	3171	3	
Precalc 2	3172	3	
Precálculo	3005	5	
Cálculo I	3031	4	
Cálculo II	3032	4	
Cálculo III	3063	3	
Ecuaciones	4009	3	

QUIMICA - 28

	3041	4	
	3042	4	
	3450	5	
	3055	4	
	4041	3	
	4101	1	
	4042	3	
	4102	1	
Electiva			

Créditos en Diseño **INGENIERIA QUIMICA 43**

--	4005	4	
1	4010	4	
--	4011	3	
--	4008	3	
--	4012	3	
1	4001	4	
2	4017	4	
2	4002	4	
1	4034	2	
1	5030	2	
1	5025	3	
--	4027	1	
2	5021	3	
3	5022	3	

Total 14

Créditos en Diseño **ELECTIVAS INQU - 8**

2	4003	4	
1	4004	1	
1	4016	3	

ESPAÑOL - 6

3101	3	
3102	3	

INGLES- 12

3103		3101	3	
3104		3102	3	
*		3201	3	**3211
*		3202	3	**3212

* Depto. Inglés tiene una serie de cursos

recomendados para los que toman Ingl 3103-3104

**Inglés de Honor

ELECTIVAS SOCIOHUMANISTICA- 15

		3	
		3	
		3	

_____ Total créditos en diseño para cumplir con requisitos ABET. Mínimo de 17 créditos.

OBSERVACIONES:

**Para uso de estudiantes que comenzaron durante el año académico 1984-85
(incluye: admisiones, readmisiones, traslados, etc.)**



Departamento de Ingeniería Mecánica

Oficina de Asuntos Estudiantiles

Currículo de Ingeniería Mecánica

Primer Año				Segundo Año				Tercer Año				Cuarto Año				Quinto Año			
Primer Semestre				Primer Semestre				Primer Semestre				Primer Semestre				Primer Semestre			
Curso	C	N	PH	Curso	C	N	PH	Curso	C	N	PH	Curso	C	N	PH	Curso	C	N	PH
MATE 3005	5			MATE 3032	4			MATE 4009	3			INEL 4075	3			INME 4009	3		
QUIM 3001	4			INGL	3			INGE 4011	3			INME 4007	3			INME 4031	1		
INGL	3			FISI 3171	4			INME 4001	3			INME 4011	3			INME 4058	3		
ESPA 3101	3			FISI 3173	1			MATE 4061	3			INME 4015	3			INEL 4085	3		
INGE 3011	2			INGE 3016	3			ECON 3021	3			INGE 4016	1			INEL 4086	1		
EDFI	1			INGE 3031	3			Soc. Hum.	3			Soc. Hum.	3			Elec.	3		
																Elec.	3		
Total de crs.	18			Total de crs.	18			Total de crs.	18			Total de crs.	16			Total de crs.	17		

Primer Año				Segundo Año				Tercer Año				Cuarto Año				Quinto Año			
Segundo Semestre				Segundo Semestre				Segundo Semestre				Segundo Semestre				Segundo Semestre			
Curso	C	N	PH	Curso	C	N	PH	Curso	C	N	PH	Curso	C	N	PH	Curso	C	N	PH
MATE 3031	4			MATE 3063	3			INGE 4012	3			INEL 4076	3			INME 4032	1		
QUIM 3002	4			INGL	3			INGE 4015	3			INME 4003	3			INME	3		
INGL	3			INGE 3032	3			INGE 4001	3			INME 4012	3			INME	3		
ESPA 3102	3			INGE 3017	2			INME 4005	3			INME 4055	3			INME 4056	1		
Soc. Hum.	3			FISI 3172	4			INME 4002	3			ININ 4007	3			INME 4057	4		
				FISI 3174	1			Soc. Hum.	3			Soc. Hum.	3			Elec.	3		
EDFI	1															Elec.	3		
Total de crs.	18			Total de crs.	16			Total de crs.	18			Total de crs.	18			Total de crs.	18		

Nombre del Estudiante: _____

Total de créditos en cinco (5) años = 175

Número de Estudiante: _____

Total de créditos hasta hoy = _____

Firma del Estudiante: _____

Firma Consejera Académica: _____

Nombre _____

Núm. Estudiante _____

Recinto Universitario de Mayagüez
 DEPARTAMENTO DE INGENIERIA ELÉCTRICA Y DE COMPUTADORAS
 PROGRAMA DE INGENIERÍA DE ELÉCTRICA
 Facultad de Ingeniería

CURRÍCULO 2000

Primer Semestre

Primer Año

Segundo Semestre

Código	Curso	Pre o Co-Requisito	Cr	N	Código	Curso	Pre o Co-Requisito	Cr	N
Mate 3005	Pre-Cálculo		5		Mate 3031	Cálculo I	Mate 3005 ó Mate 3172	4	
Quim 3001	Química I		4		Quim 3002	Química II	Quim 3001	4	
Inge 3011	Gráficas Ingeniería		2		Espa 3102	Español Básico II	Espa 3101	3	
Espa 3101	Español Básico I		3		Ingl 3102	Inglés Básico II	Ingl3101	3	
Ingl 3101	Inglés Básico I		3						
Edfi	Educación Física		1		Edfi	Educación Física		1	

Segundo Año

Código	Curso	Pre o Co-Requisito	Cr	N	Código	Curso	Pre o Co-Requisito	Cr	N
Mate 3032	Cálculo II	Mate3031	4		Mate 3063	Cálculo III	Mate3032	3	
Fisi 3171	Física I	Mate3031	4		Fisi 3172	Física II	Fisi3171	4	
Fisi 3173	Lab Física I	Co-Fisi3171	1		Fisi 3174	Lab Física II	Fisi3173, Co-Fisi3172	1	
Inge3016	Algo y Prog Comp	Mate3031	3		Inge 3045	Materiales Ing. Elec.	Quim3002, Co Fisi3172	3	
Ingl 3201	Gram, Comp. Lectura	Ingl3102	3		Inel 3105	Anal Sist Eléctricos I	Mate3032, Co-Fisi3172,Mate3063	3	
Inge3035	Mecánica Apl. Ing	Mate3031,Co Fisi3171	3		Ingl 3202	Gram, Comp. Lectura II	Ingl3201	3	

Tercer Año

Código	Curso	Pre o Co-Requisito	Cr	N	Código	Curso	Pre o Co-Requisito	Cr	N
Mate 4009	Ecuaciones Dif Ord	Mate3063	3		Mate 4061	Análisis Numérico	Mate3063, Inge3016	3	
Inel 4102	Anal. Sist. Elec. II	Inel3105,Fisi3172,	3		Inel 4103	Anál Sist Elec. III	Inel4102, Inel 4151, Mate4009	3	

		Inge3016, Co-Mate4009						
Inel 4205	Circuitos de Lógica	Inge3016, Co-Inel4201	3		Inel 4202	Electrónica II	Inel4102, Inel4201	3
Inel 4201	Electrónica I	Inel3105, Fisi3172	3		Inel 4211	Lab. Electrónica I	Inel4115, Inel4201, Inel4205	1
Inel 4151	Electromagnética I	Mate3063, Fisi3172, Co-Mate4009	3		Inel 4152	Electromagnética II	Inel4151, Mate4009	3
Inel4115	Lab Medidas Elect	Inel3105, Co Inel 4201	1		Inel 4206	Microprocesadores	Inel4205, Inel4201	3

Cuarto Año

Código	Curso	Pre o Co-Requisito	Cr	N	Código	Curso	Pre o Co-Requisito	Cr	N
Inin 4010	Prob.y Estadística	Inge3016, Mate3063	3		Inme 4045	Termodinámica	Quim3002, Fisi3172	3	
Inel 4405	Máquinas Eléctricas	Inel4103	3		Econ 3021	Princ. de Economía		3	
Inel 4301	Teo. Comunicaciones	Inel4102	3		Inel 4406	Lab Maq. Eléctricas	Inel4103, Inel4115, Co-Inel4405		
Inel 4505	Int. Sist. Control	Inel4102	3		Inel_____	Electivas Técnicas*		6	
Inel 4212	Lab Electrónica II	Inel4202, Inel4211	1			Electivas Soc. Hum**		3	
	<i>Electivas Libres</i>		3						

Quinto Año

Código	Curso	Pre o Co-Requisito	Cr	N	Código	Curso	Pre o Co-Requisito	Cr	N
Inin 4015	Economía Ingenieril		3		Inel_____	Electivas Técnicas*		6	
Inel_____	Electivas Técnicas*		6			Electivas SocioHum**		6	
	Electivas SocioHum**		6			Electivas Libres		6	
	Electivas Libres		3						

*Electivas Libres (12 créditos)

Electivas Socio-Humanísticas (15 créditos)

Código	Curso	Pre o Co-Requisito	Cr	N	Código	Curso	Pre o Co-Requisito	Cr	N

*Electivas Técnicas

Area de Enfasis

Código	Curso	Pre o Co-Requisito	Cr	N	Código	Curso	Pre o Co-Requisito	Cr	N

*Los requisitos para el grado BSEE incluyen 18 horas créditos en electivas técnicas, clasificadas en cinco áreas de énfasis: a) Controles, b) Electrónica, c) Electromagnética Aplicada, d) Potencia, y e) Procesamiento Digital de Señales. Las áreas de especialidad deben reunir los siguientes requisitos:

1. Mínimo de 12 horas crédito en área de énfasis. Deben incluir un curso de diseño de tres horas crédito

1. Un contenido total de diseño de 10 horas crédito, de los cuales siete (7) créditos deben ser en el área de énfasis.

**Los 15 créditos en electivas Socio Humanísticas serán seleccionadas por el estudiante, con la aprobación del consejero, de la lista de cursos recomendados por la facultad.

Nombre _____
 Estudiante _____

Núm. _____

Recinto Universitario de Mayagüez
 DEPARTAMENTO DE INGENIERIA EN COMPUTADORAS
 PROGRAMA DE INGENIERÍA DE COMPUTADORAS
 Facultad de Ingeniería

CURRICULO 2000

Primer Semestre

Primer Año

Segundo Semestre

Código	Curso	Pre o Co-Requisito	Cr	N	Código	Curso	Pre o Co-Requisito	Cr	N
Mate 3005	Pre-Cálculo		5		Mate 3031	Cálculo I	Mate 3005 ó Mate 3172	4	
Quim 3001	Química I		4		Quim 3002	Química II	Quim 3001	4	
Espa 3101	Español Básico I		3		Espa 3102	Español Básico II	Espa 3101	3	
Ingl 3101	Inglés Básico I		3		Ingl 3102	Inglés Básico II	Ingl3101	3	
Inge 3011	Gráficas Ingeniería		2		Edfi	Educación Física		1	
Edfi	Educación Física		1						

Segundo Año

Código	Curso	Pre o Co-Requisito	Cr	N	Código	Curso	Pre o Co-Requisito	Cr	N
Mate 3032	Cálculo II	Mate3031	4		Mate 3063	Cálculo III	Mate3032	3	
Fisi 3171	Física I	Mate3031	4		Fisi 3172	Física II	Fisi3171	4	
Fisi 3173	Lab Física I	Co-Fisi3171	1		Fisi 3174	Lab Física II	Fisi3173, Co-Fisi3172	1	
Inge 3035	Mecánica Apl. Ing	Mate3031,Co Fisi3171	3		Ingl 3202	Gram, Comp. Lectura II	Ingl3201	3	
Inge 3016	Algo y Prog Comp	Mate3031	3		Inel 3105	Anal Sist Eléctricos I	Mate3032, Co-Fisi3172,Mate3063	3	
Ingl 3201	Gram, Comp. Lectura	Ingl3102	3		Inge 4001	Materiales Ingeniería..	Quim3002, Co Fisi3172	3	

Tercer Año

Código	Curso	Pre o Co-Requisito	Cr	N	Código	Curso	Pre o Co-Requisito	Cr	N
Mate 4009	Ecuaciones Dif Ord	Mate3063	3		Mate4061	Anal Numérico	Mate 3063	3	

Bachillerato: INGENIERIA CIVIL

(179 Créditos)

Facultad de INGENIERIA
Recinto Universitario de
Mayagüez

Departamento de Ingeniería Civil y Agrimensura

Nombre: _____

Num. Estudiante: _____

PRIMER AÑO		PRIMER SEMESTRE	
CODIGO	CURSO	CRE.	NOTA
MATE 3005	Pre Cálculo	5	
QUIM 3001-LL	Química General I	4	
INGL 3101	Inglés Básico I	3	
ESPA 3101	Español Básico I	3	
INGE 3011-L	Gráficas de Ingeniería I	2	
EDFI _____	Elec. Educ. Física	1	
TOTAL		18	

SEGUNDO SEMESTRE			
CODIGO	CURSO	CRE.	NOTA
MATE 3031	Cálculo I	4	
QUIM 3002-LL	Química General II	4	
INGL 3102	Inglés Básico II	3	
ESPA 3102	Español Básico II	3	
INGE 3012-L	Gráficas de Ingeniería II	2	
EDFI _____	Elec. Educ. Física	1	
TOTAL		17	

SEGUNDO AÑO		PRIMER SEMESTRE	
CODIGO	CURSO	CRE.	NOTA
MATE 3032	Cálculo II	4	
FISI 3171	Física I	4	
FISI 3173-L	Lab. Física I	1	
INGE 3031	Mecánica Aplicada - Estática	3	
INGE 3016	Intr. Program. Computadora	3	
INGL 3201	Gram., Compos. y Lectura I	3	
TOTAL		18	

SEGUNDO SEMESTRE			
CODIGO	CURSO	CRE.	NOTA
MATE 3063	Cálculo III	3	
FISI 3172	Física II	4	
FISI 3174-L	Lab. Física II	1	
INGE 3032	Mecánica Aplicada - Dinámica	3	
INGE 4011	Mecánica Materiales Ing. I	3	
INGL 3202	Gram., Compos. y Lectura II	3	
TOTAL		17	

TERCER AÑO		PRIMER SEMESTRE	
CODIGO	CURSO	CRE.	NOTA
MATE 4009	Ecuaciones Diferenciales Ord.	3	
INGE 4012	Mecánica Materiales Ing. II	3	

SEGUNDO SEMESTRE			
CODIGO	CURSO	CRE.	NOTA
INCI 4035-L	Materiales de Ingeniería Civil	3	
INCI 4021	Análisis Estructural I	3	

INGE 4001	Materiales de Ingeniería	3	
INCI 4001-L	Topografía I	3	
INCI 4095	Métodos Matemáticos en INCI	2	
INEL 4075	Fundamentos de Ing. Eléctrica	3	
	TOTAL	17	

INCI 4136	Estadística Aplicada a Ing. Civil	2	
INCI 4002-L	Topografía II	3	
INGE 4015	Mecánica de Fluidos	3	
INGE 4016-L	Lab. Mecánica de Fluidos	1	
GEOL 4015-LL	Geología para Ingenieros	3	
	TOTAL	18	

CUARTO AÑO PRIMER SEMESTRE

CODIGO	CURSO	CRE.	NOTA
INCI 4022	Análisis Estructural I	3	
INCI 4011	Diseño Estructural Acero	3	
INCI 4008	Introd. Ingeniería Ambiental	3	
INCI 4007	Diseño y Trazado Carreteras	3	
ECON 3021	Principios de Economía I	3	
SOC. HUM.	Electiva Socio-Humanística	3	
	TOTAL	18	

SEGUNDO SEMESTRE

CODIGO	CURSO	CRE.	NOTA
INCI 4012	Diseño Estructural Hormigón	3	
INCI 4137	Intr. Ingeniería Transportación	3	
INCI 4138	Ingeniería Recursos de Agua	3	
INCI 4139	Introd. Ingeniería Geotecnia	4	
SOC. HUM.	Electiva Socio-Humanística	3	
SOC. HUM.	Electiva Socio-Humanística	3	
	TOTAL	19	

QUINTO AÑO PRIMER SEMESTRE

CODIGO	CURSO	CRE.	NOTA
INCI 4049	Fundaciones	3	
INCI 4026	Ingeniería Carreteras	3	
INCI 4145	Diseño Acueduc. Y Alcantari.	3	
SOC. HUM.	Electiva Socio-Humanística	3	
EL. LIBRE	Electiva Libre	3	
EL. LIBRE	Electiva Libre	3	
	TOTAL	18	

SEGUNDO SEMESTRE

CODIGO	CURSO	CRE.	NOTA
INCI 4055	Introd. Gerencia Construcción	3	
INCI 4019	Seminario de Ing. Civil	1	
INCI 4950-X	Proyecto Integrado INCI	3	
INCI ELEC.	Electiva Técnica en INCI	3	
SOC. HUM.	Electiva Socio-Humanística	3	
EL. LIBRE	Electiva Libre	3	
EL. LIBRE	Electiva Libre	3	
	TOTAL	19	

L = Curso con laboratorio

LL = Curso con laboratorio a matricular por separado

X = Curso Capstone = Diseño Integrado en Ing. Civil

TOTAL

179

Octubre-2000

Universidad de Puerto Rico
Recinto Universitario de Mayagüez
DEPARTAMENTO DE INGENIERÍA INDUSTRIAL

FORMULARIO DE EVALUACIÓN DE CURSOS PARA PROPÓSITO DE GRADUACIÓN

NOMBRE:

NÚM. ESTUDIANTE:

FECHA DE EVALUACIÓN:

AÑO QUE COMENZÓ ESTUDIOS EN LA *FACULTAD DE INGENIERÍA*:

Evaluación General:

S	Curso	Crs.	Nota	P.H.	Curso	Crs.	Nota	P.H.
Año	1 ^{er} Semestre				2 ^{do} Semestre			
	1	MATE 3143	5	0	MATE 3031	4	0	
	QUIM 3001	4	0	QUIM 3002	4	0		
	INGL 3101	3	0	INGL 3102	3	0		
	ESPA 3101	3	0	ESPA 3102	3	0		
	ELECT. SH	3	0	EDFI ****	1	0		
				INGE 3011	2	0		
	<i>Total</i>	<i>18</i>	<i>0</i>	<i>Total</i>	<i>17</i>	<i>0</i>		
2	MATE 3032	4	0	MATE 3063	3	0		
	FISI 3171	4	0	FISI 3172	4	0		
	FISI 3173	1	0	FISI 3174	1	0		
	INGL 3201	3	0	INGL 3202	3	0		
	INGE 3031	3	0	INGE 3032	3	0		
	INGE 3016	3	0	INGE 4011	3	0		
				EDFI ****	1	0		
	<i>Total</i>	<i>18</i>	<i>0</i>	<i>Total</i>	<i>18</i>	<i>0</i>		
3	MATE 4009	3	0	INME 4055	3	0		
	INGE 4001	3	0	INME 4056	1	0		
	INME 4045	3	0	INEL 4076	3	0		
	INEL 4075	3	0	INEL 4077	1	0		
	ININ 4010	3	0	ININ 4020	3	0		
	ELECT. SH	3	0	ECON 3021	3	0		
				ELECT. SH	3	0		
	<i>Total</i>	<i>18</i>	<i>0</i>	<i>Total</i>	<i>17</i>	<i>0</i>		
4	ININ 4057	3	0	ININ 4085	3	0		
	ININ 4015	3	0	ININ 4022	3	0		
	ININ 4021	3	0	ININ 4039	3	0		
	ININ 4078	3	0	ININ 4009	4	0		
	ININ 4077	4	0	ELECT. SH	3	0		
	<i>Total</i>	<i>16</i>	<i>0</i>	<i>Total</i>	<i>16</i>	<i>0</i>		
5	ININ 4086	3	0	ININ 4079	3	0		
	ININ 4040	3	0	ININ 4035 ó 4029	3	0		
	ININ 4075	3	0	ELECT. ININ	3	0		
	ELECT. ININ	3	0	ELECT. S.H.	3	0		
	ELECT. LIBRES	6	0	ELECT. LIBRES	6	0		
	<i>Total</i>	<i>18</i>	<i>0</i>	<i>Total</i>	<i>18</i>	<i>0</i>		

EVALUACIÓN POR ÁREAS:

1. Total de Créditos en el Programa:
174 crs.

Crs.	Descripción	Balance
15	Electivas S.H.	15
12	Electivas Libres	12
6	Electivas ININ	6
2	Electivas EDFI	2
50	Crs. en ININ	50
90	Crs. Medulares	90

Créditos Aprobados: 0 crs.
Balance de Crs. Por Aprobar: 174 crs.

2. Total de Créditos en Electivas S.H.:
15 crs.

Básico	Descripción	Nota	P.H.
3	****		0
3	****		0
3	****		0
3	****		0

Créditos Elect SH Aprobados: 0 crs.
Balance de Crs. Elect SH Por Aprobar: 15 crs.

* Le aplican las normas de S.H. vigentes al año que comenzó estudios.
* Si comenzó estudios en agosto de 1996 o antes le aplican las normas correspondientes a agosto de 1996.

3. Total de Créditos en Electivas Libres:
12 crs.

Crs.	Descripción	Nota	P.H.
3	****		0
3	****		0
3	****		0
3	****		0

Créditos Elect. Libres Aprobados: 0 crs.

Balance de Crs. Elect libres Por Aprobar: 12 crs.

4. Promedio Requerido para Graduación: 2.00

Promedio de Graduación: 0.00
Promedio Departamental: 0.00
Créditos considerados para Prom. Grad.: 0
Puntos de Honor: 0

(Leyenda: M- Matriculado, FM- Repitiendo con F, DM- Repitiendo con D, P- Aprobado)

CERTIFICO HABER RECIBIDO COPIA DE ESTA EVALUACIÓN, LA REVISARÉ Y NOTIFICARÉ ALGÚN ERROR. ENTIENDO QUE SI ESTE DOCUMENTO NO ES FINAL DEBO ACTUALIZARLO CADA SEMESTRE.

FIRMA DEL ESTUDIANTE

FECHA

General Engineering Department

<http://ece.uprm.edu/inge>

College of Engineering

- **Description of Department**
- **Strategic Plan**
- **Vision**
- **Mission**
- **Faculty Curriculum Vitae (limited to two pages)**

Note: Course syllabi of this department are included along with the other courses under Appendix I

Department of General Engineering

The General Engineering Department includes professors from different fields of engineering or with an interdisciplinary background. It has evolved historically, without any specific academic program of its own, as a unit which, is responsible for most of the academic offerings in engineering during the first two to three years of study. This is so because all engineering disciplines rest on a common foundation, and the administration and teaching of the basic courses can be handled most efficiently outside of the specialized departments. The common foundation, which can be described as the study of applied physical science, or Engineering Science, is composed of courses such as: Engineering Graphics, Computer Programming, Numerical Methods, Computer Graphics, Engineering Mechanics (Statics, Dynamics and Fluid Mechanics), Mechanics of Materials, and Materials Science. A broad, yet in-depth, knowledge of all of these areas is indispensable in every field of engineering, not only for further studies, but also for the successful practice of the engineering profession. The General Engineering Department also offers interdisciplinary elective courses, which are within the competence of its faculty.

Strategic Plan

(Approved by the General Engineering Faculty on February 17, 1998)

VISION

The Department of General Engineering will strive to be the most resourceful department for supporting the engineering degree-granting departments in the development of professionals in engineering science and related fields, in the development of new engineering programs, and in supporting interdisciplinary research at the University of Puerto Rico.

MISSION

The mission of the Department of General Engineering is to support the engineering degree-granting departments by teaching fundamental courses in engineering and related fields. Furthermore, the departmental faculty also teaches advanced graduate courses, conducts scientific research, and offers service to the communities of Puerto Rico, the U.S., and Latin America.

GOALS AND STRATEGIES

GOAL 1

The Department of General Engineering is in charge of teaching the fundamental engineering courses so as to provide the students with a solid background in order to prepare them to face the challenges of the profession, along with maintaining an acceptable ethical conduct during their professional life. The faculty of General Engineering is also in charge of teaching a few advanced courses to support others engineering departments.

Strategies:

Revision and Course Updating: We will continuously revise and update the course

contents according to the latest trends in the practice and teaching of engineering as profession.

Course Integration: The Department will promote the communication among our professors and the professors of the engineering degree-granted departments in order to integrate the concepts of the basic courses with the different engineering fields. A multidisciplinary committee will be formed to analyze and harmonize our course contents to each engineering discipline.

Text and Audiovisual Materials: Require from professors the acquisition and formal revision of the most recent textbooks that include examples of recent engineering practices with high quality audiovisual material.

Facilities and Training in Teaching-Learning Techniques: Provide facilities in which the professors can use effective teaching techniques, such as: appropriate classrooms with audiovisual equipment; training in teaching-learning and assessment techniques; and demonstration aids that complement theoretical concepts with engineering applications.

Laboratory Integration to the Classroom: Develop specialized laboratories that can be used also as classrooms to provide hands-on experience to the students by simulations or direct demonstrations.

Evaluation of Teaching Performance: Promote the implementation of a uniform methodology to evaluate the faculty performance and suggest them ways to improve their teaching.

Support for New Professors: Provide orientation and continuous support to new professors by assigning an experienced professor as mentor who could help them in the beginning.

University Industry-Interaction: Encourage faculty to interact with industry and government to enhance teaching by using field trips to the real world to stimulate discussion of actual engineering problems.

Teaching Assistants: Assign teaching assistants to the departmental courses.

Ethical Awareness: Develop activities that promote the ethical behavior of students and faculty.

GOAL 2

Establish a graduate program in Engineering Science

Strategies:

Viability Study: Conduct a viability study of a graduate program using input from industry and other universities.

Program focus: Initially develop the areas of Computational Mechanics, Applied Mechanics and Materials Sciences.

Proposal: Prepare a proposal to be submitted to the faculty by August 1999.

Dissemination: Implement a plan to disseminate the Department's capabilities and that of its faculty and to develop its potential at the local, national and international levels.

Transitory Strategy: Restructure the department in such a way that the full-time professors, along with those with joint appointments are able to teach courses within their

specialties and conduct research in other departments.

GOAL 3

Create an appropriate environment with financial support thus the professors can develop a competitive and interdisciplinary research, either theoretical or experimental, at both graduate and undergraduate levels.

Strategies:

Change the Department's Name: Change the name of the department to the Engineering Science Department with the prefix of the courses as CIIN (“Ciencias de Ingeniería”) (English equivalent = ENSC “Engineering Science”) to comply with our stated mission.

Teaching and Research Balance: Strengthen research so it becomes as equal in importance and support with teaching.

Student Participation: Promote and facilitate the student participation in research projects in a flexible and convenient way for the student and the researcher.

Graduate Assistantships: Provide assistantships to allow the students to partially cover their expenses, particularly, in those cases where a researcher cannot offer a full assistantship.

Research Niches: Create niches for the development of joint research in high impact areas for science and technology that permit the professional growth of faculty and strengthen the graduate program.

Evaluation of Researchers: Establish metrics to evaluate the performance of researchers. Items to consider are: conferences, publications, and project results. Develop these metrics taking into account the parameters established by US universities while considering the specific conditions of UPR-Mayagüez.

Publications: Assign release time for preparation of papers and recognize the importance of publications as the final product of any research project.

Seed Money: Establish a seed-money fund from departmental resources to help researchers.

Release Time for Research: Provide adequate release time for research to satisfy the needs of individual researchers.

GOAL 4

Improve the working conditions to establish a solid faculty group.

Strategies:

Recruitment: Develop a faculty recruitment plan that responds to the mission of the Department and satisfies the needs of the specific research niches.

Hiring Conditions: Establish clearly the commitments and responsibilities of newly hired professors and offer them with adequate and continuous orientation.

Realistic Hiring Conditions: Maintain equilibrium with the responsibilities and duties asked from a newly hired faculty within the capacity and opportunities that the Department and the UPR-Mayagüez could offer.

Faculty Opportunities: Provide faculty with more opportunities to write proposals and

initiate technical or educational research projects that allow faculty members to develop themselves in their particular field of expertise, which in turn would contribute to the success of the Department.

Reward System: Establish a reward system for outstanding faculty in the different aspects of the academic life.

Consulting and Community Service: Support the faculty participation in consulting projects and community services, which could bring new ideas and experience to the classroom.

Continuous Education: As part of faculty professional improvement, provide opportunities and resources to attend courses, seminars, conferences, etc.

GOAL 5

Improve the infrastructure to suit teaching and research goals.

Strategies:

Improvement: Improve classrooms and laboratories on a continuous basis.

New Facilities: Build the necessary facilities to comply with Goals 1 and 2.

GOAL 6

Develop effective administrative mechanisms.

Strategies:

Administrative Mechanisms: Develop efficient administrative mechanisms to facilitate the process of reaching the goals in this plan. Simplify the administrative requirements and documentation to submit proposals. Improve the mechanisms for the purchases of supplies for research projects.

GOAL 7

Establish a dedicated staff (non-faculty personnel) for efficiently managing the administrative duties of the Department.

Strategies:

Hiring: Hire staff personnel with adequate education and training.

Continuous Education: Provide opportunities for the continuous education and professional training of the staff.

Incentives: Establish a reward program for the staff to maintain a spirit of service and interest in the discharge of their duties.

GOAL 8

Encourage the faculty to get involved in community service.

Strategies:

Incentives: Provide incentives and offer departmental facilities to faculty that offer their professional expertise to the community. Facilitate the use of equipment, classrooms,

educational material, transportation, remuneration, recognition, etc. to the faculty and organizations involved in community services.

Government and Civic Groups: Offer the professional services of the faculty to the state and city government, as well as, to civic groups.

Pre-college Students: Offer orientation on the opportunities for engineering education in local high schools.

Pre-college School Teachers: Offer orientation to the K-12 school-teachers about engineering and computer related subjects.

Scientific Fairs: Encourage the faculty to participate in local and state scientific fairs.

Summer Camps: Develop a Summer Camp for freshmen undergraduate engineering students to enhance skills that may lead to their success in the school of engineering.

GOAL 9

Make this Strategic Plan the working plan for the Department

Strategies:

Continuity: Create permanent the Strategic Planning Committee.

Evaluation: Upon the creation of the Strategic Planning Committee its first task would be to create an implementation plan, which should be evaluated on a continuous basis.