

A NEW DEGREE PROGRAM

REQUEST FOR AUTHORIZATION TO IMPLEMENT

Florida International University

University Submitting Proposal

August 1996 (Fall)

Proposed Implementation Date

Industrial and Systems Engineering

Name of Department (Coordinating)

College of Engineering and Design

Name of College or School

M.S. in Engineering Management


Complete Name of Degree

CIP Code: 14.3001

Academic Specialty or Field (CIP Code)

The signing of a proposal to implement constitutes a commitment by the university that, if the proposal is approved, the necessary financial commitment and the criteria for establishing new programs have been met prior to the initiation of the program.


 Vice President for Academic Affairs
 Date 4/26/96


 President
 Date 4-26-96

Indicate the dollar amounts appearing as totals for the first and the fifth years of implementation as shown in the appropriate summary columns in BOR Table Three. Provide headcount and FTE estimates of majors for years one through five. Headcount and FTE estimates should be identical to those in BOR Table One.

	Total Estimated Costs	Projected Student HDCT/FTE
First Year of Implementation	\$249,073	16/9.6
Second Year of Implementation		29/17.4
Third Year of Implementation		45/27.0
Fourth Year of Implementation		57/34.2
Fifth Year of Implementation	\$429,413	70/42.0

Request for Authorization to Implement

**Master of Science
in
Engineering Management**

**College of Engineering and Design
Florida International University
Miami, Florida 33199**

March, 1996

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Request for Authorization to Implement Master of Science in Engineering Management

I. ABSTRACT

Provide a description of the proposed program, the needs which elicited this program response, the resources to be dedicated to the program and the resources yet needed for implementation.

A. Program Description

The Engineering Management program is directed toward an academic preparation of technical individuals who will remain working in a technological environment while advancing into management roles. When engineers want to move into a management career, usually because of scarcity of competent technical managers, they often find that their technical skills are not enough for such positions. The emphasis on accuracy, the use of sound scientific methods, and the solution of technical problems through individual skills, are some functions for which engineers are well prepared. However, these functions fundamentally differ from managerial functions. To become successful managers, most engineers must learn new skills and broaden their problem approach perspectives.

The Engineering Management program develops technical management skills by combining qualitative approaches and quantitative skills in a balanced curriculum. Since FIU's service area in Dade and Broward counties is already one of Florida's most industrialized areas and is projected and encouraged to emerge as a focus area of high technology research and manufacturing, this degree program is most appropriate.

The proposed Engineering Management program is a graduate program leading to a degree at the Master level. It emphasizes a practical, systematic, and programmatic educational environment so that future managers of engineering and technology will be technically competent and business-practice oriented.

This program will be designed as a "terminal degree" program. Its graduates are not expected to pursue a higher degree. The students entering this proposed program are expected to have a bachelor degree in one of the science or engineering disciplines. In addition, it is expected that the proposed program will attract scientists (physicists, mathematicians, chemists, etc.) who have moved, or are expected to move, into managerial positions. Most students are expected to join the program as part-time students since many of them are working in industry as engineers or scientists. However, it is also anticipated that a number of students will go into the program immediately after they complete their bachelor's degree.

B. Needs of Proposed Program

The College of Engineering and Design at FIU has grown to become the leading engineering college in Southeast Florida. The continued growth of the greater Miami area, the emergence of new industries, and the increased concerns for the environment suggest that the College of Engineering and Design is at the threshold of both opportunity and responsibility. Furthermore, the College currently has the largest Hispanic undergraduate student enrollment in the nation¹, and second largest Hispanic graduate student enrollment. The College is also ranked fourth in the nation for the total minority undergraduate engineering students, and fifth for total minority graduate engineering students. These facts further enhance the role of the College in serving the multi-cultural and multi-ethnic communities in Southeast Florida.

After the successful implementation of the Baccalaureate and Master degree programs in all the engineering disciplines, the College of Engineering and Design felt the importance of the Engineering Management program based on the following reasons:

- ◇ The Engineering Management program articulates well with and is well supported by staff and facilities of the existing engineering programs.
- ◇ The Engineering Management program is much in demand by the professional/technical community of the FIU service area.
- ◇ The Engineering Management program serves well the career aspirations of FIU's place-bound students, including the racial and ethnic minority populations.

It is also important to note that the area industries have expressed strong interest in and support for the development of an Engineering Management program. This support derives from the recognition that there is a real need to improve productivity and quality in manufacturing enterprises. A graduate degree program in the State University System that focuses on productivity and quality improvement from several perspectives is clearly a significant part of the answer to the challenges faced by the industries.

C. Resources to be Dedicated to the Program

The institutional capability of FIU to offer the proposed Engineering Management program is excellent. Since the Engineering Management program is an interdisciplinary degree program, it draws on the strengths of both the College of Engineering and Design and the College of Business Administration. It is anticipated that at least one third of the Engineering Management curriculum will be taken from the College of Business Administration which will provide access to its outstanding expertise and curricula. By utilizing the diverse faculty resources of the University, the program offers the opportunity to study the human, technical, and analytical aspects of management of technical activities in business, industry, or government. A total of 0.65 FTE from the current faculty will be dedicated to the proposed new program². The University has acquired an existing building from Cordis Corp.. The existing building, with

¹ Source: AAES - Engineering Workforce Commission

² Please refer to BOR Table Two in Section IV of this proposal.

a total of 22,000 ft², will provide adequate space to house the proposed program. In summary, the University has sufficient faculty expertise, facilities, and equipment to implement the proposed program.

D. Needed Resources for Implementation

Only two new faculty members will be hired for the proposed program in the first three years of implementation³. The two new faculty will account for 0.40 FTE effort toward the proposed program while participating in the existing programs. No additional space is sought for the proposed program. Partial instructional space will be provided by the Engineering and Computer Science (ECS) building. Additional space will be provided by the acquisition of the Cordis Building. Additional facilities and resources required for the initiation of the proposed program are summarized in the following table.

Table I-D Additional Resources Required and Year to be Added

Needs	Planning Year	Implementation		
		Year 1	Year 2	Year 3
Library Materials ⁽¹⁾	\$20,000	\$10,000	\$5,000	\$3,000
Computer Equipment ⁽²⁾	\$50,000	\$20,000	\$20,000	\$20,000
Computer Software ⁽²⁾	\$30,000	\$10,000	\$10,000	\$10,000
Tuition Waiver	0	\$12,000	\$18,000	\$24,000
Assistantships ⁽³⁾	0	\$40,000	\$60,000	\$80,000
Fellowship and Scholarships ⁽³⁾	0	\$10,000	\$15,000	\$20,000

(1) The library funds will be generated on a formula basis from the State educational funds.

(2) The laboratory equipment, mainly computer equipment, will be allocated from State OCO funds. Also, equipment proposals will be submitted to partially support the equipment request.

(3) Fellowships and scholarships will be sought from governmental and private external funding sources.

II. PLANNING PROCESS

Describe the planning process leading up to submission of this proposal. (Include a chronology of activities, listing of university personnel directly involved and of external individuals who participated in planning.) Provide a summary of the needs assessment, the impact on other institutions, and the impact on programs within the institution as detailed in the feasibility/planning proposal.

A. Chronology of Activities

³ Please refer to BOR Table Three in Section IV of this proposal.

The Board of Regents' consulting report⁴, *Engineering Excellence for the Decade Ahead*, prepared by Dr. Joseph Hogan in 1982, serves to establish the feasibility of the M.S. in Engineering Management at the Florida International University. The Engineering Management program was also included in the University's master plan for 1993~1998. In October 1994, all engineering programs offered by the State University System (SUS) of Florida were reviewed by a team of engineering consultants. In the draft report, Dr. Fletcher pointed out that the initiation of an M.S. program in Engineering Management appears reasonable at this time⁵.

To lay out the plan for the proposed program, the Department of Industrial and Systems Engineering consulted with its Industrial Advisory Board during the meeting in Spring 1995. The Industrial Advisory Board warmly welcomed the idea of establishing the Engineering Management program at FIU. In Spring 1995, the Industrial and Systems Engineering Department also conducted a survey with the junior and senior students in the College of Engineering and Design to determine the desirability of the proposed program among students. The overwhelming results indicated that the Engineering Management program was very desirable. To determine the appropriateness of the Engineering Management program, the initiating department has studied job demand versus the number of students enrolled and graduated at all universities presently offering the proposed program. The result of the surveys and the studies were included in the Feasibility and Planning proposal. A summary of the survey is presented in Section II.C of this proposal.

Because of the interdisciplinary nature of the Engineering Management program, the curriculum was developed jointly by the College of Business Administration and College of Engineering and Design. A draft curriculum was first proposed by the initiating department in Spring 1995. With the approval from the Dean of Engineering and Design, the curriculum was presented to the MBA Policy Board for its review and approval. The MBA Policy Board reviewed the proposal and recommended several changes. The curriculum was finalized in Fall 1995.

The Engineering Management program has received strong support from the four existing engineering departments. A planning committee for the proposed program was formed in Fall 1995 by representatives from all engineering disciplines. The committee reviewed and approved the Feasibility and Planning proposal. The proposal was then submitted to the College Curriculum Committee, University Graduate Council, and Faculty Senate for their review and approval. The Feasibility and Planning proposal was then submitted to Board of Regents in October 1995, and was approved by BOR in its January 1996 meeting.

B. University Personnel and External Individuals Who Participated in Planning

⁴ *Engineering Excellence for the Decade Ahead*, an Engineering report by Joseph Hogan, May 1982.

⁵ *Engineering Program Review: State University System of Florida*, draft report by Leroy S. Fletcher, June 1995. pp. 126-148.

Because of the interdisciplinary nature of the Engineering Management program, the planning efforts were carried out by both College of Engineering and Design and College of Business Administration. In addition to the entire faculty of the initiating department, a planning committee was formed to specify the curriculum and requirements of the proposed program. Headed by Dr. G. Hopkins, Dean of the College of Engineering and Design, the planning committee consisted of the following members:

- Centeno, Martha A., Assistant Professor, Department of Industrial and Systems Engineering
- Chen, F. Frank, Associate Professor, Department of Industrial and Systems Engineering
- Ebadian, M. A., Professor, Department of Mechanical Engineering
- Farrow, Dana L., Professor/Associate Dean, College of Business Administration
- Larkins, Grover, Associate Professor, Department of Electrical and Computer Engineering
- Lee, Shih-Ming, Associate Professor/Chairperson, Department of Industrial and Systems Engineering
- Mitrani, Jose, Associate Professor/Chairperson, Department of Construction Management
- Parhizgari, Ali, Professor, Department of Finance
- Tsihrantzis, Vassilios, Assistant Professor, Department of Civil and Environmental Engineering

The curriculum of the proposed program was also reviewed and approved by the MBA Policy Board comprising the following faculty members:

- ◆ Parhizgari, Ali M., Chair, Professor/MBA Director, Department of Finance
- ◆ Farrow, Dana L., Professor/Associate Dean, College of Business Administration
- ◆ Magnusen, Karl O., Associate Professor, Department of Management and International Business
- ◆ Ortiz, Marta, Associate Professor, Department of Marketing and Business Environment
- ◆ Sevald, Lee P., Instructor, Department of Finance
- ◆ Wrieden, John A., Instructor, Department of Accounting

In addition, the Office of the Dean, College of Engineering and Design, provided statistics of the number of students in each of its departments by race, gender, major, and level of studies. The Office of Budget Planning helped in the compilation of BOR Tables. The Equal Employment Office (EEO) provided detailed on matters related to the EEO Impact Study.

The Industrial Advisory Board was consulted on the planning and feasibility study of the proposed program. The Advisory Board consists of leaders from local industries who are:

- * Sapan, Christine, Chair, Director of Scientific Affairs, North American Biologicals, Inc.
- * Gregorio, Jose, Director of Industrial Engineering, Burger King Corp.
- * Kaufman, Leonard, Director of Industrial Engineering, Foot-Tech Industries
- * Palmer, Dan, Director, AD-TECH Communications
- * Saco, Roberto M., Director, American Express TRS Co.
- * Suarez, Fred J., Manager of Manufacturing, Coulter Electronics, Inc.
- * Vainstein, Israel, Manager of Cost Accounting, Security Plastics, Inc.

C. Summary of Needs Assessment

1. National statistics

- (a) "Engineering, science, and data processing managers held about 337,000 jobs in 1992. Although these managers are found in almost all industries, nearly two-fifths are employed in manufacturing, especially in the industrial machinery and equipment, electrical and electronic equipment, transportation equipment, instruments, and chemical industries. Engineering managers start as engineers. A bachelor's degree in engineering from an accredited engineering program is acceptable for beginning engineering jobs, but many engineers increase their chances for promotion to manager by obtaining a master's degree in engineering or business administration. A degree in business administration or engineering management is especially useful for becoming a general manager. Employment of engineering and science managers is expected to increase faster than the average for all occupations through the year 2005."⁶
- (b) "Executive, administrative, and managerial jobs increased by 2.4 million, and accounted for 12 percent of total employment growth from 1983 to 1993. One-half of the growth was in services industry. Despite wide publicity about the loss of managerial jobs due to business downsizing and restructuring, employment of managerial workers grew faster than total employment in all divisions, except retail trade and mining, both of which experienced a decline in managerial employment. The number of managers increased in manufacturing despite a decline in total manufacturing employment. In general, median earnings of nearly all managerial occupations were in the top quartile."⁷
- (c) The total employment for the executive, administrative, and managerial jobs was estimated at 12,066,000 in 1992. The projected employment by year 2005 under a moderate scenarios for economic growth is 15,195,000, a 26% increase.⁸
- (d) "The most significant changes in survey results from 1983 to 1991 occurred in skill improvement training. This type of training increased in all demographic groups except workers aged 16-19. Skill improvement training relates closely to educational attainment. Persons with college degrees obtained a disproportionately high share of skill improvement training, accounting for 37% of the training but only 25% of employment."

"Skill improvement training was most common among professional specialty occupations; 67% of employees in these occupations obtained such training. Workers in this group, such

⁶Source: *Occupational Outlook Handbook*, 1994-95 Edition, U.S. Department of Labor, Bureau of Labor Statistics, Bulletin 2450, May 1994, pp. 34-36.

⁷Source: "The nature of occupational employment growth: 1983-93", *Monthly Labor Review*, Department of Labor, June 1995, pp. 45-54.

⁸Source: "Occupational employment: wide variations in growth", *Monthly Labor Review*, Department of Labor, November 1993, pp. 58-86.

as physicians, engineers, and other technical specialists, must update their skills and knowledge or face obsolescence.”

“With 5.6 million people who took skill improvement training, college programs that lasted 4 years or longer were the most significant source of training taken in schools. Those reporting this type of training accounted for about 5% of all workers, 12% of workers who took training, and 47% of all who reported the school source. The proportion of workers who trained in college programs was higher than average in professional specialty occupations; executive, administrative, and managerial occupations; and technician and related support occupations.”⁹

- (e) “After getting a job, the need for training doesn't stop. The training people receive after becoming employed prepares them for advancement and career changes. Almost 47 million people--41% of the total employed--took some form of skill improvement training in 1991. Over half were in three occupational groups: executive, administrative, and managerial; professional specialty; or administrative support. Most of the skill improvement training taken was occupationally specific, that is, it related directly to the person's job. The next most frequently mentioned category was computer-related, followed by managerial and supervisory.”¹⁰
- (f) “Workers in executive, administrative, and managerial occupations establish policies, make plans, determine staffing requirements, and direct the activities of business, government agencies, and other organizations. Growth due to the increasing number and complexity of business operations will be offset somewhat by corporate restructuring and downsizing of management, resulting in average growth for executive, administrative, and managerial occupations. Due to growth in the number of people seeking these positions and the increasingly technical skills required, job-seekers with previous experience, specialized training, or graduate study have an advantage in competition for jobs. Familiarity with computers will continue to be helpful as more managers rely on computerized information systems to help direct their organizations.”¹¹
- (g) “Technicians and related support occupations and executive, administrative, and managerial occupations--two other groups having higher than average earnings and education attainment--also are expected to experience above average growth.”¹²
- (h) “Engineering management is a rapidly growing new discipline. The number of educational institutions offering engineering management programs has increased from 84 to 121 since

⁹Source: How Workers Get Their Training: A 1991 Update, U.S. Department of Labor, Bureau of Labor Statistics, Bulletin 2407, August 1992, pp. 29-51.

¹⁰Source: “*Job Training: Who Needs It and Where They Get It*”, Occupational Outlook Quarterly, U.S. Department of Labor, Bureau of Labor Statistics, Fall 1993, p. 19-31.

¹¹Source: “*The 1992-2005 Job Outlook in Brief*”, Occupational Outlook Quarterly, U.S. Department of Labor, Bureau of Labor Statistics, Spring 1994, pp. 2-45.

¹²Source: “*The American Work Force: 1992-2005*”, Occupational Outlook Quarterly, U.S. Department of Labor, Bureau of Labor Statistics, Fall 1993, p. 6-39.

1984. It is a 44% growth in six years. The number of graduates from these programs is also growing very rapidly. The estimated cumulative size of engineering management program alumni was about 15,000 in 1984. That figure has nearly doubled in six year.”¹³

- (I) “The educational component of technology management is continuing with its strong growth. The growth is taking place primarily at the graduate level. There is no indication that the growth is approaching the saturation point. On the contrary, as the field continues to expand in both the United States and the non-US universities, Engineering Management and Technology Management is establishing itself with higher degrees of visibility and recognition throughout the world.”¹⁴
- (j) “The engineering management designation is much more common for master's awards; EMC counted 1,046 of those degrees in 1991, as well as 276 M.S. awards in manufacturing engineering and 1,416 awards in other industrial engineering specialties.”¹⁵
- (k) “Civil and environmental graduate enrollment, as well as that for industrial, management, and manufacturing engineering, grew at a faster rate than overall graduate enrollment, thus increasing their share of the students.”¹⁶
- (l) “At the master's level, the number of graduates grew to 31,104, up 9.0% from the 1992 level of 28,540. Increases were seen in all disciplines, with civil and environment engineering increasing 18.9%; industrial, management and manufacturing engineering increasing 15.0%; mechanical and aerospace engineering increasing 9.7%; the residual group of "other" engineering specialties increasing 9.2%; chemical and petroleum engineering increasing 6.2%; and electrical and computer engineering increasing 3.9%.”¹⁷

2. Florida statewide statistics

- (a) According to the *1994 Florida Statistical Abstract*, the manufacturing labor force in Dade County is 80,926, in Broward County 40,615, and in Palm Beach County 30,524¹⁸. Using educational attainment data from the same source, 18.77% of professional/technical employees in Dade County, 18.78% in Broward County, and 22.13% in Palm Beach County

¹³Source: “*Research and Educational Characteristics of the Engineering Management Discipline*,” Editorial Paper, *IEEE Transactions on Engineering Management*, Vol. 37, No. 3., August 1994, pp. 172-176.

¹⁴Source: “*Technology Management: Educational Trends*,” by Kocaoglu, D.F., *IEEE Transactions on Engineering Management*, Vol. 41, No. 4., November 1994, pp. 347-349.

¹⁵Source: “*Engineering Degree Trends, 1991*,” *Engineering Workforce Bulletin*, No. 115, December 1991.

¹⁶Source: “*Engineering Enrollment Highlights, Fall 1992*,” *Engineering Workforce Bulletin*, No. 124, April 1993.

¹⁷Source: “*Engineering Degree Trends, 1993*,” *Engineering Workforce Bulletin*, No. 128, November 1993.

¹⁸Source: Table 6.21 “Employment: Average Monthly Employment Covered by Unemployment Compensation Law by Industry in Florida,” *1994 Florida Statistical Abstract*, Bureau of Economic and Business Research, College of Business Administration, University of Florida, 1994.

are college educated¹⁹. The total of college educated, professional/technical employees in manufacturing in the FIU service area is projected to be over 29,000. These potential engineers and managers can certainly benefit by earning an advanced degree in the very subject of improving industrial productivity.

- (b) According to the Florida Department of Labor and Employment Security, employment in executive, administrative, and managerial occupations is projected to increase 28.66% from 1992 to 2005 with an average annual growth of 9,112 new openings.²⁰

3. Local industrial survey

A survey of local industries was conducted to measure the demand of the proposed Engineering Management program. A total of 220 survey forms were mailed out to local companies and government agencies in August 1995; 26 survey forms have been returned to the initiating department. Their complete analysis was presented in the Feasibility and Planning proposal. Some interesting findings are highlighted here.

- Out of 26 companies and government agencies who responded, 17 of them (65.4%) already have continuing education programs for their employees.
- 19 companies (73.1%) expressed the need for the proposed Engineering Management program.
- A total of 93 students could participate in the proposed program with their employers' support.
- A split result was found in the preferred way of delivering the proposed program. While 47.4% of the potential students would like to receive their education on campus, the other 52.6% prefer distance learning, or FEEDS.

4. Student survey

A student survey was conducted among the senior and junior classes in the College of Engineering and Design in Spring 1994. A total of 117 students responded to the survey. The complete analysis was presented in the Feasibility and Planning proposal. Some interesting findings are highlighted here.

- Of 117 students surveyed, 97 (82.9%) expressed interests in pursuing an advanced degree.
- Of the 97 students interested in pursuing advanced degrees, 54 (55.7%) would consider the Engineering Management program for their graduate studies; 27 (27.8%) indicated that they would select the Engineering Management program as their sole choice. These

¹⁹Source: Table 4.01 "Educational Attainment: Persons Aged 25 and Over by Year of School Completed, April 1, 1990, in the State of Florida," 1994 Florida Statistical Abstract, 28th Edition, Bureau of Economic and Business Research, College of Business Administration, University of Florida, 1994.

²⁰Source: Florida Industry and Occupational Employment Projections: 1992 - 2005, Florida Department of Labor and Employment Security, Division of Labor, Employment and Training, Bureau of Labor Market Information, December 1994.

numbers compared to 31 students (32.0%) who would consider an MBA program, while 13 (13.4%) would select MBA program as their sole choice.

- Of the 97 students interested in pursuing advanced degrees, 35 (36.1%) would consider continuing their original majors for their graduate studies; 19 (19.6%) would not consider switching to any other programs.
- Only 9 students (9.27%) would consider switching to engineering disciplines other than their original majors.
- Thirteen students (13.4%) were undecided between MBA and Engineering Management programs.
- Of the 97 students interested in pursuing advanced degrees, 78 (80.4%) would consider FIU for their graduate studies; 62 (63.9%) would not consider any other universities.
- Of the 97 students interested in pursuing advanced degrees, 19 (19.6%) would consider another state university for their graduate studies.
- Of the 97 students interested in pursuing advanced degrees, 22 (22.7%) would consider universities outside the state for their graduate studies.

D. Impact on Other Institutions

The only other program of this nature in the state is at the University of South Florida in Tampa. That program serves the career and educational aspirations of the Tampa area's industrial managers. Students in a program of this nature are usually place-bound by family and career, and earn their degrees on a part-time basis over several years. Due to the distance between the two universities, minimal impacts are expected from the proposed program.

The proposed Engineering Management program is intended for students who already graduated with a bachelor engineering degree. Therefore, there is no direct link between the proposed program and the area community colleges. However, articulation agreements exist between the area community colleges and the College of Engineering and Design. The agreements are currently being reviewed to better prepare students entering engineering studies at the undergraduate level.

Serving as the distance learning remote sites, the community college educational resources will play an important role in the proposed program. The faculty members in community colleges could directly benefit from it by attending the proposed program.

E. Impact on Programs Within the Institution

The proposed program will enhance collaboration between the College of Engineering and Design and the College of Business Administration, and among the departments within the College of Engineering and Design. This collaboration will consist of joint research projects, and shared courses, faculty expertise, library and laboratory resources.

III. DATA AND FEATURES IN CONTRAST TO THE FEASIBILITY/PLANNING AUTHORIZATION

Describe what data or features (if any) should be noted in contrast to the feasibility / planning authorization request submitted earlier. (This may relate to institutional mission, characteristics of the program, anticipated enrollment, needs, resources, etc.)

The College of Engineering and Design was planning for the Engineering Building II with the requisite space to house the proposed program. However, in late 1995, the University had an opportunity to purchase an existing building in the proximity of the main campus. The existing building, with total space of more than 22,000 ft², was an ideal solution to the urgent need for space. With the approval from the Board of Regents, the University acquired the Cordis building in April 1996. The College of Engineering is planning on relocating all the graduate programs, including the proposed program, to the newly acquired building in summer 1996. The new facility will provide adequate space to support the research and teaching needs of the proposed program.

IV. UPDATE OF RESOURCES

Describe and update all resources stipulated in Part Two, Section III and IV of the feasibility/planning proposal which are now available for initiating the new program. What additional resources are needed before the program can be implemented? How do you propose to acquire these resources? (Note: All faculty listings and BOR Tables One through Eight in the feasibility/planning proposal need to be included and, if necessary, updated in the implementation proposal.)

The M.S. in Engineering Management program will build on and complement existing disciplinary programs. More generally, it will improve the quality of FIU graduate programs by incorporating a substantial portion of faculty and students from participating departments into a multi-disciplinary curriculum of exceptional breadth and depth. The proposed program will center on an impressive foundation of FIU faculty expertise, which encompasses both College of Engineering and Design and College of Business Administration.

All the resources stipulated in Part Two, Section III and IV of the Feasibility/Planning proposal are now available for initiating the new program. No additional resources are needed before the program can be implemented.

A. Anticipated Students

BOR Table One
Number of Anticipated Majors from Potential Sources

Engineering Management Graduate Program:	1997/98		1998/99		1999/2000	
	HC	FTE ⁽⁴⁾	HC	FTE	HC	FTE
Graduates of FIU ⁽¹⁾	9	5.4	13	7.8	19	11.4
Graduates of other SUS universities ⁽²⁾	1	.6	2	1.2	3	1.8
Graduates of other Florida non SUS universities	1	.6	2	1.2	3	1.8
Transfers from other Florida universities	--	--	--	--	--	--
Transfers from other majors within FIU	--	--	--	--	--	--
Agencies or industries in service area ⁽³⁾	3	1.8	8	4.8	14	8.4
Other (out of state, foreign, etc.)	2	1.2	4	2.4	6	3.6
Total -- Graduate Level	16	9.6	29	17.4	45	27.0

Notes:

- (1) Graduates of FIU Of the students surveyed, 82.9% of them expressed interest in pursuing an advanced degree. Of the students interested in pursuing advanced degrees, 55.7% of them would consider the Engineering Management program for their graduate studies; and 27.8% selected the Engineering Management program as their sole choice. Furthermore, of the students interested in pursuing advanced degrees, 80.4% would consider FIU for their graduate studies; and 63.9% would not consider any other universities. In 1993/94, FIU awarded 219 B.S. degrees in Engineering. Projecting from survey results, 39 of these students would definitely pursue the M.S. degree in Engineering Management at FIU. This estimate could go as high as 98 students participating. This study took 19 (about 50% of the conservative estimate) as the target for the third year of implementation. Actually, several students are currently waiting for the implementation of the proposed program.
- (2) Graduates of other SUS universities and non-SUS universities Because the proposed program is intended mainly for the FIU service area, it is anticipated that a limited number of students will be attracted into the program. However, as the proposed program is accredited and becomes more recognized, the number of students will increase gradually.
- (3) Agencies or industries in service area According to the industrial survey, a total of 87 students are ready to participate in the proposed program with support from their companies. This study takes 14, about one sixth of the potential student number from industry, as the target for the third year of implementation.
- (4) FTE/HC ratio It is anticipated that most of the students pursuing the M.S. Engineering Management degree are already working. Therefore, the FTE/HC ratio is estimated at 0.6.

B. Anticipated Delivery System

The proposed program will be delivered in both traditional and nontraditional manners. All the courses will be offered at University Park campus. Through distance learning facilities at FIU, some courses will be broadcast live to the North Miami campus and Broward Extension Center. Consistent with other graduate engineering programs in the SUS, courses will also be videotaped for delivery through FEEDS.

C. Current and Anticipated Faculty for Proposed Program

Table IV-C.1 Current Faculty Members Who Will Participate in Engineering Management Program

Name/ Current Rank/ Status	Degree, Year/ University/ Major	Subject of Dissertation	Academic Discipline/ Present Specialty	No. Ph.D. Committees/ No. Master's Thesis Directed/ No. Ph.D. Disser. Directed	Publication
Centeno, Martha A. Assistant Professor Tenure Earning	Ph.D., 1990 Texas A&M Univ. Industrial Eng.	"Design of an Integrated Simulation Modeling Environment using a Relational Framework"	Simulation, Expert Systems, Operations Research.	4 Masters	7 Conferences
Chen, F. Frank Associate Professor Tenure Earning	Ph.D., 1988 Univ. of Missouri-Columbia Industrial Eng.	"An Integrated Production Planning System for FMS"	Manuf. Systems Design, Engineering Management, Applied Operations Research.	1 Ph.D./ 16 Masters	22 Journals 21 Conferences 5 Reports
Ebadian, M. A. Professor Tenured	Ph.D., 1981 Louisiana State Univ. Mechanical Eng.	"Convective Heat Transfer for Steady Laminar Flow between Two Confocal Elliptic Pipes with Longitudinal Uniform Wall Temperature Gradient and Uniform Heat Generation"	Fluid Thermal Science, Heat Transfer, Energy Systems, Nuclear Waste Management	6 Ph.D.	74 Journals 94 Conferences 36 Reports 5 Manuals
Farrow, Dana L. Professor Tenured	Ph.D., 1975 Univ. of Rochester Organizational and Ind. Psyc.	"A Path-Analytic Approach to the Study of Contingent Leader Behavior"	Applied Psychology, Total Quality Management		1 Book 13 Journals 27 Conferences
Hopkins, Gordon R. Professor Tenured	Ph.D., 1969 Univ. of Alabama Eng. Mechanics	"The Stability of Fluid Conveying Tubes"	Energy Systems, Biomedical/Bioengineering, Management Systems.	8 Ph.D.	6 Conferences
Larkins, Grover Associate Professor Tenured	Ph.D., 1986 Case Western Reserve Univ. Electrical Eng.	"Langmuir-Blodgett Films as Active Layers in Integrated Field-Effect Devices"	Applied Superconductivity, Langmuir Blodgett Films, Electronic Properties of Surfaces.		17 Journals 12 Conferences
Lee, Shih-Ming Associate Professor Tenured	Ph.D., 1986 Iowa State Univ. Industrial Eng.	"Economic Analysis in the Context of Incomplete Knowledge"	Total Quality Mgmt, Computer Integrated Manuf., Engineering Economy.	2 Masters	7 Journals 15 Conferences 6 Reports
Mitrani, Jose Associate Professor Tenured	M.E., 1976 Univ. of Florida Civil Eng./Constr. Mgmt.		Structural Eng./Design, Construction Management.		16 Journals 1 Book 9 Conferences
Parhizgari, Ali Professor Tenured	Ph.D., 1976 Univ. of Maryland Economics	"Mathematical and Econometric Models of Development Planning"	Finance, Mathematical Economics, Systems Analysis and Planning		16 Journals 8 Book Chaps.
Tsihrintzis, Vassilios Assistant Professor Tenure Earning	Ph.D., 1988 Univ. of Illinois, Urbana Engineering	"Theoretical and Experimental Investigation of 3-Dimensional Boundary-Attached Density Currents"	Hydrodynamic Modeling, Urban Stormwater Quality and Quality Management.		24 Journals 44 Conferences 87 reports

BOR Table Two
Current And Anticipated Distribution Of Current Faculty Effort

Faculty Member	Participation in Existing Programs	Participation in Proposed Program	Participation in Existing Program, Given Proposed Program	Participation in Existing and Proposed Programs
Centeno, Martha A.	0.75	0.10	0.65	0.75
Chen, F. Frank	0.75	0.10	0.65	0.75
Ebadian, M. A.	1.00	0.03	0.97	1.00
Farrow, Dana L.	1.00	0.03	0.97	1.00
Hopkins, Gordon R.	1.00	0.05	0.95	1.00
Larkins, Grover	0.75	0.03	0.72	0.75
Lee, Shih-Ming	1.00	0.05	0.95	1.00
Mitrani, Jose	1.00	0.03	0.97	1.00
Parhizgari, Ali	0.75	0.10	0.65	0.75
Tsibrintzis, Vassilios	0.75	0.03	0.72	0.75
CBA	0.75	0.10	0.65	0.75
TOTAL	9.50	0.65	8.85	9.50

Note: 1.0 FTE is equal to twelve months of full-time employment.

The shift of instructional effort to the proposed program will be minimal since many existing courses from the College of Business Administration and College of Engineering and Design are also suitable for the Engineering Management program. Current faculty participation in the proposed program will be compensated for by adding new faculty.

BOR Table Three
Additional Faculty Required

Discipline Subspecialty	Rank	Participation in Proposed Program	Participation in Existing Program Given Proposed Program	Participation in Existing and Proposed Programs	Year to be added
Engineering Management	Associate/Assistant	0.20	0.55	0.75	1997/98
Engineering Management	Associate/Assistant	0.20	0.55	0.75	1998/99
TOTAL		0.40	1.10	1.50	

It is a strongly held belief in the originating department that undergraduate and graduate teaching, as well as research, are part of an integrated educational and research system. Therefore, it is the expectation that all faculty will participate in all levels and phases of the

proposed programs. In this light, the growth positions in the Industrial/Manufacturing Engineering graduate program will also serve to develop the M.S. in Engineering Management. Given these considerations, the FTE assignment to the proposed program is presented in Table IV-C.2.

**Table IV-C.2
Faculty FTE's Devoted Exclusively to the Proposed Program**

	Year 1	Year 2	Year 3
Faculty FTE from Existing Faculty	0.65	0.65	0.65
Faculty FTE from Requested Faculty	0.20	0.40	0.40
TOTAL	0.85	1.05	1.05

D. Enrollment Generated Resources

BOR Table Four shows the resources generated based on projected FTE enrollments. The detailed projection of FTE enrollments is listed in BOR Table One.

**BOR Table Four
Florida International University
1995/96 New Academic Program Cost**

Name of Program: Engineering Management
Program Level: Master's
CIP Identification: 143001

	<u>First Year Implement</u>	<u>Second Year Implement</u>	<u>Third Year Implement</u>
Cumulative Headcount	16	29	45
Cumulative FTE's	9.6	17.4	27.0
Instructional Faculty	0.59	1.07	1.66
Research/Public Service	0.20	0.36	0.56
Academic Advising	0.02	0.04	0.06
Academic Administration	0.09	0.16	0.25
Total Faculty	0.90	1.63	2.53
Support Positions	0.32	0.58	0.90
Total Faculty Rate	\$52,889	\$95,788	\$148,677
Total Support Rate	\$7,012	\$12,710	\$19,722
I & R Funding			
Salaries & Benefits	\$75,034	\$135,909	\$210,943
OPS	\$0	\$0	\$0
Expense/EDP	\$4,077	\$7,384	\$11,461
OCO	\$2,725	\$2,210	\$2,725
Total I&R	<u>\$81,836</u>	<u>\$145,503</u>	<u>\$225,129</u>
ADSS	\$11,580	\$20,974	\$32,554
Library Staffing	\$4,082	\$7,398	\$11,480
Student Activity	\$4,616	\$8,366	\$12,982
TOTAL FUNDS	<u><u>\$102,114</u></u>	<u><u>\$182,241</u></u>	<u><u>\$282,145</u></u>

E. Current and Anticipated Facilities and Resources

1. Library volumes and serials

A computer search of FIU library holdings on sub-disciplines within the Engineering Management areas indicates total volumes to support the program at 7,769. Cumulative expenditure on these holdings is estimated at least \$350,000. Just in the past year alone, approximately \$60,000 was spent on new books, and \$118,000 on expanding periodicals pertaining to the proposed program. A breakdown of the FIU library holdings for the books and journals under various subjects to support the proposed program is summarized below,

Table IV-E.1
FIU Library Holdings for Engineering Management Program

Subject	Book Volume	No. of Journals
Management Science	60	56
Accounting	1,817	41
Business	4,049	479
Production Planning and Management	584	18
Operations Research	308	6
Optimization	8	-
Decision Making	940	25
Knowledge Base	3	4
Total	7,769	647

Table IV-E.2
Major Journals for Engineering Management

Business Week	Journal of Systems Management
California Management Review	Machine Design
Computers and Industrial Engineering	Management Review
Creative Computing	Management Science
Defense Management Journal	Manufacturing Engineering
Engineer	MIS Quarterly
Engineering Economist	Operations Research
Fortune	Production and Operations Management
Harvard Business Review	Production Engineering
IEEE Spectrum	Project Management Journal
IEEE Transactions on Eng. Management	R & D Management
IIE Transactions	Research Management
Industrial Engineering	Research Policy
Industrial Management	STI Review
Industrial Management Review	SCS Simulation
Industry Week	Sloan Management Review
International Journal of Technology Mgmt.	Technology Review
Journal of Eng. and Technology Mgmt.	Economist
Journal of Management in Engineering	Wall Street Journal
Journal of Robotic Systems	

2. Instructional space

The instructional space currently available for the College of Engineering and Design is summarized as follows, (University Park Campus Only)

90 classrooms available	56,320 sq. ft.
College of Engineering and Design research lab space	24,098 sq. ft.
College of Engineering and Design teaching lab space.....	30,717 sq. ft.

The Engineering and Computer Science (ECS) building provides a total of 64,318 net sq. ft. of instructional space, including laboratories and offices. All engineering programs share the following facilities:

Classrooms.....	6,800 sq. ft.
Audio-Visual facilities.....	1,400 sq. ft.
Supporting Services	2,175 sq. ft.

3. Equipment

Strengthening the laboratory facilities is always among the top priorities within the College of Engineering and Design. The College obtains its research and teaching equipment by state funding, research grants, and industrial donations. From records, the College has spent the following amounts in expanding the lab facilities:

<u>From all engineering labs:</u>	
Cumulative.....	\$9,400,989
Recent (1994-95)	\$2,267,083
<u>From Engineering Computer Labs:</u>	
Cumulative.....	\$262,000
Recent (1994-95)	\$90,000

In addition, the resources and spaces from University Academic Computer Services is available to the proposed program as it is to the rest of the University community.

4. Fellowship, scholarships, and graduate assistantships

<u>College of Engineering and Design</u>	
Graduate Assistantship.....	\$732,061
Graduate Scholarships	\$38,028
Graduate Tuition Waivers	
Matriculation (In-State)	\$106,236
Out-of-State.....	\$183,289

F. Needed Space Facilities

BOR Table Five
Additional Facilities Needed and Year To Be Added
(in sq. ft.)

	Year 1	Year 2	Year 3
Teaching Labs per State Formula			
Research Labs per State Formula			
Other Space Needed (Office)			
Total Space Needed Each Year			
	Total Space Required 0		

The request of funding for additional instruction and research space is, for the time being, resolved, since the Cordis building has been acquired in 1996. This new facility, together with space available in existing facilities, is planned to accommodate program growth.

G. Budget

BOR Table Six

State University System
New Program Funding
Instruction and Research

Identification of Current Base Positions and Funds to Support the New Program
Florida International University

Name of Program: Engineering Management
Program Level: Master's
CIP Identification: 143001
Date Submitted: October 5, 1995

	Planning Year			First Year Implementation			Second Year Implementation			Third Year Implementation		
	(e)	(f)	(g)	(e)	(f)	(g)	(e)	(f)	(g)	(e)	(f)	(g)
	Current Base Resources	To Be Used To Support New Program	Remaining Resources	Current Base Resources	To Be Used To Support New Program	Remaining Resources	Current Base Resources	To Be Used To Support New Program	Remaining Resources	Current Base Resources	To Be Used To Support New Program	Remaining Resources
CIP(s) Associated with (e) Current Base Resources:												
Positions (in FTE):												
Faculty	9.50	0.20	9.30	9.50	0.65	8.85	9.50	0.65	8.85	9.50	0.65	8.85
A & P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
USPS	2.00	0.20	1.80	2.00	0.50	1.50	2.00	0.50	1.50	2.00	0.50	1.50
Total	11.50	0.40	11.10	11.50	1.15	10.35	11.50	1.15	10.35	11.50	1.15	10.35
Salary Rate:												
Faculty	\$841,277	\$17,711	\$823,566	\$841,277	\$57,561	\$783,716	\$841,277	\$57,561	\$783,716	\$841,277	\$57,561	\$783,716
A & P	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
USPS	\$36,500	\$3,650	\$32,850	\$36,500	\$12,000	\$24,500	\$36,500	\$12,000	\$24,500	\$36,500	\$12,000	\$24,500
Total	\$877,777	\$21,361	\$856,416	\$877,777	\$69,561	\$808,216	\$877,777	\$69,561	\$808,216	\$877,777	\$69,561	\$808,216
Salaries & Benefits	\$1,088,350	\$26,684	\$1,061,666	\$1,088,350	\$86,256	\$1,002,094	\$1,088,350	\$86,256	\$1,002,094	\$1,088,350	\$86,256	\$1,002,094
Other Personnel Services	\$69,738	\$0	\$69,738	\$69,738	\$0	\$69,738	\$69,738	\$0	\$69,738	\$69,738	\$0	\$69,738
Expenses	\$35,007	\$0	\$35,007	\$35,007	\$0	\$35,007	\$35,007	\$0	\$35,007	\$35,007	\$0	\$35,007
Operating Capital Outlay	\$8,035	\$0	\$8,035	\$8,035	\$0	\$8,035	\$8,035	\$0	\$8,035	\$8,035	\$0	\$8,035
Electronic Data Processing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Library Resources	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Special Categories	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$1,201,130	\$26,684	\$1,174,446	\$1,201,130	\$86,256	\$1,114,874	\$1,201,130	\$86,256	\$1,114,874	\$1,201,130	\$86,256	\$1,114,874

BOR Table Seven

State University System
New Program Funding
Instruction and Research
Current and New Resources (Cumulative)
Florida International University

Name of Program: Engineering Management
Program Level: Master's
CIP Identification: 143001
Date Submitted: October 5, 1995

	Planning Year				First Year Implementation			
	General Revenue		Contracts &	(h)	General Revenue		Contracts &	(h)
	(f) Current*	New	Grants	Summary	(f) Current*	New	Grants	Summary
Positions (in FTE):								
Faculty	0.20	0.00	0.00	0.20	0.65	0.20	0.00	0.85
A & P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
USPS	0.20	0.00	0.00	0.20	0.50	0.50	0.00	1.00
Total	0.40	0.00	0.00	0.40	1.15	0.70	0.00	1.85
Salary Rate:								
Faculty	\$17,711	\$0	\$0	\$17,711	\$57,561	\$12,800	\$0	\$70,361
A & P	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
USPS	\$3,650	\$0	\$0	\$3,650	\$12,000	\$12,000	\$0	\$24,000
Total	\$21,361	\$0	\$0	\$21,361	\$69,561	\$24,800	\$0	\$94,361
Salaries & Benefits	\$26,684	\$0	\$0	\$26,684	\$86,256	\$31,539	\$0	\$117,795
Other Personnel Services	\$0	\$10,000	\$0	\$10,000	\$0	\$40,000	\$10,000	\$50,000
Expenses	\$0	\$30,000	\$0	\$30,000	\$0	\$10,000	\$10,000	\$20,000
Operating Capital Outlay	\$0	\$50,000	\$0	\$50,000	\$0	\$20,000	\$10,000	\$30,000
Electronic Data Processing	\$0	\$500	\$0	\$500	\$0	\$1,000	\$0	\$1,000
Library Resources	\$0	\$20,000	\$0	\$20,000	\$0	\$10,000	\$0	\$10,000
Special Categories	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$26,684	\$110,500	\$0	\$137,184	\$86,256	\$112,539	\$30,000	\$228,795

* Must tie to the appropriate column (f) on previous sheet labeled "Current Resources"

Source of New Funding: General Revenue = CUP, enrollment

BOR Table Seven (Continued)

State University System
 New Program Funding
 Instruction and Research
 Current and New Resources (Cumulative)
 Florida International University

Name of Program: Engineering Management
 Program Level: Master's
 CIP Identification: 143001
 Date Submitted: October 5, 1995

	Second Year Implementation				Third Year Implementation			
	General Revenue		Contracts & Grants	(h) Summary	General Revenue		Contracts & Grants	(h) Summary
	(f) Current*	New			(f) Current*	New		
Positions (in FTE):								
Faculty	0.65	0.40	0.00	1.05	0.65	0.40	0.00	1.05
A & P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
USPS	0.50	1.00	0.00	1.50	0.50	1.00	0.00	1.50
Total	1.15	1.40	0.00	2.55	1.15	1.40	0.00	2.55
Salary Rate:								
Faculty	\$57,561	\$25,600	\$0	\$83,161	\$57,561	\$25,600	\$0	\$83,161
A & P	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
USPS	\$12,000	\$18,000	\$0	\$30,000	\$12,000	\$18,000	\$0	\$30,000
Total	\$69,561	\$43,600	\$0	\$113,161	\$69,561	\$43,600	\$0	\$113,161
Salaries & Benefits	\$86,256	\$55,225	\$0	\$141,481	\$86,256	\$55,225	\$0	\$141,481
Other Personnel Services	\$0	\$60,000	\$20,000	\$80,000	\$0	\$80,000	\$30,000	\$110,000
Expenses	\$0	\$10,000	\$15,000	\$25,000	\$0	\$10,000	\$15,000	\$25,000
Operating Capital Outlay	\$0	\$20,000	\$20,000	\$40,000	\$0	\$20,000	\$20,000	\$40,000
Electronic Data Processing	\$0	\$1,000	\$0	\$1,000	\$0	\$0	\$0	\$0
Library Resources	\$0	\$5,000	\$0	\$5,000	\$0	\$3,000	\$0	\$3,000
Special Categories	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$86,256	\$151,225	\$55,000	\$292,481	\$86,256	\$168,225	\$65,000	\$319,481

* Must tie to the appropriate column (f) on previous sheet labeled "Current Resources"

Source of New Funding: General Revenue = CUP, enrollment

BOR Table Eight

State University System
New Program Funding
Summary: All Program Components (Cumulative)
Florida International University

Name of Program: Engineering Management
Program Level: Master's
CIP Identification: 143001
Date Submitted: October 5, 1995

	Planning Year					First Year Implementation				
	I&R*	ADSS**	Student** Activities	Libraries	Summary	I&R*	ADSS**	Student** Activities	Libraries	Summary
Positions (in FTE):										
Faculty	0.20	0.00	0.00	0.00	0.20	0.85	0.00	0.00	0.00	0.85
A & P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
USPS	0.20	0.00	0.00	0.00	0.20	1.00	0.00	0.00	0.00	1.00
Total	0.40	0.00	0.00	0.00	0.40	1.85	0.00	0.00	0.00	1.85
Salary Rate:										
Faculty	\$17,711	\$0	\$0	\$0	\$17,711	\$70,361	\$0	\$0	\$0	\$70,361
A & P	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
USPS	\$3,650	\$0	\$0	\$0	\$3,650	\$24,000	\$0	\$0	\$0	\$24,000
Total	\$21,361	\$0	\$0	\$0	\$21,361	\$94,361	\$0	\$0	\$0	\$94,361
Salaries & Benefits	\$26,684	\$0	\$0	\$0	\$26,684	\$117,795	\$11,580	\$0	\$0	\$129,375
Other Personnel Services	\$10,000	\$0	\$0	\$0	\$10,000	\$50,000	\$0	\$4,616	\$0	\$54,616
Expenses	\$30,000	\$0	\$0	\$0	\$30,000	\$20,000	\$0	\$0	\$0	\$20,000
Operating Capital Outlay	\$50,000	\$0	\$0	\$0	\$50,000	\$30,000	\$0	\$0	\$0	\$30,000
Electronic Data Processing	\$500	\$0	\$0	\$0	\$500	\$1,000	\$0	\$0	\$0	\$1,000
Library Resources	\$20,000	\$0	\$0	\$0	\$20,000	\$10,000	\$0	\$0	\$4,082	\$14,082
Special Categories	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	\$137,184	\$0	\$0	\$0	\$137,184	\$228,795	\$11,580	\$4,616	\$4,082	\$249,073

* Must tie to the appropriate column (h) on previous sheet labeled "Current and New Resources" - Summary Column

** Resources for these program components often are not included in the planning year.

BOR Table Eight (Continued)

State University System
New Program Funding
Summary: All Program Components (Cumulative)
Florida International University

Name of Program: Engineering Management
Program Level: Master's
CIP Identification: 143001
Date Submitted: October 5, 1995

	Second Year Implementation					Third Year Implementation				
	I&R*	ADSS**	Student** Activities	Libraries	Summary	I&R*	ADSS**	Student** Activities	Libraries	Summary
Positions (in FTE):										
Faculty	1.05	0.00	0.00	0.00	1.05	1.05	0.00	0.00	0.00	1.05
A & P	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
USPS	1.50	0.00	0.00	0.00	1.50	1.50	0.00	0.00	0.00	1.50
Total	<u>2.55</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>2.55</u>	<u>2.55</u>	<u>0.00</u>	<u>0.00</u>	<u>0.00</u>	<u>2.55</u>
Salary Rate:										
Faculty	\$83,161	\$0	\$0	\$0	\$83,161	\$83,161	\$0	\$0	\$0	\$83,161
A & P	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
USPS	\$30,000	\$0	\$0	\$0	\$30,000	\$30,000	\$0	\$0	\$0	\$30,000
Total	<u>\$113,161</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$113,161</u>	<u>\$113,161</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$113,161</u>
Salaries & Benefits	\$141,481	\$20,974	\$0	\$0	\$162,455	\$141,481	\$32,554	\$0	\$0	\$174,035
Other Personnel Services	\$80,000	\$0	\$8,366	\$0	\$88,366	\$110,000	\$0	\$12,982	\$0	\$122,982
Expenses	\$25,000	\$0	\$0	\$0	\$25,000	\$25,000	\$0	\$0	\$0	\$25,000
Operating Capital Outlay	\$40,000	\$0	\$0	\$0	\$40,000	\$40,000	\$0	\$0	\$0	\$40,000
Electronic Data Processing	\$1,000	\$0	\$0	\$0	\$1,000	\$0	\$0	\$0	\$0	\$0
Library Resources	\$5,000	\$0	\$0	\$7,398	\$12,398	\$3,000	\$0	\$0	\$11,480	\$14,480
Special Categories	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total	<u>\$292,481</u>	<u>\$20,974</u>	<u>\$8,366</u>	<u>\$7,398</u>	<u>\$329,219</u>	<u>\$319,481</u>	<u>\$32,554</u>	<u>\$12,982</u>	<u>\$11,480</u>	<u>\$376,497</u>

* Must tie to the appropriate column (h) on previous sheet labeled "Current and New Resources" - Summary Column

** Resources for these program components often are not included in the planning year.

V. CURRICULUM

Provide a sequenced course of study listing, the number of prescribed credit hours for the major, a description of each course, and course syllabi.

This program will be designed to be a "terminal degree" program. Its graduates are not expected to pursue a higher degree. The students entering this proposed program are expected to have a bachelor degree in one of the science or engineering disciplines. In addition, it is expected that the proposed program will attract scientists (physicists, mathematicians, chemists, etc.) who have moved, or are expected to move, into managerial positions. Most students are expected to join the program as part-time students since many of them are working in industry as engineers or scientists. However, it is also anticipated that a number of students will go into the program immediately after they complete their bachelor's degree.

A. Admission Requirements

Admission requirements for the proposed program are anticipated as follows:

1. Prospective students are expected to meet all admission requirements of the University's graduate school.
2. A student seeking admission into the graduate program must have a bachelor's degree in engineering or sciences from an accredited institution.
3. An applicant must have achieved a GPA of 3.0 in upper division coursework, and a combined score of 1,000 on the Graduate Record Examination (GRE), verbal and quantitative combined.
4. Applicants who satisfy both GPA and GRE requirements will receive full admission status.
5. Applicants who fail to meet the GPA requirement, but satisfy GRE requirement, could be admitted provisionally. The provisional status shall change to full admission if the student has a GPA of 3.0 upon the completion of 9 graduate credit hours.
6. Applicants who fail to meet the GRE requirement, but satisfy GPA requirement, could be admitted provisionally. The provisional status shall change to full admission when the student passes the GRE with score of 1,000.
7. Applicants who do not meet either GPA, nor GRE requirement could petition for admission under the 10% waiver category.
8. In addition to the above criteria, foreign students whose native language is not English must take the Test of English as a Foreign Language (TOEFL) and obtain score of 550 or better.

The GRE, TOEFL, and GPA are considered as minimum requirements for admissions. Students backgrounds shall be analyzed to determine if there is a need for remedial courses in addition to the required curriculum. Students are also expected to comply with all course prerequisites.

B. Curriculum and Degree Requirements

The basic program will consist of 36 credit hours as follows: A core of 12 hours of engineering management and 12 hours of business, 9 hours of electives in any of the engineering disciplines, and a capstone course in engineering management.

Engineering Management Core	12 credit hours
Business Core.....	12
Engineering Electives	9
Engineering Management Project.....	3
 TOTAL	 36 credit hours

- (1) Engineering Management Core Courses: Students in the proposed program are required to take four courses (12 credit hours) from the following subjects (one from each subject area). These courses serve as the foundation for the future engineering/technology managers. Most of the required courses already exist in the current curriculum. Only two new courses are planned for the proposed program.

EIN 5322	Engineering Management
EIN 6xxx	Total Quality Management
EIN 6117	Advanced Industrial Information Systems; or
MAN 6830	Organization Information Systems
ESI 5xxx	Engineering Project Management; or
GEB 6445	Legal Environment of Business

- (2) Business Core Courses: Students in the proposed program are required to take four courses (12 credit hours) from accounting, finance, organizational behavior, and marketing (one from each subject area). These business courses prepare engineers for business practices. All of the required business courses already exist in the current curriculum.

ACG 6026	Accounting for Managers; or
ACG 6175	Financial Reporting and Analysis (Prereq.: ACG 6026, FIN 6428, or equivalent)
FIN 6428	Financial Management (Prereq.: ACG 6026, or equivalent); or
FIN 6455	Financial Modeling and Forecasting (Prereq.: Permission of Instructor and FIN 6456); or
FIN 6456	Quantitative Methods in Financial Analysis (Prereq.: FIN 6428, or equivalent)
MAN 6245	Organizational Behavior; or
MAN 6204	Organization and Management Theory
MAR 6805	Marketing Management; or
MAR 6816	Advanced Marketing Management (Prereq.: MAR 6805 or equivalent); or
MAR 6158	International Marketing (Prereq.: MAR 6805)

- (3) Engineering Electives: Students in the proposed program will be able to take three courses (9 credit hours) from engineering subjects of interest. These engineering elective courses will broaden and deepen the student's understanding of technology development. All of the

engineering electives courses already exist in the current curriculum. Typical engineering courses suitable for the proposed program are enlisted in the following table:

Table V-B Typical Engineering Elective Courses

<p>Civil and Environmental Engineering: ENV 5007 Environmental Planning ENV 5105 Air Quality Management ENV 5659 Regional Planning Engineering ENV 6615 Environmental Impact Assessment TTE 5506 Urban Mass Transit and Transp. Planning TTE 5526 Airport Planning and Design TTE 5606 Transp. Systems Modeling and Analysis TTE 6257 Traffic Control Systems Design</p>	<p>Industrial/Manufacturing Engineering: EIN 5332 Quality Engineering EIN 5359 Industrial Financial Decisions EIN 6336 Advanced Production Planning and Control EIN 6392 Product Design for Manuf. and Automation EIN 6603 Applied AI/Expert System EIN 6936 Design of IE Systems ESI 6316 Applications of OR in Manufacturing ESI 6524 Applied Ind. Systems Simulation</p>
<p>Electrical and Computer Engineering: EEL 5071 Bioelectrical Models EEL 5270 Electrical Transients in Power Systems EEL 5366 Industrial Electronics EEL 5524 Statistical Communication Theory EEL 5653 Digital Control Systems EEL 5810 Neural Networks - Algorithm and Applic.</p>	<p>Mechanical Engineering: EGM 5315 Intermediate Analysis of Mech. Systems EGM 5346 Computational Engineering Analysis EML 5509 Mechanical Design Optimization EML 5530 Intermediate CAD/CAE</p>

(4) Engineering Management Project: The proposed program is structured as a **non-thesis** program. However, students in the proposed program are required to conduct an industrial project (3 credit hours) to complete the degree program. The Engineering Management project covers contemporary topics and trends in technology development.

C. Abbreviated Course Descriptions

EIN 5322 Engineering Management (3). Organization of engineering systems including production and service organizations. Inputs of human skills, capital, technology, and managerial activities to produce useful products and services.

EIN 6xxx Total Quality Management (3). Fundamentals of TQM. Historical development of TQM and the philosophies of gurus who have developed modern tools and techniques used in quality techniques and integrated them into scientific management.

EIN 6117 Advanced Industrial Information Systems (3). Review of the fundamental and theoretical foundation of industrial information systems. Application of the systems. Application of the system design process and information system concepts to develop integrated engineering systems.

MAN 6830 Organization Information Systems (IS) (3). Introduction to information systems and their role in organizations from a user's viewpoint. Survey and application of the basic

concepts necessary for understanding information systems. Study of the main activities in the development cycle used to acquire information systems capability.

ESI 5xxx Engineering Project Management (3). Role of engineers in project management with emphasis on qualitative and quantitative techniques in planning, organization, supervision, and control of projects from concept design to field installation.

GEB 6445 Legal Environment of Business (BA) (3). A study of federal and state regulatory laws, encompassing aspects of the judicial process, legal / economic aspects of business organizations, international legal environment, and legal / political elements of business ethics.

ACG 6026 Accounting for Managers (AC) (3). Presentation of the nature, techniques and uses of accounting from the perspective of people who manage businesses and investments in businesses. Covers both financial and management accounting. Not open to M.S.T. or M.Acc. students.

ACG 6175 Financial Reporting and Analysis (AC) (3). Comprehensive treatment of analysis of financial statements as aid for decision making; looks at current state of financial reporting practices and impact of published statements on economic systems. Prerequisite: ACG 6026, FIN 6428 or equivalent. Not open to M.S.T. or M.Acc. students.

FIN 6428 Financial Management (FI) (3). In-depth examination of asset, liability and capital structure management, with emphasis on capital budgeting techniques; risk evaluation; working capital management; and methods of short-term, intermediate and long-term financing. Prerequisite: ACG 6026 or equivalent.

FIN 6455 Financial Modeling and Forecasting (FI) (3). An introduction to Financial Modeling and Forecasting. Emphasis is on computer models and forecasting the financial variables. Prerequisite: Permission of instructor and FIN 6456. (on demand)

FIN 6456 Quantitative Methods in Financial Analysis (FI) (3). The applications of computer techniques to financial management of manufacturing firms and financial institutions. Prerequisite: FIN 6428 or equivalent.

MAN 6245 Organizational Behavior (MA) (3). Individual, interpersonal and small group behavior in complex organizations. Focus on behavior, its causes, and management interventions to improve organizational effectiveness. Research methods to study organizational behavior.

MAN 6204 Organization and Management Theory (MA) (3). Analysis and design of the structure and process of complex organizations. Effects of task uncertainty, growth, power, goals, and information technology on organization structure and control.

MAR 6805 Marketing Management (ME) (3). A study of analysis and application of theory and problem solving in marketing management. Emphasis will be on the role of marketing in the

organization; planning the marketing effort; management of the marketing organization; control of marketing operations; and evaluation of the marketing contribution.

MAR 6816 Strategic Marketing Management (ME) (3). Course emphasis is on application and integration of concepts and tools, through participation in the marketing management of a firm in competition with other firms. The course's focal point is a computerized marketing management simulation. Prerequisite: MAR 6805 or equivalent.

MAR 6158 International Marketing (ME) (3). This course discusses the nature and scope of international marketing, and explores problems facing multi-national firms and other international marketing organizations, together with strategies for foreign market penetration. Prerequisite: MAR 6805.

ENV 5007 Environmental Planning (3). Study of the control and prevention of environmental-related diseases, both communicable and non-communicable, injuries, and other interactions of humans with the environment. Prerequisite: Permission of the instructor.

ENV 5105 Air Quality Management (3). The air pollution problem, principal types, sources and dispersion of pollutants. Physical, economic, and legal aspects of control of atmospheric pollutants.

ENV 5659 Regional Planning Engineering (3). Theories of urban and regional growth; collective utility analysis; input-output models in planning; application of linear programming to regional social accounting; economic base analysis. Prerequisite: Computer Programming or permission of instructor.

ENV 6615 Environmental Impact Assessment (3). An examination of alternative techniques useful for analysis and environmental impacts or man's activities. Prerequisite: Permission of instructor and 24 graduate credits.

TTE 5506 Urban Mass Transit and Transportation Planning (3). Models of urban growth, population forecasts, trip generation, trip distribution, and trip assignment models, model split, system evaluation, transit marketing. Prerequisite: TTE 4201.

TTE 5526 Airport Planning and Design (3). Theory and principles of airport planning and design, include both general aviation and major commercial airports. Design projects required. Prerequisite: TTE 5835 or consent of instructor.

TTE 5606 Transportation Systems Modeling and Analysis (3). Modeling and analysis techniques in transportation. Linear Programming, queuing theory, decision making techniques. Prerequisite: TTE 4201.

TTE 6257 Traffic Control Systems Design (3). Theory and principles of traffic control systems design, including both freeway and urban streets. Design projects required. Prerequisite: TTE 4201.

EEL 5071 Bioelectrical Models (3). Engineering models for electrical behavior of nerve and muscle cells, electrode-tissue junctions, volume conduction in tissue and the nervous system as an electrical network. Prerequisite: ELR 4202 or permission of instructor.

EEL 5270 Electrical Transients in Power Systems (3). Traveling waves on transmission and multi-conductor systems, successive reflections, distributed parameter systems, transients on integrated power systems. Prerequisite: EEL 4213 or permission of instructor.

EEL 5366 Industrial Electronics (3). A study of solid state devices for the control of power, their applications and limitations in power switching circuits and in the control of physical transducer. Prerequisites: EEL 4213, EEL 4304 or permission of instructor.

EEL 5524 Statistical Communication Theory (3). Noise, random processes, correlation, spectral analysis in the analysis and design of communication systems. Optimization techniques; minimum mean square error. Prerequisite: EEL 3514.

EEL 5653 Digital Control Systems (3). Analysis and design of digital control systems. Z-transforms, analysis and control of discrete-time systems, digital control of analog systems. Several digital controller design methods. Computer simulation and microprocessor implementation. Prerequisite: EEL 3657. Co-requisite: EEL 4611 or permission of instructor.

EEL 5810 Neural Networks - Algorithm and Applications (3). Various artificial neural networks and their training algorithms will be introduced. Their applications to electrical and computer engineering fields will be also covered. Prerequisite: MAC 3312.

EIN 5332 Quality Engineering (3). This course examines quality control from an engineering standpoint. It covers ways to meet the challenge of designing high-quality products and processes at low cost. Prerequisite: EIN 3331 or equivalent.

EIN 5359 Industrial Financial Decisions (3). The use of financial techniques and data in planning, controlling and coordinating industrial activities. This course will familiarize the student with accounting concepts and analytical methods. Prerequisite: EIN 3354.

EIN 6336C Advanced Production Planning and Control (3). Analytical and algorithmic planning methodologies, planning and scheduling technologies, sequencing rules, control strategies, and line balancing methods. Prerequisite: EIN 4334.

EIN 6392 Product Design for Manufacturability and Automation (3). Overview and integration of the design-material-manufacture process. Design considerations for manufacturability, assembly, and economical production. Concurrent engineering systems. Prerequisite: EIN 4395.

EIN 6603 Applied AI/Expert Systems in Industrial Engineering (3). Application of artificial intelligence and expert systems as engineering tools. Exploring the use of PCs and symbolic

machine with various AI/Expert Systems software. Several projects are required. Prerequisites: CAP 5680.

EIN 6936 Design of Industrial Engineering Systems (3). Overview of systems theories. Systems design process including: Problem definition, analysis, generation of alternatives, systems evaluation, selection of preferred system, and implementation. Prerequisites: EIN 6345, ESI 6316, and ESI 6524

ESI 6316 Applications of OR in Manufacturing (3). Overview of OR techniques. Manufacturing system and product selection. Shop loading, resource allocation, production scheduling, job sequencing, and plant layout problems. System performance evaluation. Prerequisite: EIN 3314.

ESI 6524 Applied Industrial Systems Simulation (3). Advanced simulation techniques with a focus on practical systems modeling using several user-oriented simulation languages. Projects involving design of high-performance simulation programs are required. Prerequisite: ESI 3523.

EGM 5315 Intermediate Analysis of Mechanical Systems (3). First course at the graduate level in the analysis of mechanical systems. Modeling of the system and analytical and numerical methods of solution of the governing equations will be studied. Fluid and thermodynamic systems will be emphasized in this course. Prerequisite: EGM 3311 or permission of instructor.

EGM 5346 Computational Engineering Analysis (3). Application of computational methods to mechanical engineering problems of translational, rotational, control, thermal and fluid systems employing linear/nonlinear system elements. Prerequisites: CGS 3420 or equivalent, MAP 3302, EML 3222, EML 3126, EML 4140, or permission of instructor.

EML 5509 Mechanical Design Optimization (3). Finite element analysis and sensitivity analysis combined with numerical optimization techniques to optimize the design. Prerequisite: EGM 5354 or permission of instructor.

EML 5530 Intermediate CAD/CAE (3). Computer aided geometrical modeling of spatial mechanical systems. Design criteria and analytical approaches for planer kinematic systems will be emphasized. Prerequisites: EML 4535, or permission of instructor.

VI. EEO IMPACT STUDY

Attach a properly completed and signed EEO Impact Study. (See Chancellor's Memorandum CM 76-02.1.)

**EO IMPACT STUDY
SUMMARY AND ENDORSEMENT FORM**

Date: March 20, 1996 **University:** Florida International University

College/School: Engineering & Design **Department:** Industrial and Systems Engineering

Name and Level of Degree Program to which this EO Impact Study Applies:
M. S. in Engineering Management

Program Action (Please check):

- Conducting feasibility studies/planning for a new degree program.
- Implementation of a new program.
- Modification and/or expansion of a degree program.
- Limiting student access to part or all of a degree program.
- Restructuring an academic administrative unit.
- Termination of a degree program.
- Establishment of a new, permanent location for instruction.
- Changing BOR rules concerning admissions, continuation or graduation requirements.

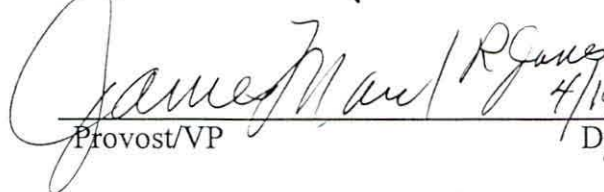
Summary of EO Impact Study:

The M.S. degree in Engineering Management will draw on the talents in both College of Business Administration and College of Engineering and Design. It is expected that this new program will greatly increase the numbers of M.S. degrees awarded to minority and female students in Engineering Management for the state of Florida. It is anticipated that over 50% of the total number of students enrolled in the new program will consist of individuals from traditionally underrepresented groups or females.


PREPARED BY:

 3/21/96
Department Head Date

 3/22/96
Dean Date

 4/19/96
Provost/VP Date

 4/1/96
University EO Director Date

 _____
University President Date

Director, Board of Regents Date
Office for Equal Opportunity Programs

EEO IMPACT STUDY

Master of Science in Engineering Management

1. *What have been the enrollment and graduation rates for the past three years, by race/ethnicity and gender, of students enrolled in the academic unit which will house the proposed new degree program?*

College of Engineering and Design

History of Graduate Student Enrollments

	Hispanics		Whites		Non-Res.		Asians		Blacks		Indians		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Current	71	23	37	12	74	18	14	3	10	2	0	0	206	58
1994/95	66	18	35	9	60	20	19	3	14	4	0	0	199	54
1993/94	61	16	33	6	61	12	17	2	12	1	1	0	185	37
1992/93	46	8	33	6	49	6	19	1	13	1	0	0	160	22

College of Engineering and Design

History of Graduate Degree Awarded

	Hispanics		Whites		Non-Res.		Asians		Blacks		Indians		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Current	11	3	11	2	16	3	5	1	3	0	0	0	46	9
1993/94	7	2	11	3	7	1	2	2	1	0	1	0	29	8
1992/93	11	1	4	2	9	0	1	1	4	0	0	0	29	4
1991/92	6	3	13	3	12	1	4	0	2	0	0	0	37	7

2. *What have been the enrollment and graduation rates for the past three years, by race/ethnicity and gender, of students enrolled in those academic programs at the university which can be reasonably expected to feed the proposed new degree program?*

College of Engineering and Design

History of Undergraduate Student Enrollments

	Hispanics		Whites		Non-Res.		Asians		Blacks		Indians		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Current	634	122	195	36	132	20	57	12	154	33	0	0	1172	223
1994/95	652	138	193	33	122	23	69	8	137	30	0	0	1173	232
1993/94	718	125	183	37	112	25	61	6	127	18	0	0	1076	211
1992/93	587	109	176	34	72	13	51	3	96	11	0	0	982	170

College of Engineering and Design
History of Undergraduate Degree Awarded

	Hispanics		Whites		Non-Res.		Asians		Blacks		Indians		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Current	90	22	30	5	22	8	7	3	16	0	0	0	165	38
1993/94	75	12	33	3	22	3	10	0	8	4	0	0	148	22
1992/93	78	25	34	9	30	0	8	0	7	2	0	0	157	36
1991/92	95	12	25	3	18	3	10	1	17	0	0	1	165	20

3. *What is the source and number of anticipated students for the proposed program, by race/ethnicity and gender, over the first three years?*

College of Engineering and Design
Source and Number of Anticipated Students for Engineering Management Program

	Hispanic		Whites		Non-Res.		Asians		Blacks		Indians		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1st Year														
Graduates of FIU	3	1	1	1	1	-	1	-	1	-	-	-	7	2
Graduates of other SUS univ.	-	-	1	-	-	-	-	-	-	-	-	-	1	
Grad. of Fl. non SUS univ.	-	-	-	-	1	-	-	-	-	-	-	-	1	
Area agencies & industries	1	1	1	-	-	-	-	-	-	-	-	-	2	1
Other (out of state, foreign)	-	-	-	-	1	1	-	-	-	-	-	-	1	1
Total	4	2	3	1	3	1	1	-	1	-	-	-	12	4
2nd Year														
Graduates of FIU	4	2	2	1	1	-	1	-	1	1	-	-	9	4
Graduates of other SUS univ.	-	-	1	1	-	-	-	-	-	-	-	-	1	1
Grad. of Fl. non SUS univ.	-	-	-	-	1	1	-	-	-	-	-	-	1	1
Area agencies & industries	2	1	2	1	-	-	1	-	1	-	-	-	6	2
Other (out of state, foreign)	1	-	-	-	2	1	-	-	-	-	-	-	3	1
Total	7	3	5	3	4	2	2	-	2	1	-	-	20	9
3rd Year														
Graduates of FIU	6	3	3	1	2	-	1	-	2	1	-	-	14	5
Graduates of other SUS univ.	1	-	1	1	-	-	-	-	-	-	-	-	2	1
Grad. of Fl. non SUS univ.	1	-	-	-	1	1	-	-	-	-	-	-	2	1
Area agencies & industries	4	2	3	1	-	-	1	-	2	1	-	-	10	4
Other (out of state, foreign)	2	1	-	-	2	1	-	-	-	-	-	-	4	2
Total	14	6	7	3	5	2	2	-	4	2	-	-	32	13

4. *In order to accommodate the proposed program, will or should the department, school, or college admission, continuation and/or graduation requirements or policies be changed? If so, identify where the changes will occur, and assess the impact on minority or female students.*

To accommodate the proposed master's degree in Engineering Management, there will be no changes in admission, continuation or graduation requirements or policies. The current undergraduate programs in the College of Engineering and Design have 1,395 students, including 187 African Americans (13.4%), and 756 Hispanic students (54.2%). Approximately 16% of the enrolled students are female.

5. How many faculty, professional, and support staff, by race, gender, rank, and tenure status (where appropriate), are employed in the academic unit which will house the proposed program?

The proposed program is interdisciplinary and utilizes faculty expertise from both College of Business Administration and College of Engineering and Design. The following table lists faculty members will participate in the proposed program by race, gender, rank, and tenure status.

Faculty Member	Race	Gender	Rank	Tenure Status
Centeno, Martha A.	Hispanic	Female	Assistant Professor	Tenure earning
Chen, F. Frank	Asian	Male	Associate Professor	Tenure earning
Ebadian, M. A.	Asian	Male	Professor	Tenured
Farrow, Dana L.	White	Male	Professor	Tenured
Hopkins, Gordon R.	White	Male	Professor	Tenured
Larkins, Grover	White	Male	Associate Professor	Tenured
Lee, Shih-Ming	Asian	Male	Associate Professor	Tenured
Mitrani, Jose	Hispanic	Male	Associate Professor	Tenured
Parhizgari, Ali	Asian	Male	Professor	Tenured
Tsihrintzis, Vassilios	White	Male	Assistant Professor	Tenure earning

6. Will implementation of the proposed program result in the reallocation or addition of faculty, professional, and/or support staff in the unit, which could affect the number(s) or employment status of minority or female employees?

Implementation of the proposed program will result in hiring two new faculty members to share the teaching and research loads. Special attention will be paid to locate capable minority and/or female candidates in recruiting new faculty members. However, the addition of faculty will not affect the number or employment status of minority or female employees.

7. Where any potentially negative impact on minority or female students or employees could result from implementing the proposed program, what corrective action will be undertaken and when? What resources will be allocated for corrective action?

The Master's in Engineering Management at FIU will not have a negative impact on minority or female students or employees. Implementation of the proposed program should provide even greater participation to female and minority students and provide additional opportunities for scholarships to minority students in the feeder programs. The 10% waiver rule will be used to enhance minority participation.

Appendix A:

Revised BOR Tables

BOR Table One

Number of Anticipated Majors from Potential Sources *

Graduate Degree Program

Name of Program: M.S. in Engineering management

CIP Code: 14.3001

Academic Year	Year 1	Year 2	Year 3	Year 4	Year 5
	1996/97	1997/98	1998/99	1999/2000	2000/01

Source of Students (Non-Duplicative Count) **	Year 1		Year 2		Year 3		Year 4		Year 5	
	HC	FTE	HC	FTE	HC	FTE	HC	FTE	HC	FTE
Individuals drawn from agencies/ industries in your service area (e.g., older returning students)	3	1.8	8	4.8	14	8.4	18	10.8	22	13.2
Students who transfer from other graduate programs within the university **	--	--	--	--	--	--	1	0.6	1	0.6
Individuals who have recently graduated from preceding degree programs at this university **	9	5.4	13	7.8	19	11.4	23	13.8	26	15.6
Individuals who graduated from preceding degree programs at other SUS universities **	1	0.6	2	1.2	3	1.8	3	1.8	4	2.4
Individuals who graduated from preceding degree programs at non-SUS Florida colleges and universities **	1	0.6	2	1.2	3	1.8	3	1.8	4	2.4
Additional in-state residents **	--	--	--	--	--	--	1	0.6	1	0.6
Additional out-of-state residents **	1	0.6	2	1.2	3	1.8	4	2.4	6	3.6
Additional foreign residents **	1	0.6	2	1.2	3	1.8	4	2.4	6	3.6
Other (Explain) **	--	--	--	--	--	--	--	--	--	--
TOTAL	16	9.6	29	17.4	45	27.0	57	34.2	70	42.0

* List projected yearly enrollments instead of admissions.

** Do not include individuals counted in any PRIOR category.

BOR Table Two
Faculty Participation in Proposed Degree Program by Fifth Year

Faculty CODE	Faculty Name or "New Hire"	Academic Discipline/Specialty	Rank	(For Existing Faculty Only)		Initial Date for Participation in Proposed Program	5th Year Workload in Proposed Program (% Person-year)
				Contract Status	Highest Degree Granted		
A	Centeno, Martha A.	Industrial Engineering	Assistant Professor	Tenure earning	Ph.D.	1996	0.10
A	Chen, F. Frank	Industrial Engineering	Associated Professor	Tenure earning	Ph.D.	1996	0.10
A	Ebadian, M. A.	Mechanical Engineering	Professor	Tenured	Ph.D.	1996	0.03
A	Farrow, Dana L.	Management	Professor	Tenured	Ph.D.	1996	0.03
A	Hopkins, Gordon R.	Mechanical Engineering	Professor	Tenured	Ph.D.	1996	0.05
A	Larkins, Grover	Electrical Engineering	Associated Professor	Tenured	Ph.D.	1996	0.03
A	Lee, Shih-Ming	Industrial Engineering	Associated Professor	Tenured	Ph.D.	1996	0.05
A	Mitrani, Jose	Construction Management	Associated Professor	Tenured	M.E.	1996	0.03
A	Parhizgari, Ali	Finance	Professor	Tenured	Ph.D.	1996	0.10
A	Tsihrintzis, Vassilios	Civil Engineering	Assistant Professor	Tenure earning	Ph.D.	1996	0.03
A	CBA	Business Administration	Associated Professor	Tenured	Ph.D.	1996	0.10
C	New Hire	Engineering Management	Assistant Professor			1997	0.20
C	New Hire	Engineering Management	Assistant Professor			1998	0.20
Faculty CODE	Corresponding Faculty Position Category in Table 3 for the Fifth Year		Proposed Source of Funding for Faculty			TOTAL 5th Year Workload by Budget Classification	
A	Current General Revenue		Existing Faculty -- Regular Line			0.65	
B	Current General Revenue		New Faculty -- To Be Hired on Existing Vacant Line			0	
C	New General Revenue		New Faculty -- To Be Hired on a New Line			0.40	
D	Contracts & Grants		Existing Faculty -- Funded on Contracts & Grants			0	
E	Contracts & Grants		New Faculty -- To Be Hired on Contracts & Grants			0	
Overall Total for 5th Year						1.05	

BOR Table Three Costs for Proposed Program

	First Year				Fifth Year			
	General Revenue		Contracts & Grants	Summary	General Revenue		Contracts & Grants	Summary
	Current	New			Current	New		
Instruction & Research								
Positions (FTE)								
Faculty	0.65	0.20	0	0.85	0.65	0.40	0	1.05
A&P	0	0	0	0	0	0	0	0
USPS	0	0	0	0	0.50	1.00	0	1.50
TOTAL	0.65	0.20	0	0.85	1.15	1.40	0	2.55
Salary Rate								
Faculty	\$57,561	\$12,800	\$0	\$70,361	\$57,561	\$25,600	\$0	\$83,161
A&P	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
USPS	\$12,000	\$12,000	\$0	\$24,000	\$12,000	\$18,000	\$0	\$30,000
TOTAL	\$69,561	\$24,800	\$0	\$94,361	\$69,561	\$43,600	\$0	\$113,161
I & R								
Salaries & Benefits	\$86,256	\$31,539	\$0	\$117,795	\$86,256	\$55,225	\$0	\$141,481
Other Personal Services	\$0	\$40,000	\$10,000	\$50,000	\$0	\$100,000	\$30,000	\$130,000
Expenses	\$0	\$10,000	\$10,000	\$20,000	\$0	\$10,000	\$15,000	\$25,000
Operating Capital Outlay	\$0	\$20,000	\$10,000	\$30,000	\$0	\$20,000	\$20,000	\$40,000
Electronic Data Processing	\$0	\$1,000	\$0	\$1,000	\$0	\$0	\$0	\$0
Library Resources	\$0	\$10,000	\$0	\$10,000	\$0	\$3,000	\$0	\$3,000
Special Categories	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL I & R	\$86,256	\$112,539	\$30,000	\$228,795	\$86,256	\$188,225	\$65,000	\$339,481
Non-I & R								
Other Activities								
Library Staffing	\$0	\$4,082	\$0	\$4,082	\$0	\$17,856	\$0	\$17,856
University Support	\$0	\$11,580	\$0	\$11,580	\$0	\$51,883	\$0	\$51,883
Financial Aid	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Student Services, Other	\$0	\$4,616	\$0	\$4,616	\$0	\$20,193	\$0	\$20,193
Total Other Activities	\$0	\$20,278	\$0	\$20,278	\$0	\$89,932	\$0	\$89,932
SUMMARY**	\$86,256	\$132,817	\$30,000	\$249,073	\$86,256	\$278,157	\$65,000	\$429,413

TOTAL I & R + TOTAL OTHER ACTIVITIES

* Should relate directly to numbers in Table 2

Appendix B:

Course Syllabi

EIN 5322 ENGINEERING MANAGEMENT

Catalog Data: Organization of engineering systems including production and service organizations. Inputs of human skills, capital, technology, and managerial activities to produce useful products and services.

Course Objectives: Students will have a broad understanding of the need for engineers to be managers, of the implications of it for a trained engineer, and of the knowledge, methods, and tools needed to make the transition.

Textbook: *Engineering Management* by Robert E. Shannon

Other References

1. IEEE Transactions in Engineering Management,
2. Journal of Productivity
3. The Economist
4. Journal of Applied Management
5. Management Review
6. Management Science

Prerequisite: Permission of Instructor

Coordinators: Dr. Martha A. Centeno and Dr. Fred Swift

Course Outline / Topics:

1. Engineers and managers: Making the transition
2. Managerial solving problem.
3. Theory of organization
4. Motivation and leadership
5. Managing technical projects.
6. Management of technical projects
7. Productivity management
8. Systems management.
9. TQM: Introductory overview
10. Engineering Case Studies

Prepared by : Dr. Martha A. Centeno

Date: 3/20/1995

EIN 5xxx TOTAL QUALITY MANAGEMENT FOR ENGINEERS

Catalog Data: Fundamentals of TQM and its historical development. Integration of QC and management tools, QFD, Benchmarking, Experimental Design for scientific management.

Course Objectives: Student will learn TQM concepts and other modern quality assessment techniques, and how to relate them to particular industrial situations.

Textbook: Handouts and Reading Assignments

Reference Books:

1. *Foundations of TQM: A Readings Books* by J. G. Van Matre
2. *Total Quality Management, Organization, and Strategy* by J. W. Dean, Jr. & J. R. Evans
3. *Total Quality Management* by D.H. Besterfield, C. Besterfield-Michna, G. H. Besterfield, M. Besterfield-Sacre
4. *Introduction to Modern Statistical Quality Control and Management* by J. A. Swift

Prerequisite: Permission of Instructor

Coordinators: Dr. Martha A. Centeno and Dr. Fred Swift

Course Outline / Topics:

1. Introduction to Modern Quality concepts.
2. Fundamentals of Quality Management.
3. TQM Concepts: Management commitment, focus on customer, employee involvement, suppliers as partners, continuous improvement, measures of performance.
4. TQM vs. Traditional Management
5. The quality philosophers: Shewhart, Deming, Juran, Crosby.
6. Designing Organizations for Quality. Quality Teamwork
7. Basic Quality Control Tools. Control Charts for attributes and for variables.
8. QFD
9. Experimental Design in TQM
10. Quality Awards
11. Quality Certification, ISO 9000
12. Benchmarking and special topics.

Course Justification

This course will provide a forum for students to learn the fundamentals concepts of TQM, understand the differences of TQM and traditional management, and experience the various complexities of implementing TQM by working on selected industrial projects. FIU does not have a course that offers a similar learning experience. This course is a core course for the Master of Science in Engineering Management.

Prepared by : Dr. Martha A. Centeno

Date: 3/20/1996

EIN 6117 ADVANCED INDUSTRIAL INFORMATION SYSTEMS

Catalog Data: Review of the fundamental and theoretical foundation of industrial information systems. Applications of the system design process and information system concepts to develop integrated engineering systems.

Course Objectives: To assist students in developing an understanding of the various types of information systems and methodologies needed in the I.E. function, including the integration of inputs, models, and outputs into structured information systems.

Textbook: *The Analysis, Design and Implementation of Information Systems* by Henry C. Lucas

Prerequisite: Permission of Instructor

Coordinators: Dr. Martha A. Centeno

Course Outline / Topics:

1. Information Systems Fundamentals
2. Information Systems Methodologies
3. Database Concepts
4. Information Systems Analysis.
5. Industrial Information Systems Evaluation
6. Systems Implementation and Integration
7. Systems Management for Modeling and Analysis
8. Overview of DSS
9. Overview of CASE
10. Design projects

Prepared by : Dr. Martha A. Centeno

Date: 3/27/1996

ESI 5xxx Engineering Project Management
(Cross-listing with ESI 4452)

Catalog Description: Role of engineers in project management with emphasis on qualitative and quantitative techniques in planning, organization, supervision, and control of projects from concept design to field installation.

Objective: To provide graduate students with a systematic approach to planning, scheduling and control of engineering projects.

Textbook: *Project Management*, 5th edition, H. Kerzner, Van Nostrand Reinhold, 1995.

Prerequisites: Graduate students with permission of instructor.

Coordinator: Dr. F. Frank Chen

Course Outline:

1. Systems theory and concepts
2. Organizational structures
3. Organizing and staffing project office and team
4. Management functions
5. Time and contract management
6. Conflict resolutions
7. Working with executives
8. R&D project management
9. Project planning and scheduling (PERT/CPM)
10. Project graphics
11. Pricing, estimating and cost control
12. Trade-off analysis
13. Learning curves
14. Impact of concurrent engineering on project management
15. Advanced topics and case studies.

Justification:

This course is required to support the MS in Engineering Management degree program. The course is specifically for individuals who do not have a Project Management or equivalent course at their prior undergraduate or graduate studies. Graduate students in this class (along with seniors in ESI 4451) will have to do an independent research paper as the additional requirement.

MAN 6830 Organizational Information Systems
Spring 1995

Class Hours: Tuesday 6:25 p.m. - 9:05 p.m.
Classroom: BA140

Professor: Joyce Elam
Office: BA 260B
Telephone: 348-2719
Office Hours: Tuesday, 5:00 - 6:00 p.m. and by appointment

Course Description:

This course examines the role of information systems in supporting a wide range of organizational functions. We will examine the use of information systems to support administrative operations, to support decision making, and to support overall strategic initiatives and corporate philosophies. The course is oriented toward the general MBA student, not the technical specialist. The course will provide a managerial perspective on the use, design, and evaluation of information systems. In this lab portion of this course, you will also learn how to use a number of end-user computing software packages. This syllabus covers only the lecture & discussion portion of the course. A separate syllabus covers the lab portion of the course.

The course will primarily use the case method as its pedagogy. Case-based teaching will be supported by a variety of videotapes that were developed specifically for the cases. Each case used in the course is based on field research in business organizations and represents a real-life management situation that you can expect to encounter as a business professional. The case method forces you to find practical solutions to actual problems and to be able to defend these solutions among your peers.

Course Objectives:

1. Be able to identify and exploit opportunities for using information systems to gain competitive advantage - both at a personal professional level as well as at an organizational level.
2. Understand the different types of computer-based information systems in use in organizations, when each is appropriate, the technology required to implement the systems, and the development approach to be followed.
3. Be knowledgeable of information technology so that you can be an informed consumer and evaluator.
4. As the responsibilities for computing shifts to line organizations, understand what the responsibilities of a line manager are with respect to the management of information systems development and operations.
5. Understand the roles and responsibilities of the corporate IS organization and the issues involved in the effective management of this group.

Course Material:

1. *Corporate Information Systems Management* by Cash, McFarlan, McKenney, and Applegate (CISM)
2. *Information Systems: a Management Perspective* by Steven Alter (OPTIONAL)
3. Course Material from bookstore

Course Requirements:

The requirements for the course are divided into the following four main areas:

Class Participation (25%) - Class participation is key to the case teaching method. You are expected to prepare each case and to participate actively in the discussion of the case in class. You will be given a name tag the second class and will be expected to bring your name tag with you to each class.

Group Case Study (25%) - You will be assigned to a group whose responsibility is to write a new case dealing with an information systems issue along the lines of the cases we discuss in class. The group will also be responsible for preparing an analysis of the case as well. A group may consist of four or fewer students (which means you can work alone if you prefer). All members of the group will receive the same grade. Moreover, the group size will not be given any consideration in performance evaluation. I strongly encourage original research in preparing this case study. This group case study is due **April 18**.

Exam #1 (25%) Written case analysis (On 3/7, you will be given a case to analyze. The written analysis of the case is due the beginning of class on 3/14. Your analysis must be typed.)

Exam #2 (25%) In-class analysis of case (The case to be analyzed will be given to you on 4/4.)

Syllabus:

Class	Date	Topic	Case
# 1	01/10	Course Overview	
# 2	01/17	Business IT Strategic Alignment	Mrs. Field's Cookies
# 3	01/24	IT Architecture	Batterymarch Financial Management: Information Systems and Technology*
# 4	01/31	Responding to Strategic Threats By Building an Information-Based Org.	Frito-Lay, Inc.: A Strategic Transition
# 5	02/07	Responding to Strategic Threats by Building an Information-Based Org.	RyderFIRST*
# 6	02/14	Interorganizational Systems	Baxter Healthcare Corporation: ASAP Express Johnson and Johnson*
# 7	02/21	Using IT for More Effective Control	Otisline
# 8	03/07	Reengineering Business Processes	Profiling at National Mutual (A) and (B)
# 9	03/14	IT Organizational Transformation	Phillips 66 Company: Executive Information System
#10	03/21	Effectively Managing the IT Function	USAA*; USAA Imaging Technology*
#11	03/28	Software Develop. & Implementation	Bow Valley (to be distributed later)
#12	04/04	Globalization of IT	Air Products and Chemicals, Inc.: Planning for Global Information Technology
#13	04/11		In-class Case Analysis
#14	04/18		Presentation of Cases

GEB 6445 THE LEGAL ENVIRONMENT OF BUSINESS

COLLEGE OF BUSINESS ADMINISTRATION SCHOOL OF ACCOUNTING SYLLABUS - SPRING 1996

PROFESSOR: John Wrieden, I.D., M.B.A.
BA 241B, University Park Campus,
Telephone: 348-2581 or 348-3276

OFFICE HOURS:

Monday 4:45 P.M. - 6:20 P.M., Wednesday 12:30 P.M. - 1:45 P.M. and by appointment. As noted in class. To accommodate evening students, I will be available after class for any questions and assistance. Please do not hesitate to make an appointment if office hours are inconvenient. Students with disabilities who may need special accommodations should register with the Office of Disability Services. Please contact me for any assistance you may need. If there is a conflict between a scheduled class meeting and a religious holiday, please see the instructor. I will make every effort to accommodate you.

COURSE OBJECTIVES:

This course is intended as a rigorous graduate level review of the Legal Environment of Business. The primary emphasis is on legal and regulatory issues. Coverage of international legal and regulatory issues is also an important ingredient in this course. A significant and continually increasing number of constraints facing the business manager are legal in nature. The course has been designed to introduce graduate students to our legal system by focusing primarily on subjects usually classified as "public law": antitrust, labor law, employment law, environmental law, securities law, and other topics concerned with government regulation of business. Detailed case analysis of these issues is emphasized at the graduate level.

By enacting statutes such as the Equal Pay Act, the Environmental Protection Act, Title VII of the Civil Rights Act, the Equal Employment Act, OSHA and others, Congress has, in effect, defined the role of the corporation as a member of society and has to a considerable extent mandated corporate participation in that society. The concept of business behavior referred to as business ethics along with the economic and political environment is important in the selection of public policy issues analyzed in this course. Current legal issues will be *stressed*

REQUIRED TEXTS:

The Legal, Ethical, and Regulatory Environment of Business, Fisher, Phillips, Fifth Edition, West Publishing Company, 1995.

Legal Aspects of Management Technology, Lee B. Burgunder (South-Western), 1995.

REQUIRED SUPPLEMENTAL READING:

Wall Street Journal; legal and regulatory issues in the "Journal" are required reading. This will include the sections on law, international affairs, politics and policy, and generally the "A" section of the paper. As previously noted current issues will be stressed in class and on examinations. The "Economist," "The New York Times," and "Business Week," are strongly recommended as additional weekly reading.

Reserve reading. Law Review and other articles specifically related to the text will be on reserve in the University Park Library and required reading for the final examination

Class presentations regarding cases, research summaries, and assigned readings will be described in class

RESEARCH PAPER:

A 12 to 15 page research paper will be due the last class before the final examination. The topic must be approved by the instructor. The paper must be typed and footnoted in accordance with applicable legal research standards. Possible topics and a thorough description of this requirement will be described in class. Late papers are subject to a penalty of one full grade per day. (Exception for exigent circumstances.)

GRADING:

Midterm	35% as scheduled
Final Examination	35% as scheduled
Research Paper	20% Due last class before final exam
Class Participation	10%

EXAMINATIONS ARE ESSAY IN FORMAT The class grade is based upon students' responses to random questions about assignments, case briefs, and discussion of current issues. Further elaboration in class. Incomplete or makeups will be allowed only in exigent and verifiable circumstances. This issue will be further elaborated in class. Normally an A is above 90, A- is 87-90, B+ 84-87, B 81-84, B- 77-80, C+ 74-77, etc.

INSTRUCTION AND CLASS POLICIES:

Class lectures will include material not covered in the text or assigned reading. Students will be asked to brief cases orally and comment on their assigned reading including the Wall Street Journal.

Students are responsible for any changes announced in class. There will be one week's notice on any changes in the Syllabus. Additional assignments will also include one week's notice. It is expected that students attend on a regular basis. The class participation grade will be affected by poor attendance. Those students who regularly perform well in class will obviously receive higher grades for class participation.

COURSE OUTLINE:

The outline is based upon a sixteen week semester. Please note; any legal holidays, or vacations will necessitate a slight deviation from the Syllabus. It will be described specifically in advance, in class. All assignments will be noted at the beginning of each week to avoid any error.

Assigned reading on current legal environment issues will be discussed in each class, and the lectures will attempt to relate specifically to assigned reading in the text. Please be certain to obtain complete class notes from another student if you are absent.

Assigned reading in the supplemental text will be included for the final examination only. Specific issues related to the West supplement will be discussed in class.

Week	Topics
1	Introduction to the legal environment of business; to include a comprehensive discussion of the U.S. legal system. We will fully discuss all aspects of the syllabus in the first class.
2	The concept of jurisdiction, litigation in federal and state courts, the appellate process, and aspect of the Uniform and Federal Arbitration statutes.
3	Concepts of Business Ethics, Corporate Social Responsibility, and a discussion of statutory law regarding ethical issues such as privacy, work place safety, trade secrets, etc. (Case studies on ethical issues will be noted and discussed with regard to variety of issues in our text. Both the cases outlined in the text and additional cases related by the instructor will be issues included on the final examination.)
4	Administrative law; development of regulatory agencies, administrative procedures, agency structure, and international perspectives such as the use of administrative agencies in other countries.
5	Contract law and Business Torts; topics include comparison on crimes and Torts, intellectual property infringement, product liability, and the essentials of a contract.
6	Continuation of contract law; to include the enforceability of contracts, rights of third parties, termination of contracts and remedies, and international perspectives on comparative contract issues. Also, an overview of the agency relationship to contract law.
7	Corporate Law; a discussion of the formation of the corporation, the statutory role of management and the Board of Directors, the legal duties of officers and directors, liability for torts and crimes and a discussion of specific ethical issues affecting U.S. corporations. Comparative international perspectives are specifically noted and will be discussed with regard to chapter eleven.
8	Midterm examination
9	Government Regulation of Business and Constitutional Law; to include a discussion of provisions of the constitution affecting business, separation of powers, and a close look at current federal court cases on constitutional issues affecting the business environment.
10	Employment discrimination; to include a discussion of a variety of U.S. Statutes and extraterritorial legal issues. Specific emphasis will be given to Title VII of the Civil Rights Act of 1964, The Americans with Disabilities Act of 1990, and the legal issues surrounding sexual harassment.
11	Legal aspects of employer-employee relations; to include a discussion of the National Labor Relations Act as amended, drug testing laws, plant closing laws, OSHA, immigration law, and other issues which relate to employee protection under the law.
12	Environmental Law; to include a discussion of selected Federal Environmental Statutes, the EPA, and issues involving international cooperation in multilateral legal remedies available.
13	Securities Law Regulation; to include the applicable Federal Statutory Legal Environment, RICO, particularly the use of federal RICO law suits. A discussion of the current legal environment is essential and will include outside assigned readings from law review articles and other sources.
14	Antitrust Law; to include a specific review of the Sherman, Clayton, and the Robinson Patman statutes. We will also review specific aspects of the Ethical and Legal implications of Merger Law.
15	Transnational Trade Law; to include the Foreign Corrupt Practices Act, Choice of Law, Arbitration Recognition of Foreign Law, Foreign Sovereign Immunities Act and the United States Regulation of International Trade including International Trade Pacts such as NAFTA and G.A.T.T. (World Trade Organization -as ratified)
16	Final examination (as scheduled by the University.)

**ACG 6026 Accounting for Managers
SPRING 1991**

Professor: Dr. Robert Rutledge
Class Meetings: Thursdays, 6:25 PM to 9:05 PM
Office & Hours: Dade: DM 399: Tuesdays, 4:25 PM to 6:25 PM
Phone: 348-2581 Thursdays, 4:25 PM to 6:25 PM
Broward Tower (Room 546): Wed. 10:00 AM to 12:00 AM
Phone: 355-5240 Wed. 1:00 PM to 3:30 PM

Course Description and Learning Objectives: Presentation of the nature, techniques and uses of accounting from the perspective of people who manage businesses and investments in businesses. Covers both financial and management accounting. (Not open to M.S.T. or M.Acc. students) Students should acquire a working knowledge of the concepts covered in class discussions and be able to integrate the concepts covered in a manner that indicates understanding, not just memorization of details.

Required Text:

Accounting: A Managerial Approach by G. Shillinglaw and P. E. Meyer (Eighth Edition)

Course Requirements: Students' grades are determined by their performance on three exams, a final exam and a short written project (however, see attendance and homework discussion below). The allocation of the total of the 100% of the points for the course is as follows:

3 exams at 20% each	=	60%
Comprehensive Final	=	35%
Written project	=	5%
Total	=	100%

No makeup examinations will be given. A one grade penalty (on the final course grade) will accompany any missed exam that is not approved by the instructor prior to the exam.

Attendance and homework are important and may be taken at random and may affect the course grade for borderline cases. If homework is collected, late assignments will not be accepted. The attached pages list the tentative assignments for the course. All assignments are to be prepared outside of the class prior to the date listed. Because it is impossible to predict class coverage, the due dates are subject to change. Any student who misses a class is responsible for obtaining notes from a classmate regarding any changes in assignments, exam dates, material covered in class, etc.

Grading: Letter grade equivalents are as follows:

A :	93% - 100.0%	C :	73% - 77.9%
A-:	90% - 92.9%	C-:	70% - 72.9%
B+:	88% - 89.9%	D+:	68% - 69.9%
B :	83% - 87.9%	D :	63% - 67.9%
B-:	80% - 82.9%	D-:	60% - 62.9%
C+:	78% - 79.9%	F :	below 60%

(Since this is a graduate level class, grades below C- will occur only in unusual circumstances -- e.g., substantial lack of effort and/or knowledge.)

Written Project:

Find two articles from the 1988 through 1991 issues of Journal of Accountancy or Management Accounting. These journals are available in the library. Read the articles and report the following:

1. Describe briefly the issue discussed in each article.
2. Summarize the main arguments and conclusions of each article.
3. Relate the issue discussed in each article to a topic from the textbook. State, in your opinion, how the articles extend the knowledge of financial or managerial accounting beyond what you learned from the textbook.

Type your report. The total report (for both articles combined) should not be longer- than 5-6 double-spaced pages, excluding the attachment. Attach a copy of the articles to your report. DUE 4/2/91.

TENTATIVE SCHEDULE:

Date	Chap.	Subject	Homework Assignments
1/10/91	Ch. 1	The Accounting Framework	1, 2, 3, 25, 26
1/17/91	Ch. 2	Transactions Analysis	3, 5, 9, 19, 21
	Ch. 3	Acctg. Recordkeeping	1, 3, 4, 6, 27
1/24/91	Ch. 4	Accruals and Deferrals	1, 2, 3, 5, 6, 8, 28
1/31/91		Exam I: Chapters 1 ~ 4 (20%)	
2/ 7/91	Ch. 5	Manufacturing Cost Flows	2, 3, 4, 9, 11, 18
	Ch. 6	Present Value Concept	1, 2, 6, 8, 15, 20
2/14/91	Ch. 7	Revenue/Expense Recog.	1, 3, 4, 7, 12, 14
2/21/91	Ch. 8	Inventory Measurement	1, 3, 5, 9, 10, 11
2/28/91	Ch. 9	Plant Assets	1, 2, 3, 9, 14
3/ 7/91		Spring Break	
3/14/91		Exam II: Chapters 5 - 9 (20%)	
3/21/91	Ch. 16	Basic Dec. Concepts	1, 2, 3, 9, 10, 15
	Ch. 17	Application of Concepts	1, 3, 4, 8, 9, 14,16
3/28/91	Ch. 18	Process Costing	1, 3, 4, 8, 9, 14,16
	Ch. 19	Job-order Costing	1, 4, 5, 7, 9, 15,17
4/ 4/91	Ch. 20	Budgetary Planning	2, 3, 4, 6, 7, 8, 10
		Readings Paper Due	
4/11/91		Exam III: Chapters 16 - 20 (20%)	
4/18/91		Chapter 21 - Capital Expenditures	1, 2, 3, 11, 15, 16
4/25/91		Comprehensive Final Exam: (35%)	

ACG 6175 Financial Reporting and Analysis
Spring 1996

Instructor: Dr. Samuel L. Tiras
Office: BA 229B
Telephone: 348-3260

Class Hrs: Tues, 6:25 - 9:05 p.m.
Office Hrs: 3:30-5:00 p.m., MW and by appointment

Course Objective: The objective of this course is to help students understand the role of accounting information in financial decisions.

Texts:

1. Clyde P. Stickney, *Financial Statement Analysis: A Strategic Perspective*, Second Edition (Orlando: Dryden Press), 1993.
2. Brealey, R.A. and S.C. Myers, *Principles of Corporate Finance*, Fourth Edition (New York: McGraw-Hill Inc.), 1991

Prerequisites: ACG 6026 and FIN 6428, or equivalent.

Grading: No late work is accepted. Grades are assigned competitively as follows:

Case summaries - Written	40%
Midterm examination	30%
Final examination	30%

Written Cases: Up to three cases will be collected and are not necessarily equally weighted. The case submissions should include a brief (one-paragraph) synopsis of the issues of the case, followed by answers to listed questions and any other issues not adequately addressed by the questions. Unless otherwise specified, analyses should be typed, double spaced, and not exceed 5 pages length including exhibits (with standard margins and fonts).

Class Participation: Full participation is required for this class and each student is expected to contribute to each class. Active participation is possible only if the assigned reading is read and the assigned cases are reviewed and attempted prior to class. Incorrect answers are not penalized, only lack of effort. Missing more than one class session will result in a penalty of one letter grade on the final course grade.

Class Schedule:

Date	Topic and Reading Assignment	Readings
Jan 9	Course Introduction and Overview	Chapter 1
Jan 16	Income Recognition	Chapter 3
Jan 23	Liabilities and Related Expenses	Chapter 4
Jan 30	Inter-corporate Entities	Chapter 5
Feb. 6	Pensions and Post-Retirement Benefit Costs	BM Chapter 35
Feb. 13	Income Flows vs. Cash Flows	Chapter 2
Feb. 20	Midterm	
Feb. 27	Pro Forma Financial Statements; A Valuation Framework	Chapter 10
Mar 5	No Class - Spring Break	
Mar 12	A Valuation Framework (continued)	Handout
Mar 19	Valuation Framework; Data Issues and Accounting Choice	Chapter 6
Mar 26	Profitability Analysis	Chapter 7 & 8
Apr. 2	Profitability Analysis (concluded); Risk Analysis	Chapter 9, BM 7 & 8
Apr. 9	In class example - Value, Profitability, and Risk	
Apr. 16	Review for Exam	

FIN 6428 Financial Management

Professor: Gary A. Anderson, Assoc. Prof.

Office: BA 201 (University Park) **Phone:** 348-2095 or 348-2680

Office Hrs: Mon. & Wed. 10:00-12:00 Noon or by appointment

Text: Principles of Corporate Finance, 4th Edition, Brealey and Myers

Course Objective: Introduce the student to the principles and concepts underlying Managerial Finance and develop an understanding of the financial decision making process.

Tests, Grading, and Course Assignments: Exam dates will be announced in class. Grading will be based upon student exam performance in relation to others in the class. There will be no make-up exams without the written verification of a medical or personal emergency. Exam results will be disseminated in class following the exam. Please do not call the secretaries of the Finance department for results of your examinations. They are prohibited from discussing grades with any student over the phone.

Course Outline:

- I. Introduction - Chapter 1 & "EVA" article
 - A. The role of the financial manager
 - B. Financial objectives
 - C. Understanding the concept of value
- II. Present Value and the Opportunity Cost of Capital - Chapter 2
 - A. Introduction to present value
 - B. Foundations of the Net Present Value rule
- III. Calculation of Present Value and Future Values - Chapter 3
 - A. Future and present value rules for annuities
 - B. Geometric growth present value and future value rules
 - C. Arithmetic growth present value and future value rules
 - D. Solving for alternative parameters in PV and FV formulations
- IV. Present Value of Bonds and Stocks - Chapter 4
 - A. Present value formulations for coupon and pure-discount bonds
 - B. Present value formulations for common stocks
 - C. Price-earnings ratios and common stock price
 - D. Mortgage instruments and simple rules for valuation
- V. Introduction to Risk and Return - Chapter 7
 - A. Historical evidence comparing risk and return
 - B. Measuring portfolio risk
 - C. Diversification and portfolio risk reduction
 - D. Calculating portfolio risk
 - E. Individual securities and incremental portfolio risk
- VI. Risk and Return - Chapter 8
 - A. Combining stocks into portfolios
 - B. Measuring security and portfolio expected return

- C. The relationship between risk and return
- D. The Capital Market and Security Market Line
- E. Role of the Capital Asset Pricing Model
- F. Alternative theories relating risk and return

Midterm Examination

VII. Introduction to Capital Budgeting - Chapters 5 and 6

- A. Alternative methodologies for allocating capital
 - 1. Payback
 - 2. Average Rate of Return
 - 3. Internal Rate of Return
 - 4. Net Present Value and Profitability Index
- B. Estimating incremental cash flows
- C. Project interactions

VIII. Capital Budgeting and Risk - Chapters 9, 10 and 11

- A. Measuring beta
- B. Sensitivity analysis
- C. Decision trees and subsequent decisions

IX. Options - Chapters - 20 & 21

- A. Put and Call options
- B. Alternative investment strategies with puts and calls
- C. Determining Option values
- D. The Black-Scholes option pricing model
- E. Applications of option pricing theory

X. Capital Structure and Financial Leverage - Chapters 17 & 18

- A. Financial leverage and rates of return
- B. Modigliani and Miller propositions
- C. The traditional proposition
- D. Corporate and personal taxes and the cost of capital
- E. Financial distress and the optimal capital structure.

XI. Special Topics Time permitting

Second Examination

Final Examination

Finance 6456 Quantitative Methods in Financial Analysis
Summer Term A, 1995

Professor: G. Bierwag BA 202A PH. 348-4282

Office Hours: M, T, 5-6 PM or by appointment

Course Objective:

It is the objective of this course to develop the quantitative skills to solve problems in Finance and in other business school subjects.

Text:

Edward r. Dowling, Introduction to Mathematical Economics, 2nd Ed., Schaum's Outline Series, 1992, McGraw-Hill Inc.

Lectures:

Lectures will follow the course outline in the order as presented below in the Course Outline. Lectures will contain information not contained in the text.

Homework:

The text contains numerous exercises designed to illustrate the quantitative techniques discussed. A study guide accompanying this syllabus indicates the recommended exercises to be worked through. Experience has shown that one of the best ways to absorb mathematical and technical information is by studying steadily throughout the term and working the problems prior to class meetings.

Course Outline:

Chapter 1: Review of Elementary Algebra and Graphing Techniques

Chapter 3: The Derivative and Rules of Differentiation

Chapter 4: Uses of the Derivative in Mathematics and Economics; Sections 4.1 through 4.8

Chapter 5: Calculus of Multi-variable Functions; Sections 5.1 and 5.2

Chapter 7: Exponential and Logarithmic Functions; Sections 7.1 through 7.5

Chapter 8: Exponential and Logarithmic Functions in Economics

Chapter 9: Differentiation of Exponential and Logarithmic Functions; Sections 9.1 through 9.7

Chapter 10: The Fundamentals of Matrix Algebra; Sections 10.1 through 10.10

Chapter 11: Matrix Inversion; Sections 11.1 through 11.9.

Chapter 8 will be supplemented with more information about mortgage and bond financing. If time permits, an introduction to modern statistical techniques will also be undertaken.

Exams:

There will be one mid-term exam counting 35% and a final examination counting 65%. Exams will generally be similar to the homework problems. No make-up exams will be given. The mid-term exam is optional, but if not taken, the weight is transferred to the final exam. The final exam is cumulative; that is, it will cover the entire course. Exams will be graded on a curve, subject to minimal standards.

**MAN 6245 Organizational Behavior
Fall, 1995**

Dr. Kroeck

BA 348A

T: 6:25-9:05 p.m.

348-4221

Course Objectives:

This course is designed to provide the graduate student with an introduction to contemporary theories of individual and group behavior in organizational settings. By focusing on certain corporate values the course is intended to enable the student to evaluate the applicability and limitations of innovative management practices concerned with organizational behavior. With the goal of enhanced understanding of some of the problems in modern organizations, the student should gain a perspective of management interventions designed to improve organizational effectiveness.

Required Text:

Wagner, John A., III and Hollenbeck, John R., Management of Organizational Behavior, Prentice-Hall, 1995.

Evaluation:

Class presentations	5%	
Project	20%	Due Date: November 28, 1995
Midterm Exam	35%	October 17 1995
Final Exam	40%	December 12, 1995

Exams:

Both the midterm and final exams are 50% identification/essay and 50% multiple choice. Study questions will be provided one week before the scheduled exam.

Class Presentations:

Each student will be asked to identify and describe a real-world problem in some organization which they have observed. The class will appreciate, discuss, and analyze the problem, culminating in possible solutions for the presented problem.

Project:

Students will choose an organization in which they can observe behavior or obtain information about the "people practices" within the organization. Behavior/practices should be analyzed and described according to some theoretical framework presented in the course. The selected organization can be one of those included in the supplementary text, or students' own organization or some other for which they can obtain information. The focus of the project should be either to solve some problem in the organization or should be an evaluation of the descriptive/explanatory adequacy of theory applied to management practices in the organization. If the focus of the project is on solving a problem, recommendations and solutions will be the most important part of the project. If the focus is on the theory, discussion of applications and limitations of the theory will be the most important part of the project. Systematic observation and analysis is critical for either project focus.

Date	Topic	Required Reading
Aug. 29	Orientation and Overview	Chapters 1, 16, 18
Sept. 5	Research Methods	Chapters 3, 4
Sept. 12	Behavior/Perceptions and Attitudes	Chapters 5, 6
Sept. 19	Learning	Chapter 7
Sept. 26	Motivation	Chapter 9
Oct. 43	Group Processes	Chapters 10, 11
Oct. 10	Review	
Oct. 17	Midterm Exam	All of the above
Oct. 24	Decision Making/Information Processing	Chapter 12
Oct. 31	Leadership	Chapter 13
Nov. 7	Leadership	Chapter 14
Nov. 14	Job Design and Careers	Chapters 9, 17
Nov. 21	Conflict and Stress	Chapters 8, 19
Nov. 28	Politics and Change; Project Due	Chapter 15
Dec. 5	International Aspects/Review	Chapter 2
Dec. 12	Final Exam	All of the above

MAN 6204 ORGANIZATION & MANAGEMENT THEORY
Spring 1996

Dr. Karl O. Magnusen
Office: BA 345A

This course examines how managers interact with organizations to accomplish complex tasks effectively. Because organizations are so varied, many managers fail to see how some business structures and processes are better suited than others to certain types of environments. Managers who are unresponsive to such knowledge are not likely candidates for career success nor are their organizations likely candidates for business excellence. Unfortunately, the study of organizations, while exciting, does not lend itself to formula-based, single-best answers. There are multiple avenues to business success and failure, and MAN 6204 will encourage students to refine their understanding of organizational design and enterprise effectiveness. Classroom work will supplement reading assignments and several cases will be distributed for class discussion.

Two texts are required:

- (1) Richard Daft, Organization Theory & Design (5th edition: West, 1995), and
- (2) Richard Pascale, Managing on the Edge: How the Smartest Companies Use Conflict to Stay Ahead (Simon & Schuster, 1990).

The Daft text should provide students with the fundamentals of current organization theory and research through the programmed reading assignments given on this outline. The "Edge" book, to be read on a self-paced basis, will be the focus for a required project (details to be discussed in class).

Grades will be based on a paper (45%), a final exam -- during exam week (35%), and on instructor judgment of student classroom initiative and contribution (20%). Classroom attendance is required, all work must be completed as scheduled, and the grade of "incomplete" should not be expected.

Week	Date	Topic	Daft Text
1	1/8	Organizations: Theory	Chapter 1
2	1/15	Strategic Management & Organization Effectiveness	Chapter 2
		No class Monday night -- University closed	
3	1/22	External Environment	Chapter 3
4	1/29	Technology & Structure	Chapter 4
5	2/5	Organization Size, Life Cycle, & Decline	Chapter 5
6	2/12	Designing Organizational Structures	Chapter 6
7	2/19	Designs for Global Competition	Chapter 7
8	2/26	Intergroup Relations & Conflict	Chapter 13
9	3/4	Power & Politics	Chapter 12
	3/11	Spring Break	
10	3/18	Organizational Culture/Ethics	Chapter 10
11	3/25	Innovation	Chapter 8
12	4/1	Innovation & Change (continued)	(con't.)
13	4/8	The Learning Organization	Chapter 14
14	4/15	[Project Presentations]	

Please note that Chapters 9 & 11 are not required reading.

Project Assignment for MANAGING ON THE EDGE:

This assignment involves a "**teampaper**" project using 5 person teams. Each team will select two companies to be studied from Fortune's "Most Admired Corporations" (specifically, a high- and low-ranked company). Each team must use different companies. The selected firms will then be analyzed using the environmental matrix (presented in class) and the "Edge" framework (vectors of contention). The result will be a single paper in standard format that accomplishes the following:

- Carefully links and compares the selected firms to the environment matrix, their life-cycle phase, and "Edge" framework. The description of "vectors" must include detailed and current examples that support the various vector assessments (graphics will be needed). This analysis should build in comparisons with Pascale text firms.
- Develops a set of conclusions about "leading edge" companies. This section can use Pascale and Daft material as a base, but should offer specific insights that emerged from the study of the two selected firms.
- Reviews and profiles the executive leadership found in the firms studied. From this, an assessment should be made about what skill areas seem especially related to effective organizational leadership. Based on this assessment, this section must include a leadership development profile proposed for team members, i.e., leadership skill areas in need of improvement with suggested options for development. Team members need not be identified by name for purposes of this profile but the results should give evidence of thoughtful assessment.
- Critiques the "vectors of contention" approach used by Pascale. This means identifying strengths, weaknesses, and even options for changing the basic approach.

A **single grade** will be assigned to each project -- and this grade will transfer to each individual team member. The teampaper will comprise 45% of your total course grade so thoughtful, insightful projects should be the norm. Each team member will have the opportunity to confidentially assess their **peers'** project contribution and such will figure significantly in determining classroom contribution (20% of your grade). Teams may "fire" unproductive group members upon written application to and concurrence of the instructor. Fired member must meet with the instructor upon his request and could fail the course as a result of a team's "fire" recommendation.

Each team will turn-in its project by the **deadline** of Friday, April 12th (5:00 p.m.) and subsequently give a short **presentation** of its findings on the last day of class (details to be discussed). This will allow for an exchange of insights across teams before the term ends. Please note that the instructor will keep course projects so be sure to keep a copy of your work for yourself. To receive written feedback on your project, coursework, and final exam results, provide the instructor with a self-addressed, stamped envelope on the last day of class.

MAR 6805 Marketing Management Spring 1996

Dr. J. N. Goodrich
BA 304-A, 348-2571
Hrs: T, Th. 3:30-5:00 PM & by appointment

REQUIRED TEXTS AND READINGS:

1. Douglas J. Dalrymple and Leonard J. Parsons, Marketing Management: Text and Cases, 6th edition. New York: NY: John Wiley and Sons, 1995 (Chapters, Cases, Questions). This is our major text.
2. Marketing 1995/96 (Annual Editions). Edited by John E. Richardson. The Dushkin Publishing Group, Inc., Sluice Dock, Guilford, Connecticut 06437. This book is a readings book. It consists of 46 articles taken from some of the most important journals, magazines, and newspapers. These articles are meant to supplement the materials in the major text by Dalrymple and Parsons.

Note: Chapter, questions, and cases are found in Dalrymple and Parsons; and articles are found in Marketing 1995/96.

BASICS OF THE COURSE:

Emphasis on the components, role, and importance of marketing in the organization, and on marketing strategy. End-of-chapter questions, and cases are for class discussion.

COURSE OBJECTIVE:

To enhance your understanding and appreciation of the role of marketing and marketing strategy in an organization, and in society as a whole.

YOUR PREPARATION FOR CLASS:

I expect you to be thoroughly prepared for each class. That entails reading the assigned materials (e.g., chapters, cases, articles, and library reserve materials) prior to class, and being prepared to discuss the materials, and end-of-chapter questions. Any written assignments must also be turned in on time, i.e., class period the assignment is due. Late assignments will not be accepted.

MY TEACHING STYLE:

Case discussions, lectures, Socratic, use of audio-visual aids, outside speakers (whenever possible), participative and experiential learning exercises for students. Student participation is essential for the conduct of the course. I always assume students read the materials (e.g., chapters, cases, articles) prior to class, so I only highlight the major points of each chapter, and spend most of the class time on end-of-chapter questions and case discussions, and generating new ideas and general discussion among class members. These discussions enliven the class, stimulate ideas, challenge some ideas, and are good learning experiences.

Policy Regarding Class Participation: Each student must actively participate in class discussions in order to earn his/her "class participation" grade. It is not enough to come to class and just sit and listen to me and other students. You will not earn your class participation grade that way. Sometimes, I'll call on students to answer questions and discuss class materials. I'll try my best to encourage everyone to participate in class, and to contribute to the learning experience.

Financial Impact of Marketing Decisions: Always consider and present the financial impact of your marketing suggestions and decisions during class discussions, case analysis, examinations, etc.

EXAMINATIONS ASSIGNMENTS AND RESPONSIBILITIES:

1. Midterm Exam Th., 3/7/96. Essay questions based on the materials covered up to that time (e.g., chapters, cases, articles, speakers, class discussion). Worth approximately 20% of course grade.
2. Group presentation of a case analysis. chapter. or articles assigned. The class will be divided into groups of about three students per group. Each group will be given the date for the presentation. The presentation should not take more than 30 minutes. There may be one or two such presentations during some classes. On Th., 11/18/96, kindly give me a typewritten list of the members of your group, and each member's home and office telephone numbers for my convenience if I need to contact you. I'll then set up group presentation dates.

Basically, each group must decide who (one or two members) will make the presentation or parts thereof, and will be responsible for obtaining materials, devices, etc., for the presentation. Make the presentation as practiced and as smooth as possible. Concentrate on things like organization, delivery, substance, critical case/chapter issues, etc. The group grade will be based on the quality of the presentation. The group members get the grade for the presentation. The group cannot get a higher grade than the grade of the presenter(s). I'll answer any questions you may have on this project. Worth approximately 20% of course grade.

3. Services Marketing Case (15-20 typewritten, double-spaced pages). Write an original case that deals with services marketing. The case should be about one of the following service organizations: Camillus House, Dryclean USA, a law firm, a service organization for which you work, a nursing home, a barber shop, a radio station, a beauty salon, a car wash, a sports franchise, a nonprofit organization, a PR company.

In your paper, discuss the organization and a marketing problem it has or had, and how the organization solved or is solving it. Sources of information for your case project may include employees of the organization, newspapers (e.g., Miami Herald, Wall Street Journal), journals and magazines (e.g., Business Week, Fortune, Newsweek, Forbes), legal and court documents that may be found in a library, the Infotrac database, and your own experiences. A sample case -- WEDR-FM Radio Station -- is on reserve in the library for your perusal.

Refer also to cases in your textbook, Dalrymple and Parsons, for insights into how to write and organize the information in a case. Your case should have the following sections:

- 1) A title page, with your names, and key words that indicate the main areas of concern in the case, e.g., ethics, pricing, advertising, marketing strategy.
- 2) Table of Contents
- 3) INTRODUCTION - company name, location, type of business, and a statement about the major marketing problems.
- 4) BACKGROUND INFORMATION - with a subsection each dealing with the company history, product, price, distribution, advertising and promotion, competition, and any other information you feel is relevant. Use tables, figures, and charts where appropriate. They are very useful for displaying succinctly important information about the company.
- 5) QUESTIONS - A list of 3-5 questions about the case that you think are worthy of discussion. The questions should be directly related to the case, but a few may be of a general nature.
- 6) CASE SUMMARY - One or two paragraphs.
- 7) TEACHING OBJECTIVES - A list of 4-6 teaching objectives of the case. E.g., "To demonstrate the development and application of marketing strategy in a hospital...."

- 8) ANSWERS TO QUESTIONS - List each question separately. Now, under each question, show how the company solved each of its marketing questions (problems), or plans to; and how you think the problem(s) should be solved.
- 9) SEQUEL - What actually happened afterwards.

The paper should also have appropriate headings and subheadings flush with the left-hand margin; tables, figures, exhibits; references.

A list of the names of persons interviewed, the organizations, addresses, and telephone numbers should be put on a separate sheet at the end of the case, just after the list of references. A package of reference materials used, e.g., articles, should accompany the case. The package will be returned. Keep a copy of the case for your own reference, and a diskette containing the case.

The paper may be done in groups or individually; the choice is yours. The group should not exceed four students, and may be the same group for the group presentation (item #2 above). The grading standard is the same whether the paper is done as a group project or by an individual student.

This paper is due on Thursday, 4/4/96. Worth approximately 20% of course grade. I will discuss this assignment in more detail in class. I am willing to review and help to edit the final draft of your paper. This draft should be substantially (90%) complete. This draft should be handed in no later than Thursday, 3/21/96. I'll return this draft with my comments a week later, on Thursday, 3/28/96. My review/editing help is optional. However, I have found that students usually benefit from such help.

The 6-page handout, "Collecting and Writing a Marketing Case" is for your own edification, and may be helpful.

4. Class Participation in discussions of chapters, cases, end-of-chapter questions, articles, etc. Worth approximately 20% of course grade.
5. Final Exam, Th. 4/25/95, 6:25 - 9:05 P.M.

TOPICS CHAPTERS. CASES. AND VIDEOS:

End-of-chapter questions assigned are for your personal review and for periodic class discussion. Cases and chapters assigned are for group presentation and class discussion. Chapters and cases are in Dalrymple and Parsons (DP). Videos are to illustrate various marketing topics. Articles are in Marketing 1995/96.

For the benefit of the entire class, each group will be scheduled to make a brief 15-minute oral presentation to the class about its written case. These presentations will be made during the class periods of Thursday, 4/11/96 and 4/18/95.

If, for some reason, we are unable to discuss a given topic listed below (maybe because the time is allotted to an outside speaker), you are still responsible for the topic, and we will move on to the next topic the following week. Anyhow, I will briefly entertain any questions on the missed topic that you think should be addressed, at the next class meeting.

The services marketing case is meant, partly, to provide you with research experience - both library research experience and survey research experience. This experience is valuable in marketing or any other functional area of business. The paper will also sharpen your skills in written communication.

	Date		Topic	Questions	Cases	Video Tapes	Articles
	1/11/96		Introduction				
1.	1/18/96	Ch. 1	Marketing: An Overview	1-10	1-1: The Case Method		#8: Relationship Marketing: Positioning for the Future #9: Affinity Marketing: What is it and How does it Work?
2.	1/25/96	Ch. 2	Marketing Strategy	2-6	2-1: Heineken N.V.	Focused Growth - The Maytag Strategy	#27: Marketing with Blinders On #28: Integrated Marketing Plans Help Small Businesses Stay Ahead
3.	2/11/96	Ch. 3	Customer Analysis	1-4, 6, 8	3-2: Friendly Ford	Superior Customer Relations	
4.	2/8/96	Ch. 4	Market Segmentation & Product Differentiation	2, 3, 5, 6, 8, 9	4-3: Lime Key Night Club		#19: The Ethnic Boom: Marketing to the Target; #20: What Does "Hispanic" Mean?
5.	2/15/96	Ch. 5	Competitive Analysis & Product Positioning	1-6	5-2: Topnotch Investment Company		# 3: Beyond Quality and Value; #12: The Little Extras Keep Customers Coming Back
6.	2/22/96	Ch. 6	Measuring & Forecasting Market Opportunities	1-6	6-2: Parker Computer		
	3/7/96		Midterm Exam.				
7.	3/21/96	Ch. 7	Product Development & Testing	1-4, 6-8	7-2: Elmtown Water Works (A)		#32: Product Development - Minnesota, Mining and Manufacturing
8.	3/28/96	Ch. 8	Product & Brand Management	1-6	8-1: Colgate-Palmolive: Cleopatra		#31: Flops
9.	4/4/96	Ch. 9	Services Marketing	1-12	9-3: Vancouver Public Aquarium	Shopping in the USSR.	#10: Service is Everybody's Business; #13: Waxing Customer Service and Cars
10.	4/11/96	Ch. 10	Pricing	1-13		American Airlines Yield Management Pricing	#34: Stuck! How Companies Cope When They Can't Raise Prices; #35: How To Escape a Price War
11.		Ch. 11	Selecting & Managing Distribution Channels	1-12			#37: Survival Tactics for Retailers; #39: T.V. or Not T.V.
12.	4/18/96	Ch. 14	Designing Advertising Programs	1-9		Videos on TV Commercials	#41: Advertising that Works; #42: Those Mind-Boggling Promotions

The oral presentation of a case analysis or chapter will help you to develop poise, confidence, delivery, and self-assurance - valuable skills to have in your climb up the corporate ladder.

The testing procedures - essay questions, written case and oral presentation - cover an array of skills. Class discussions and outside speakers enrich classroom learning. Throughout the course, relate the course materials to your company. Observe differences. similarities reasons for these. etc. Be prepared to answer questions along those lines. The course will be more meaningful to you if you keep all these things in mind. And don't be afraid to disagree with things you read, hear, or see.

FINAL EXAM: Th., 4/25/96, 6:25 P.M. - 9:05 P.M.

FINAL COURSE GRADES:

Your grade for the course will be determined by your overall performance. Work steadily and diligently, and keep on top of the work. Your approximate course grade will be as follows:

A	= 90% or above	C	= 72% - 74%
A-	= 87% - 89%	C-	= 69% - 71%
B+	= 84% - 86%	D+	= 66% - 68%
B	= 81% - 83%	D	= 63% - 65%
B-	= 88% - 80%	D-	= 60% - 62%
C+	= 75% - 77%	F	= Below 60%

I do not give out grades over the phone, nor do I post grades. If you need your course grade before FIU mails it to you, kindly give me a self-addressed, stamped envelope with a piece of paper or a 3"x 5" card inside marked "MAR 6805 Course Grade." I will mail this information to you within one week after the final exam.

MISCELLANEOUS:

Questions at the end of each chapter should be reviewed as possible examination questions. They may be taken directly "as is" from the textbook, or modified. Questions based on text material, cases, lectures, articles, and other assignments are also likely exam questions.

Written answers for exams or other assignments must be well organized and written in good and coherent English. Poorly written answers will be downgraded or required to be redone.

As a rule, I don't give make-up examinations for missed exams, except in extreme cases, e.g., hospitalization which prevents you from taking the examination. Also, I don't give make-up exams, make-up assignments, or additional work to improve grades.

THIS COURSE AS PREREQUISITE

If you are pursuing an MBA, MIB or MIS degree, MAR 6805 (formerly (MAR 6716) satisfies a prerequisite requirement only. Normally, students who have satisfied an undergraduate principles of marketing course are not required to take this course. MAR 6805 will not satisfy the open elective requirement nor the "MAR" elective in your graduate program of study. If you have any questions about how this course will apply in your program of study, please see Ms. Lynda K. Raheem, Assistant Dean College of Business Administration, Room 223. (Telephone 348-1289).

ALL THE BEST IN THIS COURSE.

MAR 6816 Advanced Marketing Management
Spring 1996

Instructor: Dr. Mary Jane Burns
Telephone: (office) 348-2571

Office: BA 307
Office Hours: 3:00 - 5:00 Monday and by appointment

COURSE DESCRIPTION:

This advanced marketing management course is designed to give you practice in the planning, implementation, and control of marketing strategies. It is an operationally oriented course in which the application, and not the definition, of marketing concepts, principles, and methods is important. In addition, the integration of the major decision areas of marketing will be stressed rather than the sequential discussion of these subjects.

PREREQUISITES:

Introductory Marketing, Accounting, Finance, Management and Statistics - This is NOT a course designed for first year MBA.

OBJECTIVES:

1. To understand the strategic management process and to be able to apply it in a business situation.
2. To understand the fundamental relationships between key marketing variables such as market segmentation, product life cycle, media planning, and strategies for established and new products.
3. To appreciate the important issues and problems of designing a strategic marketing plan.
4. To understand the difficulty and challenges inherent in the implementation of a marketing plan.
5. To understand how marketing decision making must be woven into the financial planning of the firm.
6. To experience the dynamics of group decision making including:
 - coping with and resolving conflicting opinions on strategy, tactics, and resource management
 - contending with the varying degrees of success that each group will have with his/her area of responsibility.
7. To experience the frustration and sense of accomplishment which comes from your business skills in a dynamic, competitive environment.
8. To develop an understanding of the whole business organization and how all functional areas must be integrated to achieve corporate goals.
9. To increase confidence levels in thinking, decision making, interpersonal relations, and communications skills.

To accomplish these objectives, you will participate in *The Market Place* game. *The Market Place* is a "reality simulation" designed to replicate many of the competitive features of the business world. You will be challenged in much the same way you would be if you were to start and run your own business.

You will team up with three or four of your classmates to form an entrepreneurial firm which will compete in *The Market Place*. During the next several weeks, you will take your fledgling business through the natural stages of business growth, including emergence, development, and maturity. Along the way, you will learn to develop and refine marketing strategies and tactics.

Like all new ventures, you will face maximum uncertainty. You will be very uncomfortable making decisions and commitments as you start your business. You have a natural need to know the "right" answer. Your classroom training encourages you to find "the" answer. Further, some of you will want a plan of action. You may ask - "What is your [the instructor's] plan? Just tell me your plan, and I'll get to work."

In a rapidly changing business world, there are no pat answers. All solutions are fleeting. Today's great idea is tomorrow's cliché. The great entrepreneurs needed only two things to thrive: confidence in themselves and an ability to adapt to a changing environment. Both come with experience.

At the end of twelve quarters of business, you will find that you have both of these requisites to success. They will be manifested in an ability to read the clues in the market, predict the trends, plan a course of action to capitalize on market opportunities, initiate that plan, and then change it with every new piece of information that is acquired.

It is my hope that this experience in *The Market Place* will allow you to become more than a marketing technician. If my objectives are realized you should become a marketing decision maker with strategic and tactical planning skills. You should have knowledge of product strategy and exhibit entrepreneurial spirit and boldness.

TEXT:

Cadotte, Ernest R. - *The Market Place*, University of Tennessee Knoxville (latest version in FIU bookstore).

OTHER MATERIALS NEEDED:

Each Team will also need at least one 3-4 inch three ring binder. This notebook will provide a record of team decisions and is turned in each week. Each Team will also need to purchase about twenty 3 1/2" high density diskettes.

GRADING:

	<u>Percentages</u>
Business Plan (Written)	20%
Business Plan (Oral)	20%
Report to Board of Directors	20%
Market Performance	15%
Individual Thinking and Involvement	<u>25%</u>
	100%

There will be an quiz on *The Market Place* book during the second week of class.

SCALE:

90 - 100	A
87 - 89.9	B+
80 - 86.9	B
77 - 79.9	C+
70 - 76.9	C
60 - 69.9	D
Below 60	F

TEAM MEETINGS/INDIVIDUAL EFFORT VS GROUP EFFORT:

The Chairperson of the Board (Instructor) will meet on alternate weeks (after quarter 4 decisions) with each team for fifteen to thirty minutes. Each student must participate equally in all presentations and executive briefings. On weeks that your team does not meet with the Chairperson, each team member will submit a one page memo describing his/ her contributions to that week's strategic decisions.

Both the individual and the group will be graded on all assignments. Peer evaluations are to be turned in with each business plan report. Significant deviation in performance above or below the norm will be used to adjust individual student grades.

OTHER INFORMATION:

Guidelines for the preparation of the two year business plan are contained in an appendix to *The Market Place* book. An outline for the report to the board will be handed out later in the semester.

Two criteria will be used to determine market performance: retained earnings, and market share in target markets. Each team will select two market segments to target. Market share will be based on average demand in each market segment over the last 4 quarters of play (quarters 8-12). Each team will choose the weighting of each criteria to calculate the market performance part of their grade (minimum weight is 25%). For example, a team may decide that 25% of their market performance grade will be based on retained earnings and 75% of their grade will be based on market share. At the end of the term, each team will be ranked in the order of performance for each criterion. A letter grade will be assigned within each category depending upon your team's ranking and how close it is to the team(s) above or below you. The individual criterion grades will then be averaged to obtain an overall grade based upon the weight specified by the team in the two year business plan.

The Executive Edition of *The Market Place* will be revised next year. Within the context of the game, we will pay your team \$20,000 for each typo discovered in the manual and \$50,000 for each error in software. To receive credit, please copy the page or screen, circle the error, and insert the correct word or value.

Please read *The Market Place* manual carefully. There is a tendency for some students to ask the instructor questions rather than referring to the manual. The instructor will charge \$10,000 to answer any question already addressed in the manual.

COURSE OUTLINE:

Date	Topic	Assignment
1-8	Introduction	Class Meeting
1-22	Submit Teams Oral Quiz Review Decision Template Receive Market Research	Class Meeting
1-29	Quarter 2 Decisions Abbreviated Team Briefings (All Teams)	Class Meeting; Meet w/Instructor
2-5	Quarter 3 Decisions Abbreviated Team Briefings (All Teams)	Class Meeting; Meet w/Instructor
2-12	Quarter 4 Decisions Abbreviated Team Briefings (All Teams)	Class Meeting; Meet w/Instructor
2-19	Business Plan Preparation	
2-26	Turn in Business Plan Oral Presentation of Business Plan	Meet w/Instructor
3-8	Quarter 5 Decisions	Class Meeting
3-4	SPRING BREAK	
3-18	Quarter 6 Decisions	Class/Instructor Meeting
3-20	Quarter 7 Decisions	
3-25	Quarter 8 Decisions	Class/Instructor Meeting
3-27	Quarter 9 Decisions	
4-1	Quarter 10 Decisions	Class/Instructor Meeting
4-3	Quarter 11 Decisions	
4-8	Quarter 12 Decisions	Class/Instructor Meeting
4-15	Oral Presentation Report to Board of Directors	Meet w/Instructor
4-22	Debriefing	Class/Instructor Meeting

NOTE: EACH QUARTER'S DECISIONS ARE DUE BEFORE CLASS AT 11:00 am.

MAR 6158 ADVANCED INTERNATIONAL MARKETING
Spring 1996

Instructor: Dr. Tiger Li
Phone: 348-3314

Office: BA 302B
Office Hours: 11:20-12:20 TR

NATURE AND PURPOSE OF THE COURSE:

Three environmental trends in the marketplace highlight the importance of international marketing: the growing threats from companies based in foreign countries, the globalization of the U.S. business operations, and the buyers' increasing demand for better products and services. This course is designed to prepare students to cope with these environmental changes in their future careers. Specifically, this course intends:

- to provide an understanding of the fundamental concepts and principles in international marketing;
- to identify and analyze the international marketing environment, functions, management process, and coordinating activities;
- to prepare students for future courses and careers in international marketing and related fields.

REQUIRED COURSE MATERIALS:

- International Marketing (1994), 6th ed., by Terpstra and Sarathy, the Dryden Press
- Supplementary Reading Packet

COURSE FORMAT:

The course involves lectures, discussions, presentations, and a research project. Lectures will generally follow the organization and presentation of concepts in the textbook. However, they will be supplemented with materials from other sources. Students are fully responsible for the assigned chapters and any other materials from the lectures.

PRESENTATION:

The class will be divided into several teams to work regularly to prepare class presentations. Each team will select an article from the supplementary reading packet and conduct a thorough reading and analysis of the article. In the class, each team will

- (1) give a summary of the main ideas of the selected article;
- (2) conduct a critique of the article regarding its theoretical strength, conceptual shortcomings, and practical relevance;
- (3) lead a class discussion of the article by raising 4-7 discussion questions.

The purpose of the discussion is to thoroughly investigate the specific features of the assigned readings. Questions that can generate class debates are most welcome. Each team should prepare a paper which contains the article summary, critique, discussion questions and answers. The paper should be submitted to the instructor one day before the presentation. In order to have a successful presentation and discussion, other materials related to the main ideas of the article and visual overheads can be used. All students in the class are expected to read each article before the class and participate in the discussion.

TERM PROJECT:

Each team will also carry out a research project. The project involves an investigation of the violation of intellectual property rights in a foreign market. Each team is asked to select a U.S. company or an industry as a unit of investigation and to find out in what ways the rights of the

selected company/industry are violated and what measures the company/industry has adopted to counteract the violation. The detailed requirements will be assigned in the class.

COURSE GUIDELINES:

Participation Student participation is an integral part of the course. Therefore, students are expected and encouraged to participate in class discussions, ask questions, and express views and opinions. To achieve better results, students should read the assigned chapters and readings prior to the class and be ready to participate in discussions. To facilitate participation print your name on a piece of cardboard for display on your desk at all times.

Attendance Class attendance is expected and will be taken periodically. If a student is absent or fail to answer questions when called upon due to lack of preparation, he/she will receive an "absent" grade. Each student can have one absence without penalty. Thereafter, each absence will result in a ten point deduction.

EXAMS AND GRADING:

There will be two exams. The exams will cover materials from all the assigned text book chapters, lectures, and presentations. Grades will be based on the two exams, class participation, group presentation, and term project. These ingredients will be weighted as follows:

Midterm exam	125	points
Final exam	125	
Participation	50	
Presentation & paper	150	
Term Project	150	
Total	600	points

The following straight scale will be used to assign grades:

546-600 points	A	474-491	B-	402-419	D +
528-545	A-	456-473	C	380-401	D
510-527	B	438-455	C	360-379	D-
492-509	B	420-437	C-	Below 360	F

SCHEDULE AND ASSIGNMENTS: (May be adjusted upon notice in class)

	Date	TOPIC	ASSIGNED READING
1	1/11	Course introduction; Concept of int'l marketing	Ch. 1
2	1 / 18	Economic environment; Project guidelines	Ch. 2 & 3
3	1/25	Cultural environment; Political-legal environment	Ch. 4 & 5
4	2/ 1	Int'l marketing strategy; Project proposal due	Ch. 6
5	2/8	Int'l marketing intelligence; Int'l product policy	Ch. 7 & 8
6	2/15	Int'l product policy	Ch. 8 & 9
7	2/22	Midterm Exam	
8	2/29	Int'l distribution	Ch. 10 & 11
9	3/7	Int'l promotion	Ch. 12 & 13
10	3/14	Spring Break	
11	3/21	Pricing in int'l marketing	Ch. 14 & 15
12	3/28	Int'l marketing of services	Ch. 16
13	4/4	Strategic Planning	Ch. 17
14	4/11	Research presentation; All research reports due	
15	4/18	Research presentation	
16	4/25	FINAL EXAM, 6:25-8:05 p.m.	

READINGS IN ADVANCED INTERNATIONAL MARKETING:

1. Ohamae, Kenichi (1989), "Planting for a Global Harvest," *Harvard Business Review*, July-August, 136-145. (A)
2. Prahalad, C.K. and Gary Hamel (1990), "The Core Competence of the Corporation," *Harvard Business Review*. 68(3), 79-91. (B)
3. Ohmae, Kenichi (1989), "The Global Logic of Strategic Alliances," *Harvard Business Review*, 67(2), 143-154. (A)
4. Hennart, Jean-Francois (1988), "A Transaction Costs Theory of Equity Joint Ventures," *Strategic Management Journal*, 9, 361-374. (B)
5. **Reich, Robert B.** and Eric D. Mankin (1986), "Joint Ventures with Japan Give Away Our Future," *Harvard Business Review*, March-April, 78-86. (A)
6. Bartlett, Christopher and Sumantra Ghosbal, "Managing Across Borders: New Strategic Requirements," *Sloan Management Review*, Summer, 7-17. (B)
7. Oviatt, Benjarnin M. and Patricia Phillips McDougall (1994), "Toward a Theory of International New Ventures," *Journal of International Business Studies*, 1, 45-64. (C)
8. Porter Michael E. (1986), "Changing Patterns of International Competition," *California Review*, 18(2), 9-39. (B)
9. Porter, Michael E. (1990), "The Competitive Advantage of Nations," *Harvard Business Review*, March-April, 73-93. (B)
10. Choudhry, Yusuf A. (1986), "Pitfalls in International Marketing Research: Are You Speaking French Like a Spanish Cow?" *Akron Business and Economic Review*, 17(4), 18-28. (B)
11. Agarwal, Sanjeev and Sridhar N. Ramaswami (1992), "Choice of Foreign Market Entry Mode: Impact of Ownership, Location, and Internalization Factors," *Journal of International Business Studies*. 1. 1-27. (C)
12. Harrigan, Kathryn Rudie (1988), "Joint Ventures and Competitive Strategy," *Strategic Journal*, 9, 141-158. (B)
13. Clark, Terry (1994), "National Boundaries, Border Zones, and Marketing Strategy: a Conceptual Framework and Theoretical Model of Secondary Boundary Effects," *Journal of Marketing*, 58(3), 67-80. (C)
14. Jain, Subhash (1989), "Standardization of International Marketing Strategy: Some Research hypotheses," *Journal of Marketing*, 53(1), 70-79. (C)

Notes: The letters A, B, and C indicate article categories. (A) refers to more applied research, (C) is more academic, and (B) is somewhere in between. The articles should be discussed in the sequence listed above.

EIN 5332 QUALITY ENGINEERING
Spring 1996

Instructor: Dr. Menberu Lulu
Office Hrs: MW 10:00-12:00 T 9:30- 11:00
Office: ECS 433

Introduction / Course Objective:

The quality assurance function has been traditionally exercised by implementing acceptance sampling and on-line process control procedures. This approach, which is sometimes referred to as inspection quality, is focused on catching defects or, in the case of control charts, on maintaining a process in a state of control within predetermined limits of variation. In the late 50's and early 60 s, Dr. Genichi Taguchi pioneered the use of simplified and effective statistical techniques that were aimed at eliminating or greatly reducing the accepted level of defect production. These methods that are collectively known as to as 'off-line' quality control have enabled quality to be designed into a product or process. Thus, quality assurance is no longer limited to the inspection function; it has become a domain of the product and process design function.

The objective of this course is to introduce the student to the technical knowledge and tools of quality engineering as developed by Taguchi. Class-room lectures will cover the fundamental philosophies, design methodologies and analytical tools that have made Japan and, now a great many U. S. manufacturers, world leaders in product quality. Text material will be augmented by the instructor's Q.E. research notes in electronics manufacturing and design.

Grade Distribution:

Mid-term	30%
Project and Homework	40%
Final	30%

Text: Taguchi Techniques for Quality Engineering, Ross, J. Philip, McGraw Hill, 1988, N.Y.

References:

1. A Primer on the Taguchi Method, Ranjit Roy, Van Nostrand, 1990, New York
2. Quality Engineering in Production Systems, Taguchi, G., Elsayed, E., Hsiang, T., McGraw Hill, 1989, N.Y.

Topics:

1. Introduction: Process and product quality, traditional and modern views, the Goal Post syndrome, loss function, quality engineering, quality as a business strategy
2. Quality Analysis Tools: Process flow diagram, Pareto Chart, Cause and Effect Diagram, Histogram, Stem & Leaf Display, Control Chart, Run Chart, Scatter Diagram, Process Flow Chart

3. Introduction to Design of Experiments: Full Factorial designs, analysis of variance, Fractional Factorial Designs
4. Design of Experiments Using Orthogonal Arrays: Fractional factorial designs using orthogonal arrays, Two-level and three level O.A., Linear graphs, Interactions, Design Resolution, Confounding, Pooling estimates of error variance, etc.
5. Analysis of Attribute and continuous Data: Binomial data, Poisson Data, Accumulation Analysis, Data Transformation
6. Parameter Design: control factors, noise factors, optimization Criteria, noise structuring, signal-to-noise ratios, optimizing criteria etc.: chpt. 8, class notes
7. Designing quality into manufacturing processes: Application in electronics manufacturing . Research note
8. Designing quality into products: application in circuit design. Research notes
9. Quality engineering in the service industry: Business process re-engineering. Research notes

EIN 5359 Industrial Financial Decisions
Term: Summer 1994

Professor: Sergio Martinez
ECS 418

Text: FUNDAMENTALS OF FINANCIAL MANAGEMENT, by: James C. Van Horne,
Eighth Edition, 1992

Class Schedule:

Class	Date	Assignment	Chapter	Page	H.W.
1	June 30	(1) Introduction			A 1-3
2	July 5	(2) Financial Accounting			A 2-4
3	July 7	(3) Income & Expense Accounts			A 3-6
4	July 11*	(8) Functions of Fin. Accounting			A 8-1
5	July 12	(4) End-of-period Entries			A 4-3
6	July 14	(5,6) Journals & Ledgers			A 6-1
7	July 18*	(9) Cost Accounting			A 9-1
8	July 19	(12) Material, Labor, IME Costs			A 12-1
9	July 21	(15) Standard Costs			A 15-4
10	July 25*	MIDTERM			
11	July 26	(2) Forms of Organization	2	14-34	2.1+, 2.4+
12	July 28	(4) Preferred & Common Stock	20	607-616	20.5, 20.6
13	Aug. 1	(5) Dividend Policy	18	541-563	18.6, 18.7
14	Aug. 2	(6) Capital Budgeting (3) Financial Ratios	12 6	353-365 140-160	12.3 6.4, 6.6
15	Aug. 4	(7) Cash Flow Forecast (8) A/R & Inventories	7 10	194-212 281-306	7.3 10.9, 10.10
16	Aug. 8*	(9) Short Term Debt	11	321-340	11.6, 11.7
17	Aug. 9	(10) Long Term Debt	20	601-607	20.8
18	Aug. 11	(11) Risk	14	403-416	14.4
19	Aug. 15*	(10) Leases	21	637-641	
20	Aug. 16	FINAL EXAMINATION			

Grading:

50% for Midterm & Final Examination (25,25)

30% for Homeworks

20% for Report due August 8th.

No credit for late homeworks. No make-ups. No exceptions.

**EIN 6392 Product Design for Manufacturability & Automation
Spring, 1996**

Catalog Description: Overview and integration of the design-material-manufacture process. Design considerations for manufacturability, assembly and economical production. Concurrent engineering.

Textbook: CAD/CAM Theory and Practice, by Ibrahim Zeid, McGraw Hill, 1991.

Coordinator: Dr. Chin-Sheng Chen (ECS 416, x3753)

Office Hours: M&W: 14:00-18:00 pm

Sec.	Date	Topic
1	1/12	introduction (product life cycle activities & information sharing)
1	1/12	the integrated product and process development system
2	1/19	product data (geometry, forms, tolerances, notes, symbols, & abbreviations) and information models
2	1/19	product modeling - wire frame
3	1/26	product modeling - Brep
3	1/26	product modeling - CSG & Sweeping
4	2/2	product modeling -practice
4	2/2	review
5	2/9	resources data & representation - machine
5	2/9	resources data & representation - tools
6	2/16	resources data & representation - fixtures & materials
6	2/16	resources data modeling practice
7	2/23	producibility evaluation - overview
7	2/23	producibility evaluation - qualitative
8	2/28	quantitative
8	2/28	producibility evaluation - practice
9	3/1	midterm test
9	3/1	process planning - overview
10	3/8	process planning - MRV generation
10	3/8	process planning - knowledge representation
11	3/15	spring break (no class)
11	3/15	spring break (no class)
12	3/22	process planning - operations planning
12	3/22	process planning - practice
13	3/29	review
13	3/29	NC program generation - overview
14	4/5	NC program generation - knowledge representation
14	4/5	NC program generation - generic canned cycles
15	4/12	NC program generation - practice
15	4/12	review
16	4/19	PDM
16	4/19	PDM

Grading Policy:

Midterm	25%
Home work	20%
Final test	25%
Term project	30%

**EIN 6603 Applied Artificial Intelligence/Expert System
1995**

Instructor: Dr. Joe G. Chow, ECS 439, TEL: 348-1976

Office hours: M-F 10:30-11:30

Text: *The Engineering of Knowledge-based Systems, Theory and Practice*, Prentice Hall, by Gonzales and Dankel, 1993

Software: CLIPS and PC Demo

Grading System:

1 Test	30%
1 Final Exam	40%
Presentations and Homeworks	30%

Topics:

1. Introduction to Knowledge-based Systems
2. Search as Foundation of Artificial Intelligence
3. Knowledge-based Systems Structure
4. Logic and Automated Reasoning
5. Introduction to Rule-based Reasoning
6. Details of Rule-based Reasoning
7. Associate Network, Frames and Objects
8. Uncertainty Management
9. Advanced Reasoning Techniques
10. Knowledge Acquisition and System Implementation
11. Expert System Tools
12. Verification and Validation

Note: The above topics are tentative and subject to change.

ESI 6316 APPLICATIONS OF OR IN MANUFACTURING

Catalog Data: Overview of OR techniques. Manufacturing systems and product selection. Shop loading, resource allocation, production scheduling, job sequencing, and plant layout problems. System performance evaluation.

Course Objectives: The objective of this course is to assist students in developing competency to identify mathematical essence of various manufacturing design and operations problems.

Textbook: *Modeling and Analysis of Manufacturing Systems*, by R.G. Askin and C. R. Standridge

Reference Books: *Operations Research Principles and Practice* by Ravindran, Phillips, and Solberg

Prerequisite: EIN 3314 or equivalent

Coordinators: Dr. Martha A. Centeno

Course Outline / Topics:

1. Industrial Engineering Models
2. Assembly Lines
3. Shop Scheduling
4. FMS
5. Facility Layout
6. Material Handling
7. Stochastic Models
8. Queueing Systems
9. Modeling Projects

Prepared by : Dr. Martha A. Centeno

Date: 3/27/1996

ESI 6524 APPLIED INDUSTRIAL SYSTEMS SIMULATION

Catalog Data: Advanced simulation techniques with a focus on practical systems modeling using several user-oriented simulation languages. Projects involving design of high-performance simulation programs are required.

Course Objectives: To provide a practical approach to systems modeling and simulation using different simulation languages.

Textbook: *Discrete Event Simulation*, by J. Banks, J.S. Carson, II., and B. L. Nelson

Reference Books:

1. *Stochastic Modeling: Analysis & Simulation*, by B. L. Nelson
2. *System Improvement Using Simulation*, by C. Harrel, R. Bateman, T. Gogg, J. Mottarry, L. Nelson
3. *Statistical Tools for Simulation Practitioners*, by J.P.C. Kleijnen
4. *Systems Simulation: The Art and Science*, by R. E. Shannon

Prerequisite: ESI 3523

Coordinators: Dr. Martha A. Centeno

Course Outline / Topics:

1. Dynamic Systems and Discrete Event Simulation
2. Understanding Simulation Software
3. Random Number Generation
4. Random Number Testing
5. Random Variate Generation
6. Input Data Analysis Techniques and Tools
7. Output Analysis
8. Verification and Validation
9. Comparison of Alternative Systems
10. Modeling of Industrial Systems
11. Modeling Projects

Prepared by : Dr. Martha A. Centeno

Date: 3/27/1996

ENV 5105 Air Quality Management

Coordinator: Dr. W.F. Rogge, Assistant Professor

Office: VH167

Phone: 348-3052

office hours: MW. 13:30 to 15:30

I. Course Description:

Modern urban areas harbor within its borders a multitude of air pollution sources. Once released to the urban atmosphere, primary pollutants often undergo chemical conversion reactions that may lead to more harmful pollutants. In order to improve and manage air pollution, knowledge in several areas is necessary, including: formation and control of pollutants, atmospheric pollutant measurement, pollutant transport, fate of air pollutants and their effects on health and welfare, pollution concentration forecasting modeling tools, as well as least cost analysis techniques necessary to predict the costs of air quality improvement policies. This course serves the interested student to gain insight into the complexity of air quality management. Accordingly, we will cover a good portion of what is necessary to become a well trained future environmental engineer.

II. Texts:

The course will be taught without a textbook. Consequently, the student is asked to very carefully study class notes, handouts, and library references. For the interested student, portions of material that will be taught in this class can be found in the following books:

1. "Atmospheric Chemistry and Physics of Air Pollution" by John H. Seinfeld.
2. "Atmospheric Chemistry" by Finlayson-Pitts and Pitts.
3. "Air Pollution" by Wark.
4. "Fundamentals of Air Pollution Engineering" by Flagan & Seinfeld.
5. "Air Pollution Control Engineering" by Noel de Nevers.
6. "Air Pollution Control" by C. David Cooper.
7. "The Combustion of Solid Fuels and Wastes" by David A. Tillman.
8. "Rethinking the Ozone Problem in Urban and regional Air Pollution" by National Research council.
9. "Environmental Engineering" by Bill T. Ray. III.

III. Lecture:

Lecture Topics

1. Overview/introduction
2. Local and global air pollution sources
3. Atmospheric transformations of pollutant emissions
4. Meteorology
5. Dispersion of pollutants in the atmosphere (Source Models)
6. Statistical models (Receptor Models)
7. Design of air quality control strategies

IV. Grading:

Homework	20 %
Test 1	10 %
Test 2	20 %
Project	50 %

Homework assignments will consist of 2 to 7 problems each and are due on set day and time, at the very beginning of the class. Late homework will receive zero points. Your homework must be an individual effort, unless otherwise indicated. Begin your homework as soon as it is assigned. About

4 to 6 homework will be assigned that may include the application of computer models that run on PC-type computers.

The homework has to be done in a professional fashion e.g. text program or very well hand written. Homework that lack readability and professional setup will be returned receiving zero points. Each problem should be properly labeled, problem stated, approach to solve problem shortly summarized, and all partial and/or final results clearly labeled. Between two problems, a line should indicate start and end.

Each student has to conduct a research project on its own. The subjects of the students' projects will be announced within the next two weeks. The project reports are due November 29. Each student has to present his or her project in class. The presentation should not be longer than 20 min. The schedule will be provided in time prior to the presentations. Additional information regarding the project will be provided separately.

Test 1 is a short test and will be given Wed., Oct. 11. Final Exam will be held during class on Wed., 13. The exam is open-book and open-notes. That means you are allowed to bring books of your choice, class notes and handouts in a binder. The final grade will be determined according to the percentage reached out of the maximum possible 100 %:

93.3	<	A	≤	100.0	73.3	<	C	≤	76.7
90.0	<	A-	≤	93.3	70.0	<	C-	≤	73.3
86.7	<	B+	≤	90.0	66.7	<	D+	≤	70.0
83.3	<	B	≤	86.7	63.3	<	D	≤	66.7
80.0	<	B-	≤	83.3	60.0	<	D-	≤	63.3
76.7	<	C+	≤	80.0			F	≤	60.0

V. Students Responsibilities:

To reach set goals, students are asked to participate in the class, improve their knowledge through reading assignments (including additional references) and complete all homework assignments. Reading assignments must be completed prior to the discussion of respective material in class. Class attendance is required. A student with three or more absences will be dropped from the course with a DR prior to Oct. 20 and with a failing grade after Oct. 20. There will be no make-ups of any kind, unless extraordinary emergencies occurred that can be properly verified.

VI. Note:

Oct. 20:	Last day to drop a course with a DR grade by 17:00; last day to withdraw from the university with a WI grade by 17:00.
September 4:	Labor Day Holiday
November 10- 11:	Veterans' Day Holiday
November 23-24:	Thanksgiving Holiday

ENV 6615 ENVIRONMENTAL IMPACT ASSESSMENT
Fall 1995

Objectives:

To acquaint students with all the components of EIA, to familiarize students with different EIA methodologies and their new development, and to apply the learned knowledge to solve environmental problems in the real world

Textbooks:

1. Jain, R. K., Urban, L. V., Stacey, G. S., Balbach, H. E., "Environmental Assessment", McGraw-Hill Book Company (1996).
2. Canter, L. W., "Environmental Impact Assessment" (2nd edition), McGraw-Hill Book Company (1995).
3. Handouts provided by the Instructor.

Instructor: Walter Z. Tang, Ph.D., P.E., Assistant Professor

Office Hours & Place: M & T from 14:00 to 17:00, VH 184, Telephone: 348-3046; Fax: 348-2802.

Grading: Mid-term Examination: 100 Points, Final Examination: 100 Points, Course Project: 200 Points, (Due on 12/08).

	Date		Topics
1	8/29	T	Introduction
2	8/31	R	Environmental Setting
3	9/05	T	Surface Water Quality and Pollution Assessment
4	9/07	R	Groundwater Quality and Pollution Assessment
5	9/12	T	Air Pollution Abatement
6	9/14	R	Environmental Assessment of Air Quality (Term Paper Outline Due)
7	9/19	T	Biological Impact Assessment
8	9/21	R	Assessment of Cultural & Socioeconomic Impact
9	9/26	T	Environmental Laws Affecting Real Estate Transactions
10	9/28	R	Environmental Risks in Real Estate Transactions
11	10/03	T	Environmental Site Assessment -- Phase I
12	10/05	R	Environmental Site Assessment -- Phase II
13	10/10	T	Environmental Site Assessment -- Phase III
14	10/12	R	Environmental Site Assessment -- Case Studies
15	10/17	T	The First Examination
16	10/19	R	Comparative Studies of Methodologies
17	10/24	T	Simple Checklists and Scaling Checklists
18	10/26	R	Leopold and Moore Impact Matrices
19	10/31	T	Environmental Assessment Models
20	11/02	R	GIS Applications in Environmental Impact Assessment
21	11/07	T	Multimedia Environmental Pollutant Assessment System I
22	11/09	R	Multimedia Environmental Pollutant Assessment System II
23	11/14	T	Multimedia Environmental Pollutant Assessment System III (Term Paper Draft Due)
24	11/16	R	Environmental Assessment of Global Warming
25	11/21	T	Environmental Assessment of Ozone Layer Depletion
26	11/28	T	Environmental Assessment of Deforestation and Biodiversity
27	11/30	R	Student Presentation I
28	12/05	T	Student Presentation II
29	12/07	R	The Second Examination (Final Term Paper Due)

**TTE 5506 URBAN MASS TRANSIT & TRANSPORTATION PLANNING
FALL 1994**

INSTRUCTOR: L. David Shen, Ph.D., P.E.

TEXTBOOK: "Urban Public Transportation System & Technology" by V. Vuchic, Prentice-Hall, 1981.

TENTATIVE CLASS SCHEDULE:

	DATE	TOPIC (Reading Assignment in Chapters)
1	8-29	INTRODUCTION (1) Urban Mass Transit Planning (1)
2	9-05	Labor Day Holiday (University Closed)
3	9-12	Urban Mass Transit Mode Selection (2) A Study of Miami's Metrorail-Metromover (2)
4	9-19	Existing Technology on Mass Transit Systems (5) Existing Technology on Mass Transit Systems (5)
5	9-26	New Technology on Mass Transit Systems (6) New Technology on Mass Transit Systems (6)
6	10-03	Transit Systems Case Study
*		FIRST EXAM - Closed Book Exam (1,2,5,6)
7	10-10	Topics on Mass Transit (8) Topics on Mass Transit (8)
8	10-17	Introduction to Urban Transportation Planning (4) Passenger Transportation in Urban Areas (4)
9	10-24	Transit System Performance (7) Transit System Performance (7)
10	11-31	Urban Land Use, Characteristics and Forecasting Urban Land Use, Characteristics and Forecasting
11	11-07*	SECOND EXAM - Open Book Exam (1,2,4,5,6,7,8)
12	11-14	Trip Generation, Distribution Trip Generation, Distribution
13	11-21	PRESENTATION PRESENTATION
14	11-28	PRESENTATION PRESENTATION
15	12-05*	PRESENTATION *** Final Report due 12-12-94 PRESENTATION

GRADING POLICY:

Attendance & Classroom Performance:	10%
First Exam	30 %
Second Exam	30 %
Presentation (Nov.. 24, Dec. 1)	10%
<u>Special Project Report (due Dec. 1)</u>	<u>20%</u>
TOTAL:	100%

TTE 5526 AIRPORT PLANNING & DESIGN
Spring 1993

TEXTBOOK:

"PLANNING AND DESIGN OF AIRPORTS," Horonjeff & Mckelvey, 3rd Edition, McGraw-Hill, 1983.

INSTRUCTOR: L. David Shen, Ph.D., P.E. **OFFICE HOURS:** M-T, 10:00-12:00

TENTATIVE CLASS SCHEDULE:

	DATE	TOPIC (Reading Assignment in Chapters)
1	1-11	INTRODUCTION (1)
2	1-18	M.L.K. Holiday
3	1-25	Airport Financing (2)
4	2-01	Aircraft Characteristics (3) Air Traffic Control (4)
5	2-08	Airport Planning (5)
6	2-15	Forecasting in Aviation (6) Airport Configuration (7)
7	2-22	Airport Configuration (7)
	*	FIRST EXAM - closed book exam (1-7)
8	3-01	Spring Break
9	3-08	Airport Capacity (8) Geometric Design (9)
10	3-15	Geometric Design (9) Geometric Design (9)
11	3-22	Planning & Design of Terminal (10) Planning & Design of Terminal (10)
12	3-29*	SECOND EXAM - open book exam (1-10) Design of Airport Pavements (12)
13	4-05	Current Issues/Future Trends
14	4-12	Presentation
15	4-19	Presentation

Grading Policy:

First Exam	30 %
Second Exam	30 %
Attendance & Classroom Performance	10 %
Presentation	10 %
Project Report	20 %
TOTAL	100 %

TTE 5606 Transportation System Modeling & Analysis
Fall. 1995

Catalog Data:

Modeling and Analysis Techniques in Transportation, Linear Programming, Queuing Theory, Decision Making Techniques.

Prerequisite: TTE 4201, and Computer Programming Language (BASIC, FORTRAN, C, or C++)

Course Description:

Modeling and Analysis techniques in transportation. One-Dimensional & Multivariate Minimization, Convex Combinations Method. Decision Making Techniques.

Topics to be Covered

1. One-Dimensional Minimization
2. Multivariate Minimization
3. Convex Combinations Methods
4. User Equilibrium Assignment
5. System Optimal Assignment
6. Decision Making

Instructor:

Young-Kyun "Y-K" Lee, Assistant Prof., VH-162, (Tel) 348-3116, e-mail: leeyk@solix.fiu.edu

Office Hours: TR 2:30 - 4:30 p.m. or by appointment

Textbook: None

References:

1. Yosef Sheffi, *Urban Transportation Networks: Equilibrium Analysis with Mathematical Programming Methods*, 1985
2. Bin Ran, and David E. Boyce, *Dynamic Urban Transportation Network Models: Theory and Implications for Intelligent Vehicle-Highway Systems*, 1994
3. Richard C. Larson, and Amedeo R. Odoni, *Urban Operations Research*, 1981

Grading:

Midterm	30 %
Final Exam	30 %
Homework	10 %
Paper Presentation	10 %
Project	20 %

Late works will be graded accordingly: Your work can be turned in to my mail box in CEE office.

1 day after due	70 % of the score
2 days after due	50 % of the score
3 and more days after due	no score

Note:

Instructor will abide by the University's policy on religious holy days as stated in the University catalog and the student handbook, and that any student may request to be excused from class to observe a religious holy day of his or her faith.

TTE 6257 TRAFFIC CONTROL SYSTEMS DESIGN
Spring 1996

Instructor: Young-Kyun "Y-K" Lee, VH-162, TEL: 348-3116, e-mail: *leeyk@solix.fiu.edu*

Office Hours: 1:00 - 4:00 p.m. on Thursday, or by appointment

Catalog Data:

Traffic Control Systems Design. 3 credits. Theory and principles of traffic control systems design, including both freeway and urban streets. Design projects required. Prerequisite: TTE 4201.

Textbook: Traffic Control Equipment & Software: Participant Notebook, July 1993.

Topics:

- Available Systems Technology
- Control Concepts - Urban Streets
- Control Concepts - Freeways
- Detectors
- Local Controllers
- System Masters
- Communications
- Driver Information Systems
- Selection of a System
- Design and Implementation
- System Management
- Other Related Topics

Grading:

- Midterm 20 %
- Final Exam 30 %
- Project 50 %

References:

- Traffic control System Handbook, FHWA, 1985
- Traffic Control Devices Handbook, FHWA, 1983.
- Transportation Engineering: An Introduction, C. Jotin Khisty, 1989.
- Highway Capacity Manual, TRB, 1994.
- Traffic Flow Theory, 1975.
- Journals: ITE Journal, Transportation Research Record, Transportation Quarterly, Transportation Research A,B,C, and other related journals.

Appendix C:

Faculty Curriculum Vitae

BIOGRAPHICAL FACULTY VITAE

NAME: Martha A. Centeno, Ph.D.

ACADEMIC RANK: Assistant Professor

Department of Industrial and Systems Engineering
Florida International University - University Park
Miami, Florida 33199

(305) 348-3531 Fax: (305) 348-3721

Email:centeno@eng.fiu.edu

EDUCATION:

	Major	Degree	Date
Texas A & M University	Industrial Engineering	Ph.D.	5/90
Louisiana State University	Industrial Engineering	M.S.	12/85
ITESO University	Chemical Engineering	B.S.	6/81

PROFESSIONAL EXPERIENCE:

	Position	Dates
Florida International University	Assistant Professor	8/93-Present
FAMU/FSU	Assistant Professor	6/90-7/93
Texas A&M University	Research & Teaching Assistant	8/86-5/90
Louisiana State University	Research & Teaching Assistant	8/84-8/86
ITESO University, Guadalajara, Mx.	Instructor & Systems Analyst	8/81-12/83
Loza Fina, S. A., Guadalajara, Mx.	Engineering Aide	6/81-8/81

AREAS OF RESEARCH INTEREST: A) Simulation; B) Decision Support Systems; C) Expert Systems; D) Operations Research.

SELECTED PUBLICATIONS:

1. Centeno, M.A. & C.R. Standridge (1991), "Modeling Manufacturing Systems: An Information Based Approach," Proceedings of the 24th Annual Symposium 1991, SCS Eastern Multi-conference, A.H. Rutan (ed), 230-239
2. Standridge, C.R. & M.A. Centeno (1991), "Concepts for Production Modeling Systems Based on Multiple User Types," Proceedings of the 1991 Winter Simulation Conference, B.L. Nelson, W.D. Kelton, G.M. Clark (eds), 428-434
3. Centeno, M.A. (1992) "Generating Simulation Models from a Relational Data Base," Proceedings of the 1992 NSF Design and Manufacturing Systems Conference, SME Publication, 669-672
4. Centeno, M.A. & C.R. Standridge (1992), "Databases and Artificial Intelligence: Enabling Technologies for Simulation Modeling," Proceedings of the 1992 Winter Simulation Conference, J.J. Swain, D. Goldsman, R.C. Crain, J.R. Wilson (eds), 181-189.
5. Centeno, M.A. & C.R. Standridge (1993), "Databases: Designing and Developing integrated Simulation Modeling Environments," Proceedings of the 1993 Winter Simulation Conference, G. W. Evans, M. Mollaghasemi, E. C. Russell, W. E. Biles (eds), 526-534.
6. Centeno, M.A. (1995), "A Life-Cycle Approach to Teaching Engineering Economy", Proceedings of the 1995 ASEE Conference, June 25-28, Anaheim, California, 2663-2671
7. Garcia, M.L., M.A. Centeno, C. Rivera, N. DeCario, (1995), "Reducing Time in an Emergency Room Via Fast Track," To appear in the proceedings of the 1995 Winter Simulation Conference

GRANTS AWARDED:

1. Design of An Intelligent Statistical Engine for a Simulation Modeling Environment, Council on Research and Creativity, First Year Assistant Professors, The Florida State University, Summer 1991, \$8,888.00.

2. An Integration Management System for a Modeling Environment, NSF Grant, Proposal Id. No. DDM 9111809, \$10,000 (declined because prior acceptance of RII-9024799 grant).
3. Generating Simulation Models from the Relational Database of a Manufacturing Modeling Environment, NSF Grant, Proposal Id. No. RII-9024799, 711991-10/1992, \$12,000.00.
4. Experiencing Engineering Design, NSF Grant through the SUCCEED Coalition, SUCCEED Id. GT-09-PS, 8117192 - 811993, \$10,000.
5. Merging Knowledge Based Systems and Relational Databases For Smart Data Analysis, Council on Research and Creativity, The Florida State University, Summer 1993, \$3,478.00
6. Ethics and Economics Issues for Engineers, NSF Grant through the GATEWAY Coalition, 10193 Ä 5194, \$14,000(half of it is matching funds in the form of released time)
7. Utilization of the SFC Database: A Framework For Modeling Shuttle Processing Operations, NASA grant (1994Ä1997), \$225,000.
8. Engineering Up-Front, A grant from the Academy of the Art of Teaching (FIU), \$2,200.00 (8194Ä6195)
9. Ethics and Economics Issues for Engineers, NSF Grant through the GATEWAY Coalition, 1194 Ä 5/95, \$11,000(\$2,000 is matching funds in the form of release time)
10. Curriculum Innovation Activities, NSF Grant through the GATEWAY Coalition, 8/94 Ä 5195, 3,000.

HONORS/AWARDS:

- 1992 NASA/ASEE Summer Faculty Fellow, Summer 1992 at Stennis Space Center (Mississippi).
- 1993 NASA/ASEE Summer Faculty Fellow, Summer 1993 at Kennedy Space Center (Florida).
- 1994 NASA/ASEE Summer Faculty Fellow, Summer 1994 at Kennedy Space Center (Florida).
- Member of Alpha Pi Mu, Industrial Engineering Honor Society
- O.R. Outstanding Student award (1988Ä1989), Texas A&M University, ORSA TAMU Student Chapter
- I.I.E. Teacher of the Year award (1990Ä1991), FAMU/FSU College of Engineering, Industrial Engineering Department, FAMU/FSU IE Student Chapter
- I.I.E. Teacher of the Year award (1991Ä1992), FAMU/FSU College of Engineering, Industrial Engineering Department, FAMU/FSU IIE Student Chapter
- I.I.E. Teacher of the Year award (1993Ä1994), Florida International University, FIU IIE Student Chapter
- Board of Regents (State of Florida) Teaching Incentive Program (TIP) award, (1993Ä 1994)

BIOGRAPHICAL FACULTY VITAE

NAME: F. Frank Chen, Ph.D.

ACADEMIC RANK: Associate Professor

Department of Industrial and Systems Engineering
Florida International University - University Park
Miami, Florida 33199

(305) 348-3723 Fax: (305) 348-3721 Email: chenff@eng.fiu.edu

EDUCATION:	Major	Degree	Date
Univ. of Missouri-Columbia	Industrial Engineering	Ph.D.	5/88
Univ. of Missouri-Columbia	Industrial Engineering	M.S.	5/85
Tunghai University	Industrial Engineering	B.S.	6/80

PROFESSIONAL EXPERIENCE:	Position	Dates
Florida International University	Associate Professor	8/94-Present
The University of Southwestern Louisiana	Coordinator of Eng. Mgmt. Program	8/92-7/94
The University of Southwestern Louisiana	Asst. Professor of Engineering Mgmt.	8/91-7/94
Bradley University	Adjunct Asst. Professor	8/88-5/91
Caterpillar Inc. Processes Div. 5/90-8/91		Project Manager, Mech.I
		Sr. Manuf.
Engr., Process Control Div. 10/89-4/90		Manuf.
Systems Eng., Machining Div. 6/87-10/89		Graduate Instructor, Math. Dept.
University of Missouri 1/85-5/87		Research
& Teaching Assistant 1/83-12/86		
Hotai Stainless Kitchen-Unit Mfg. Co., Philips Electronics (Taiwan) Ltd Summer '79	Assistant Engineer, Manuf.. Eng. Div., Engineering Intern, TEO	9/79-5/80.
Honkon Paper Manufacturing Co., Summer '78	Industrial Engineering Intern	

MAJOR SPONSORED PROJECTS:

1. *"Development of A Rapid Manufacturing System,"* **PI**, ONR/ARPA, \$473,454 (including \$100,000 cash match from FIU Research Office), 1995-1996.
2. *"Intelligent Cell Engineering and Control: A Neural Network Approach,"* **PI**, NSF/DMI-9414332, \$150,181, 1995-1998.
3. *"An Advanced Manufacturing System Design Methodology - The Concurrent Engineering Approach,"* **PI**, NSF/DMI-9308711, \$89,885, 1993-1996.
4. *Development of FMS Operational Enhancement Modules,"* **PI**, Louisiana Board of Regents' Research Competitiveness Program, \$57,800, 1993-1995.
5. *"Automated Vision Inspection of Machined Parts in FMS Environment,"* **Co-PI**, Louisiana Board of Regents' Research Competitiveness Program, \$61,000, 1994-1996.
6. *"Rapid Simulator for Control Optimization of Discrete Event Dynamic Systems,"* **Co-PI**, Louisiana Board of Regents' Research Competitiveness Program, \$67,000, 1993-1995.
7. *"Rapid Modelling and System Simulation Techniques for Cell Engineering, Parts I & II,"* **PI**, Caterpillar Technical Center, \$27,944., 1991-1992.

8. "Intelligent Machine Monitoring: A Neural Network Approach", (Industrial) Co-PI, NSF/DDM-9113770 & Caterpillar Technical Center, Total Amount: \$27,269., Summer 1991.

HONORS/AWARDS:

- IIE Teacher of the Year Award (1994-1995), Florida International University IIE Student Chapter.
- NSF Presidential Faculty Fellows Awards Nominee, Florida International University, 1994.
- NSF Young Investigators Awards Nominee, The University of Southwestern Louisiana, 1994.
- Award for Distinguished Services, Office of V.P.-Technical Services, Caterpillar Inc., 7/1991.
- Awards for Excellence in Research Project (1st Place-1988, 2nd Place-1987), Annual Research & Creative Activities Forum, University of Missouri-Columbia.
- Award for Excellence in Teaching, Mathematics Dept., Univ. of Missouri, 1986-1987.
- Award for Excellence in Research Paper Presentation (2nd Place), SME Chapter 287, 12/1987.

RECENT REFEREED PUBLICATIONS:

1. Chen, and Q. Su: "Scheduling Single-Gripper Gantry Robots for Material Handling in Tightly-Coupled Serial Production Lines," *J. of Manufacturing Systems* 14 (3), 1995, pp 139-147.
2. Chen, and S. R. Sagi: "Concurrent Design of Manufacturing Cell and Control Functions: A Neural Network Approach," *Int. J. of Advanced Mfg. Technology*, 10, 1995, pp. 118-130.
3. Chen, and K. Kleawpatinon: "An Effective Part-Selection Model for Production Planning of Flexible Manufacturing Systems" *Int. J. of Production Research*, 33, 1995, pp. 1175-1187.
4. Su, and F. F. Chen: "Optimally Sequencing of Double-Gripper Gantry Robot Moves in Tightly-Coupled Serial Production Systems," *IEEE Transactions on Robotics and Automation*, (1995/96)
5. Chen and Q. Su: "Single-Gripper Gantry Robot Scheduling in Automated Serial Production Line with Intermediate Buffers," *Engineering Design and Automation*, 1(3), 1995 (in print).
6. Sagi, and F. F. Chen: "A Framework for Intelligent Design of Manufacturing Cells," *Journal of Intelligent Manufacturing*, 6, 1995, pp.175-190.
7. Lee, and F. F. Chen: "Inspection Sequencing and Part Scheduling for Flexible Manufacturing Systems," *European Journal of Operational Research* (accepted for publication) 1995/1996.
8. Yingpunyachok, F. F. Chen and J. Lee: "Scheduling of Rail-Guided Vehicles in the Load/Unload Area of A Flexible Manufacturing System," *International Journal of Industrial Engineering - Applications and Practice*, Vol. 3, No. 1 (1996 winter, in print).
9. Ventura, F. F. Chen, and E. H. Wu : "Grouping Parts and Tools in Flexible Manufacturing Systems Production Planning," *International Journal of Production Research*, Vol. 28, No. 6, 1990, pp. 1039-1056.
10. Shen, and F. F. Chen: "Coordinate Measuring Machine Technologies and Their Applications in Support of Concurrent Engineering Endeavor: Concepts, Tools, and Challenges," *Integrated Product, Process and Enterprise Design* (Ben Wang, Editor), Chapman & Hall (to appear).
11. Ker, F. F. Chen, and J. Lu: "A Quick Hough Transform Algorithm for Dimensional Inspection of Non-Positioned Part," *Journal of Manufacturing Systems* (to appear in 1995)
12. Chen. and D. Xu, "Effects of Tool Loading and Replenishing Practice on Design and Operation of Flexible Machining Centers", *Transactions of the North American Manufacturing Research Institution of SME*, 21, 1993, pp.391-398.
13. Chen : "Concurrent Cell Design and Cell Control System Configuration," *Handbook of Concurrent Engineering (Chapter 12)*, (H. Parsaei and W. Sullivan, Editors), Chapman and Hall, London, 1993, pp.231-247.
14. Wang and F. F. Chen (Editors): Special Issue on Neural Networks for Design and Manufacturing, *Int. J. of Advanced Mfg. Technology*, 8(4), 1993 (193 pages).
15. Chen, and E. E. Adams, Jr.: "The Impact of FMS on Productivity and Quality," *IEEE Transactions on Engineering Management*, 38(1), 1991, pp. 33-45.

DR. M. A. EBADIAN

Dr. M. A. Ebadian, Chairperson of the Department of Mechanical Engineering
Ph.D., Mechanical Engineering, Louisiana State University, 1981
M.S.M.E., University of Southwestern Louisiana, 1977
B.S.M.E., Louisiana State University, 1975

Dr. M. A. Ebadian is currently the Chairperson for the Department of Mechanical Engineering in the College of Engineering and Design at Florida International University. Dr. Ebadian has over 13 years of experience in teaching engineering and in engineering administration. Dr. Ebadian, aside from his teaching and administrative responsibilities, is also actively engaged in sponsored research. Dr. Ebadian is in the top 1% of the University faculty in terms of sponsored research funding obtained annually. Dr. Ebadian is the recognized leader at FIU in promoting technology transfer programs and is active in fostering proposals directed in this area. In addition, he is active in both publishing scholarly works as well as acting as a reviewer for several national engineering journals and federal agencies.

ACCOMPLISHMENTS AND HIGHLIGHTS

Administrative Accomplishments:

- Increased the number of undergraduate students by over 260% during a time of declining national engineering enrollment.
- Increased the number of graduate students by over 800%.
- More than doubled the number of full-time faculty.
- Achieved nearly 100% employment for both B.S. and M.S. graduates within the first year after graduation.
- Assisted in achieving greater student participation in the ASME (American Society of Mechanical Engineers) Student Chapter at FIU. Membership increased 20% over last year and now stands at 78 students.
- Pi Tau Sigma, the Mechanical Engineering Honor Society, was initiated during the 1994 year. Other organizations represented within the department include: FES (Florida Engineering Society); ISHM (International Society of Hybrid Microelectronics); AIPE (Association American Institute of Plant Engineers); SAE (Society of Automotive Engineers); ASHRAE (American Society of Heating, Refrigeration, and Air Conditioning Engineers); and Alpha Omega Chi (Engineering Honor Society).
- The Department faculty have consistently garnered approximately 40% of the College of Engineering's faculty awards in Research, Teaching, Service and Advising over the last four years.
- Created an active minority recruitment and retention program for both the undergraduate and graduate levels. Some of the programs initiated that help support minority recruitment and retention include: MUTECH (Minority Undergraduate Training in Energy-Related Careers); HBCU/MI Environmental Consortium; Army PREP (Pre-freshman Enrichment Program); DOE PREP; SUBR/EPA Outreach in Environmental Restoration and Waste Management to Minority Communities; and the DOE sponsored Training of Technicians for Environmental Assessment Studies.
- Developed the Feasibility and Implementation Studies for the Ph.D. in Mechanical Engineering, which allowed FIU to receive authorization from the BOR to initiate this program.

- The Department received an outstanding evaluation during the last SACS accreditation review.
- The Department received an outstanding notation during the last ABET accreditation review. No deficiency was cited by the ABET team.
- Instrumental in completing all reports, surveys, and other requests for information by the College and University administration on a timely basis.
- Group exams have been implemented within the Department's various core courses in order to increase the EIT (Engineering In Training) exam passing rates for the Mechanical Engineering students taking the exam. The ultimate goal is to achieve and maintain a 100% passing rate within the next three years.
- **Member of the President's Strategic Planning Advisory Committee (SPAC).** The objective of this committee is to provide the administration with analysis and advice on the direction the University should follow during the next five years.
- **Research Accomplishments:**
 - The Department, through Dr. Ebadian's efforts, has enabled FIU to become a member of the Oak Ridge Associated Universities (ORAU), a prestigious organization consisting of research-intensive universities.
 - The University, through Dr. Ebadian's efforts, was selected by the Department of Energy (DOE) as one of only three universities nation-wide to be on the Board of Directors, which determines which proposals will receive contracts from DOE national labs for the millions of dollars available in contract money.
 - **Initiated and wrote the NASA Technology Transfer Center Proposal.** The Department of Mechanical Engineering at FIU is the lead institution for the newest NASA Technology Transfer Center.
 - Sponsored research for the Department has increased from \$500,000 to over \$2.4 million in just five years, representing an increase of over 380%.
 - Sponsored research funding per faculty in the Department is over \$160,000, placing it in the top five (5) percent in the nation in engineering sponsored research funding per faculty.
 - Dr. Ebadian was instrumental in getting a Memorandum of Understanding (MOU) initialed and designed by EPA and FIU. This provided FIU with excellent opportunities for R&D equipment, and exchange of EPA personnel.
 - The number of publications appearing in refereed journals and conference proceedings has doubled over this five year period.
 - FIU has been selected to be a partner with the U.S. Army in developing a "White Paper" that will determine the direction of future U.S. Army sponsored research in the area of Environmental Restoration.

BIOGRAPHICAL FACULTY VITAE

NAME: Dana L. Farrow, Ph.D.

ACADEMIC RANK: Associate Dean
College of Business Administration
Florida International University - University Park
Miami, Florida 33199
(305) 348-2751

EDUCATION:	Major	Degree	Date
University of Rochester	Psychology	Ph.D.	5/75
Union College, Inst. of Adm. & Mgmt	Industrial Administration	M.S.	6/72
Syracuse University	Industrial Engineering	B.S.	6/67

PROFESSIONAL EXPERIENCE:	Position	Dates
Florida International University	Associate Dean, College of Business Adm.	8/91-Present
Florida International University	Chairman & Prof., Dept. of Mgmt. & Int. Bus.	8/88-8/91
Florida International University	Chairman & Associate Professor	8/87-8/88
Florida International University	Associate and Assistant Professor	1/78-8/87
Clarkson College	Assis. Prof. of Management and Psychology	9/75-12/77
Army Research Institute	Consultant	10/75-10/77
University of Rochester	Instructor	6/74-8/74
University of Rochester	Research Assistant	9/69-6/75
Huyck Felt Company, Rensselaer, NY	Industrial Engineer	9/69-6/72
Union College	Graduate Assistant	9/68-3/69
General Electric Company	Marketing Engineer	4/68-9/68
Eastman Kodak Company	Production Control Engineer	6/67-9/67
United States Army Reserve	Medical Corpsman	12/68-12/74

AREAS OF RESEARCH INTEREST: A) Simulation; B) Decision Support Systems; C) Expert Systems; D) Operations Research.

SELECTED PUBLICATIONS:

Book:

Farrow, D. L. Using Applied Psychology in Personnel Management, Reston Publishing Company, Reston, Virginia, 1982.

Refereed Publications:

1. Dessler, D. and Farrow, D. L. "Implementing a Successful Quality Improvement Program in a Service Company: Winning the Deming Prize." The International Journal of Service Industry Management, 1990, 1, 2, 45-53.
2. Robey, D., Farrow, D. L., and Franz, C. R. "Group Process and Conflict in System Development." Management Science, 1989, 35, 10, 1172-1191.
3. Shapiro, G. L., and Farrow, D. L. "Mentors and Others in Career Development." In S. Rose and L. Larwood, Eds., Women's Careers: Pathways and Pitfalls, Praeger: New York 1988, 25-39.
4. Robey, D., Farrow, D. L., and Franz, C. R. "Assessing Conflict in System Design." In N. Bjorn-Andersen and G. B. Davis, Eds., Information Systems Assessment: Issues and Challenges, Amsterdam: North Holland, 1988, 173-188.
5. Farrow, D. L. and Sample, J. "BARS: Developing Behaviorally Anchored Rating Scales." The 1986 Annual: Developing Human Resources, University Associates, 73-78.

6. Dembo, R., Allen, N., Farrow, D. L., Schmeidler, J., and Burgos, W. "A Causal Analysis of Early Drug Involvement in Three Inner City Neighborhood Settings." *The International Journal of the Addictions*, 1985, 20 (8), 1213-1217.
7. Robey, D., and Farrow, D. L. "User Involvement in Information Systems Development: A Conflict Model and Empirical Test." *Management Science*, 1982, 28, 1, 73-85.
8. Dembo, R., Farrow, D. L., Des Jarlais, D., Burgos, W., and Schmeidler, J. "Examining a Causal Model of Early Drug Involvement Among Inner City Junior High School Youths." *Human Relations*, 1981, 34, 3, 169-193.
9. O'Connor, E. J., and Farrow, D. L. "A Cross Functional Comparison of Prescribed Versus Preferred Patterns of Managerial Structure." *Journal of Management Studies*, 1979, 16, 222-234.
10. Fodor, E. M., and Farrow, D. L. "The Power Motive as an Influence On Use of Power in an Industrial Simulation." *Journal of Personality and Social Psychology*, 1979, 37, 2091-2097.
11. Dembo, R., Farrow, D. L., Schmeidler, J., and Burgos, W. "Testing the Causal Model of Environmental Influences in the Drug Involvement of Inner City Junior High School Youths." *Journal of Drug and Alcohol Abuse*, 1979, 6, 313-336.
12. Bass, B. M., and Farrow, D. L. "Qualitative Analyses of Biographies of Political Figures." *Journal of Psychology*, 1977, 97, 281-296.
13. Bass, B. M., Valenzi, E. R., Farrow, D. L., and Solomon, R. J. "Management Styles Associated with Organizational, Task, Personal, and Interpersonal Contingencies." *Journal of Applied Psychology*, 1975, 60, 720-729.

Major Consulting and Training Efforts:

- Consultant to Army Research Institute for the Behavioral and Social Sciences. Grant No. DAHC19-76-G-0008 entitled "Effective Leadership Styles as a Function of Organizational, Task, Personal and Interpersonal Contingencies" (also listed under Work Experience section).
- Consultant to Florida Power and Light (FPL). Investigated Requalification Examinations given to Nuclear Power Plant Operators at Turkey Point by the federal Nuclear Regulatory Commission (NRC) for bias and invalid testing practices.
- Consultant to Dade County (Florida) School Board. (1) Developed and implemented an assessment center to train inner city teacher interns for Teacher Corps Program. (2) Performed job analyses of Principal and Assistant Principal job classifications. Conducted interviews, constructed 389 item questionnaire administered to all (approximately 500) job incumbents to determine task importance, task frequency, and task delegation. Served as basis for construction and content validation for Job Knowledge Test to be used for selection and training for these positions.
- Consultant to Becton, Dickinson and Company. With B. M. Bass, ran three-day managerial training session entitled "Managing Scientists and Engineers."
- Consultant to Army Research Institute for the Behavioral and Social Sciences. Grant No. DAHC19-76-G-0008 entitled "Effective Leadership Styles as a Function of Organizational, Task, Personal and Interpersonal Contingencies" (also listed under Work Experience section).
- Consultant to Florida Power and Light (FPL). Investigated Requalification Examinations given to Nuclear Power Plant Operators at Turkey Point by the federal Nuclear Regulatory Commission (NRC) for bias and invalid testing practices.
- Consultant to Dade County (Florida) School Board. (1) Developed and implemented an assessment center to train inner city teacher interns for Teacher Corps Program. (2) Performed job analyses of Principal and Assistant Principal job classifications. Conducted interviews, constructed 389 item questionnaire administered to all (approximately 500) job incumbents to determine task importance, task frequency, and task delegation. Served as basis for construction and content validation for Job Knowledge Test to be used for selection and training for these positions.
- Consultant to Becton, Dickinson and Company. With B. M. Bass, ran three-day managerial training session entitled "Managing Scientists and Engineers."

- Coordinator of Human Resources Component of Management Development Institute for managers and supervisors of Florida's Department of Health and Rehabilitative Services Districts 10 (Broward) and 11 (Dade). Developed and implemented managerial training sessions in stress management, performance appraisal, leadership, and motivation.
- Consultant and Trainer for General Development Corporation. Conducted needs assessment, trainer in "Employee Development Responsibilities," "Legal Responsibilities of the Supervisor," "Effective Leadership," "Performance Appraisal."
- Consultant/Trainer for Cayman Airways. Executive Development Seminar for Senior Managers: "The Role of the Executive Manager," "Planning/Priority Setting/Goal Setting," "Effective Use of Different Managerial Styles." Evaluated Senior Managers' potential and developmental needs.
- Consultant to Sunrise Community. Developed Wage and Salary Administration Plans for exempt and non-exempt employees, and wrote a Wage and Salary Administration Handbook for the organization.
- Consultant for Shutts and Bowen, Attorneys at Law. Conducted a Training and Development Needs Analysis for Associate Lawyers; developed a new structure for training and developmental opportunities; recommended new procedures.
- Consultant/Trainer for American Express. Developed a Leadership Module and trained managers for improved performance in the organization's assessment center.
- Consultant to Doral Hotel and Country Club. Provided expert advice on the validity of the hotel's personnel procedures with regard to an impending illegal discrimination complaint.
- Trainer for The Jamaican Institute of Management, Kingston, Jamaica, West Indies. Conducted executive development seminars in "Decision Making," "Effective Leadership," "Selecting the Effective Employee" (three occasions).
- Professor for Universidad Santa Maria La Antigua, Panama City, Panama. Taught two graduate courses in Advanced Personnel Management.
- Trainer for Metro Dade Transportation Authority. Conducted "Managerial Styles" seminars.
- Trainer for Jackson Memorial Hospital. Trained middle management in "Interviewing and Selection Within the Law," and first level supervisors in "Legal Aspects of Employment."
- Trainer for American Bankers Insurance Group. Provided two 9-hour training sessions entitled "Effective Managerial Styles."
- Trainer for City National Bank. Trained Senior Vice Presidents in selection, performance appraisal, and disciplinary action interviewing. Emphasis on legal aspects and avoiding illegal discrimination lawsuits.
- Trainer for The Grand Bay Hotel. Trained supervisors and Executive Managers in "Legal Issues in Employment."
- Trainer for Exotic Gardens. Trained managers in "Positive Discipline and Praise."
- Trainer for The Center for Management Development of the College of Business Administration of Florida International University. Conduct "Legal Aspects of Management" sessions for the Personnel Certificate Program on a regular basis.
- Trainer for Central Bank and Trust Company. "Supervision and the Law," "Leadership," "Performance Appraisal."

Professional Affiliations:

American Psychological Association

The Society for Industrial and Organizational Psychology, Inc.,
 Division 14 of the American Psychological Association.
 Division of Evaluation and Measurement (Division 5)

Academy of Management

Personnel/Human Resources Division
 Organizational Behavior Division
 Organizational Theory Division
 Social Issues in Management Division

GORDON R. HOPKINS
VITA

EDUCATION: Ph.D., Engineering Mechanics, University of Alabama, 1969
MSME, University of Kentucky, 1961
BSME, University of Kentucky, 1960

PROFESSIONAL EXPERIENCE:

1983 to present Dean, College of Engineering & Design
Florida International University

- ◆ Recruited and hired 47 new faculty
- ◆ Developed new academic programs in:
 - Mechanical Engineering
 - Electrical Engineering
 - Computer Engineering
 - Industrial Engineering
 - Civil Engineering
 - Environmental Engineering
 - Environmental and Urban Systems
 - Landscape Architecture
 - Construction Management
- ◆ Achieved accreditation in all engineering programs.
- ◆ Planned and received funding for a new \$13 million engineering building.
- ◆ Built a funded research program from essentially zero in 1984 to a program that now represents over 25% of the sponsored research at Florida International University and is among the top 50% of research programs for all engineering schools in the nation.
- ◆ Attracted external gifts and non-research grants in excess of \$5,000,000.
- ◆ Planned, developed, and received industry support for FLAME (Florida Action for Minorities in Engineering). This offers summer programs for minority high school students (in collaboration with Dade County Public Schools).
- ◆ Established a wide spectrum of Distant Learning Programs that serve students from middle school to graduate school.
- ◆ Initiated an effort to restructure the undergraduate curriculum in engineering. As a result, instrumental in forming the Gateway Engineering Education Coalition.

1977-1983 Department Head, Professor of Mechanical Engineering, Texas A & M University
1975-1977 Department Chairperson, Professor of Mechanical Engineering, Memphis State University
1969-1975 Professor, Mechanical Engineering, West Virginia University
1965-1967 Supervisor of the Rocket Engine Research and Analyses Group, Brown Engineering Corporation
1963-1965 Supervisor of the Systems Performance and Simulation Group, Chrysler Corporation
1960-1961 Research Associate, University of Kentucky

CONSULTANT:

Cambridge Biomedical Corporation, Boston, Mass.
Alba-Widensian, Inc., Valdese, NC
American Glass Research, Inc., Pittsburgh, PA
Federal Highway Administration

President of Energy Solutions, Inc., Memphis, TN
Vice President, TEG Enterprises, Morgantown, W. Virginia
Dow Chemical Corporation, Freeport, Texas
Surigkos, Inc., Dallas, Texas

HONORS:

Ford Foundation Scholarship
Pi Tau Sigma
Pi Mu Epsilon
Tau Beta Phi
Phi Kappa Phi

PUBLICATIONS:

Representative recent articles:

"Robotics in Manufacturing," Society of Manufacturing Meeting, May, 1982, Houston, Texas
"Robotics," American Society of Mechanical Engineers, November, 1982, Houston, Texas
"System for Applying Pulsating Pressure to the Body," U.S. Patent No. 4,054,129 issued October 18, 1988, to Hopkins, Tarney, and Byars
"Florida Action for Minorities in Engineering," Proc. Frontiers in Education 1990 Conference, Vienna, Austria, June, 30, 1990
"An Interactive Computer-Aided Training and Testing Courseware in Statics," Proc. International Conference on Computer Aided Training & Technology, Barcelona, Spain, July, 1990

Curriculum Vitae

Grover L. Larkins, Jr.

5101 SW 77th St.

Miami, Florida 33143

(305) 667-1870

E-Mail: Larkins@Eng.Fiu.Edu

Education:

- 1986 Doctorate (PhD): Electrical Engineering and Applied Physics from Case Western Reserve University.
 Thesis: "Langmuir-Blodgett Films as Active Layers in Integrated Field-Effect Devices."
- 1982 Masters of Science: Electrical Engineering and Applied Physics from Case Western Reserve University.
 Thesis: "The Use of Langmuir-Blodgett Films as a Barrier Layer in Josephson Tunnel Junctions."
- 1981 Bachelors of Science: Case Western Reserve University.
 Major: Electrical Engineering and Applied Physics.

Professional Experience:

5/92 to Present:

- Tenured Associate Professor in Electrical Engineering at Florida International University. Responsible for teaching third and fourth year Electronics and Solid-State courses and graduate level Applied Superconductivity, Electro-Optic Devices and Circuits courses. Areas of ongoing research include applied superconductivity (funded by the AFOSR and Army) and ultra-thin film electronics/physics.
- Accomplishments included First Demonstration of Aging Effects in High T_c Superconductors, First High T_c based Superconducting Electrode Thick Film Capacitors.

8/86 to 5/92

- Assistant Professor in Electrical Engineering at Florida International University. Responsible for teaching third and fourth year Electronics and Solid-State courses and graduate level Applied Superconductivity, Electro-Optic Devices and Circuits courses. Areas of ongoing research include applied superconductivity (funded by DARPA under the Florida Initiative in High Technology) and ultra-thin film electronics/physics. Other areas of particular interest include RF, optical, microwave and analog electronics.

8/91 to 1/92:

- Visiting Scientist at the Fritz-Haber Institute of the Max-Planck Society in Berlin; responsible for deconvolution of "true" Field Ion Energy distributions from measured distributions using a Fourier Transform and Filtering technique.
- Accomplishments included the Deconvolution of "True" Ion Energy Distributions from Field Ion Microscope Images with Half Widths of under 300 meV.

1/84 to 1/86:

- Research assistant in charge of maintenance, processing and safety in small-scale silicon pilot-line. Research on properties of the Semiconductor-Langmuir-Blodgett film interface in integrated MISFET structure.
- Achievements: First Reporting of electrically stable MISFETs using L.B. gate insulators, Formation of polar multilayer insulators and First successful integration of standard solid-state IC processes with L.B. techniques.

5/83 to 12/83:

- Analog and RF circuit Engineer with Case Western Reserve University's Orthopedic Engineering group. Responsible for design, fabrication and testing of low noise vhf telemetry amplifier, eight pole linear phase (Bessel) anti-aliasing filter, four channel vhf-fm implantable telemetry transmitter.

5/82 to 5/83:

- Research assistant--extended work involving Langmuir-Blodgett based superconducting electronic devices.

1/82 to 5/82:

- Teaching Assistant for introductory Electromagnetic Field Theory.

1/81 to 1/82:

- Research assistant involved with pioneering research in Langmuir-Blodgett film based superconducting electronics.
- Achievements: First successful use of L.B. monolayers as tunneling barriers in Josephson-effect devices, First Reported observance of Higher-Order Inelastic Tunneling Spectra ("resonant" tunneling).

Funded Research:

Summer 1995 to 2001:

Air Force Future Aerospace Science and Technology Center for Space Cryoelectronics Grant -- Award has been announced, Approx. \$3,597,000.

9/93 to Present:

Army Infrastructure Grant for a Laser Ablation System to fabricate thin-film superconductor multilayer hetrostructures, Approx \$87,000.

9/92 to Present:

AFOSR (Air Force Office of Scientific Research) Project on Multilayer Composite Superconductor Structures, Approx. \$270,000 for 3 years beginning 1 September 1992.

1/93 to 8/93:

Consultant at Xerox PARC Electronic Materials Laboratory; worked on AFOSR grant (above).

8/91 to Present:

Visiting Scientist at Fritz Haber Institute of the Max Planck Society, Berlin, West Germany -- Fall 1991, Summer 1992, Spring and Summer 1993. Surface Physics of High T_c Superconductors and Field Ion Energy Distribution Studies. Leave of absence from Florida International University -- the Fritz Haber Institute independently supported this research.

5/90 to 7/90:

Surface Degradation and Aging of High T_c Superconductors, FIU Summer Mini-Grant (internal "seed" money) -- 1990. Amount of Grant -- \$11,000.

1/89 to 12/90:

Thin Film Capacitor Development Project with DARPA/Florida High Technology Initiative -- 1989-1990. Amount of Grant --\$50,000.

1/88 to 1/89:

High T_c Capacitor and Battery Research with W.K. Jones under DARPA/Florida High Technology Initiative -- 1988-1989. Approximate share of Grant -- \$70,000.

Offices and Awards:

1/90 to 1/92:

Secretary of the Miami Section of the IEEE (Institute of Electrical and Electronic Engineers) from 1990 to 1992.

8/91 to 1/92:

Awarded a Guest Scientist position (Fall Semester 1991) at the Fritz Haber Institute of the Max Planck Gesellschaft in Berlin to investigate surface phenomena in High T_c Superconductors and Field Ion Energy Distributions. Funding for this position came directly from the Fritz Haber Institute.

Refereed Publications:

- 1) G.L. Larkins, Jr., M. Avello, J.B. Boyce and D.K. Fork, "Multilayer Ferroelectric -- High T_C Structures with Poled Ferroelectric Layers," **IEEE Trans. Appl. Supercond.**, **5**(1995) pp 3049-52.
- 2) N. Ernst, W.A. Schmidt, Ch. Kleint, A.J. Melmed and G.L. Larkins, "Field Electron Energy Spectroscopy of 2223 BiSrCaCuO Below and Above T_C ." Accepted for publication in **Physica C** (in the press).
- 3) N. Ernst, G. Bozdech, H. Schmidt, W.A. Schmidt and G.L. Larkins, "On the Full-Width-at-Half-Maximum of Field Ion Energy Distributions." **Applied Surface Science**, **67**(1993) 111-117.
- 4) G.L. Larkins, Jr., W.K. Jones, Q. Lu, C. Levay and D. Albaijes, "Aging and Surface Instability in High T_C Superconductors." **Proceedings of the SPIE**, **1477**(1991) 26-33.
- 5) G.L. Larkins, Jr., Q. Lu, D. Albaijes, C. Levay, R. Laurence and W.K. Jones, "Degradation of $Pb_{0.3}Bi_{1.7}Sr_2Ca_2Cu_3O_x$ Superconductors." **Advances in Cryogenic Engineering-Materials**, Plenum Publishing (Still in press at this date).
- 6) G.L. Larkins, Jr., Q. Lu, D. Albaijes, C. Levay, R. Laurence and W.K. Jones, "Degradation of $Pb_{0.3}Bi_{1.7}Sr_2Ca_2Cu_3O_x$ Superconductors," **Superconductor Science and Technology**, **4**(1991) 465-467.
- 7) G.L. Larkins, Jr., Q. Lu, W.K. Jones, G. Chern and R.J. Kennedy, "Surface Degradation and Aging in $YBa_2Cu_3O_{7-x}$ Ceramics." **Physica C**, **173**(1991) 201-207.
- 8) Q. Lu, G.L. Larkins, Jr., W.K. Jones and G. Chern, "Surface Degradation of High T_C Superconductors." **IEEE Transactions on Magnetics**, **27**(1991) 1154-1157.
- 9) W.K. Jones, R.A. Olmedo, Z.Q. Hu and G.L. Larkins, Jr., "Development of Superconducting Electrode Capacitor Using a $YBa_2Cu_3O_{7-x}$ Thick Film and Y_2BaCuO_5 Dielectric." **IEEE Transactions on Magnetics**, **27**(1991) 1619-1621.
- 10) G.L. Larkins, Jr., W.K. Jones and R.J. Kennedy, "Surface Degradation and Aging In $YBa_2Cu_3O_{7-x}$ Ceramics." **High Temperature Superconductors -- Materials Aspects**, DGM Informationsgesellschaft MBH, Oberursel, Germany (1991) 105-108.
- 11) W.K. Jones, R. Olmedo, R. Harshbarger and G. Larkins, "Development of a Controlled Porosity Superconductor Polymer Composite." **Superconductivity Advances and Applications**, D.N. Palmer (ed), **ASME, AES 9**(1989) 25-28.
- 12) G.L. Larkins, C.D. Fung and S.E. Rickert, "Mobile Ion Drift in Langmuir-Blodgett Films," **Thin Solid Films**, **179**(1989)313-317.
- 13) G.L. Larkins Jr., C.D. Fung and S.E. Rickert, "Integrated Metal-Langmuir-Semi-conductor Field-Effect Transistors," **Thin Solid Films**, **179**(1989) 217-225.
- 14) G.L. Larkins Jr. and C.D. Fung, "Forced Deposition of Polar Z-Type Langmuir-Blodgett Films," **Thin Solid Films**, **179**(1989)319-325.
- 15) C.D. Fung and G.L. Larkins, "Planar Silicon Field-Effect Transistors with Langmuir- Blodgett Gate Insulators," **Thin Solid Films**, **132**(1985) 33.
- 16) G.L. Larkins, Jr., E.D. Thompson, E. Aortas, C.W. Burkhart and J.B. Lando, "Langmuir-Blodgett Films as Barrier Layers in Josephson Tunnel Junctions," **Thin Solid Films**, **99**(1983)277-282.
- 17) G.L. Larkins, E.D. Thompson, M.J. Deen, C.W. Burkhart and J.B. Lando, "Josephson Tunnel Junctions With Monomolecular Barriers," **IEEE Transactions on Magnetics**, **MAG-19**(1983)980-982.

BIOGRAPHICAL FACULTY VITAE

NAME: Shih-Ming Lee, Ph.D., P.E.

ACADEMIC RANK: Chairperson, Associate Professor
Department of Industrial and Systems Engineering
Florida International University - University Park
Miami, Florida 33199
(305) 348-2256 Fax: (305) 348-3721 Email: leet@eng.fiu.edu

EDUCATION:	Major	Degree	Date
Iowa State University	Industrial Engineering	Ph.D.	5/86
Iowa State University	Industrial Engineering	M.S.	12/82
Tung-Hai University	Industrial Engineering	B.S.	7/77

PROFESSIONAL EXPERIENCE:	Position	Dates	
Florida International University	Chairperson	Since 8/94	Miami, FL
Florida International University	Associate Professor	Since 8/92	Miami, FL
Florida International University	Assistant Professor	8/86-7/92	Miami, FL
Iowa State University	Research Associate	8/84-7/86	Ames, IA
Iowa State University	Research & Teaching Assistant	8/79-7/84	Ames, IA
Tang-Eng Steel Works Co.	Industrial Engineer	7/77-7/79	Taiwan

PROFESSIONAL RECOGNITION:

Professional Engineers (State of Florida, #PE 0039549)

AREAS OF RESEARCH INTEREST: A) Concurrent Engineering: Integration of CAD/CAM; B) Computer Integrated Manufacturing and Automation; C) Total Quality Management.

SELECTED PUBLICATIONS:

1. Constant, P., Lee, S., Dupagne A., and Montag, G. "Algorithm for Identifying an Optimal Economic Solution in the Context of Uncertainty", Engineering Economist, February 1990.
2. Montag, G.M., and Lee, S. "Multiple Roots in Rate of Return Analysis -- Part I: Identification of Problem", Engineering Economist, May 1990.
3. Montag, G.M., and Lee, S. "Multiple Roots in Rate of Return Analysis -- Part II: A Solving Algorithm", Paper submitted to Engineering Economist, May 1990.
4. Kumbhojkar, A.S., Israel, T.D., Arnstan, D., and Lee, S., "Development of a Combination Inclinometer-Deflectometer and ADAAS", Geotechnical Testing Journal, March 1991.
5. Lee, S., and Chen, C.S. "Robot Programming in the Automated Manufacturing Programming Language Environment (AMPLE)", Computers and Industrial Engineering, Vol. 21:1-4, pp. 525-528. 1991.
6. Santamarina, G., Chen, C.S., and Lee, S. "A Application of C++ to Manufacturing System Control", Computers and Industrial Engineering, Vol. 21:1-4, pp. 565-570. 1991.
7. Chen, C., Swift, F., Lee, S., Ege, R., and Shen, S., "Development of a Feature-Based and Object-Oriented Concurrent Engineering System", Journal of Intelligent Manufacturing, February, 1992.
8. Chen, C., Swift, F., Lee, S., Ege, R., and Shen, Q.S., "Development of a Feature-Based and Object-Oriented Concurrent Engineering System", First International Conference on Object Oriented Manufacturing Systems, Calgary, Alberta, May, 1992.
9. Chen, C.S., and Lee, S., Santamarina, G., "An Object Oriented Manufacturing Control System", Journal of Intelligent Manufacturing, September, 1992.

10. Chen, C.S., Swift, F., Lee, S., Ege, R., and Wu, J., "*Feature-based Product Modeling for Concurrent Engineering*", 2nd IERC, September 1992.
11. Chen, C.S., Swift, F., Lee, S., Ege, R., and Shen, Q., "*Development of A Feature-based and Object-oriented Concurrent Engineering System*", *Journal of Intelligent Manufacturing*, December, 1992
12. Chen, C., Lee, S., and Shen, Q., "*An Analytical Model for the Container Loading Problem*", accepted for publication on the *European Journal of Operational Research*, October, 1993.
13. Chen, C.S., and Lee, S., Santamarina, G., "*An Object Oriented Manufacturing Control System*", *Journal of Intelligent Manufacturing*, Vol. 5, pp. 315-321, 1994.
14. Chen, C., Swift, F., Lee, S., Ege, R., and Shen, Q.S., "*Development of a Feature-Based and Object-Oriented Concurrent Engineering System*", *Journal of Intelligent Manufacturing*, Vol. 5, pp.23-31, 1994.

GRANTS AWARDED:

1. Chen, C.S., Lee, S., Martinez, S.E., and Carrasco, H., "*A Study of Kitchen Improvement and Development*", Burger King Corp., Co-PI, \$10,000, October 1989 - February 1990. (Funded)
2. Kumbhojkar, A., Lee, S. "*Development of Digitally Controlled Sensor Probe and Knowledge Base Control System for the Measurement of Underground Movements*", Operation Phase Year-1, Co-PI, \$55,701, Florida High Technology and Industry Council, January - December 1990. (Funded)
3. Yen, K., Lee, S. "*Knowledge Based Electrical Design and Analysis System*," Co-PI, \$50,000, PAWA Complex International Inc., September 1990 - August 1992. (Funded)
4. Kumbhojkar, A., Lee, S. "*Development of Digitally Controlled Sensor Probe and Knowledge Base Control System for the Measurement of Underground Movements*," Operation Phase Year-2, Co-PI, \$51,000, Florida High Technology and Industry Council, January - December 1991. (Funded)
5. Chen, C.S., Tansel, I., and Lee, S., "*AutoCAD and CADKEY*", Capital Equipment, \$14,380, Society of Manufacturing Engineering, May 1991. (Funded)
6. Swift, F.W. (PI), Chen, C.S., Ege, R.K., and Lee, S., "*Development of Feature Based Concurrent Engineering System*", \$427,034, Defense Advanced Research Projects Agency, January 1992 - December 1993. (Funded)
7. Chen, C., and Lee, S., "*SME 1992 Capital Equipment Grant*", \$158,280, SME Manufacturing Engineering Education Foundation, February, 1992. (Funded)
8. Lee, S. "*A Feature-Based Product Information Model for Assembled Parts*", \$13,592.00, University Mini-A Term Research Grant, Summer 1993. (Funded)
9. Chen, C., Lee, S., and Chow J., "*SME 1993 Capital Equipment Grant*", \$33,485 SME Manufacturing Engineering Education Foundation, February, 1993. (Funded)
10. Chen, C., Lee, S., and Swift, F., "*Apparel Research Network*", \$1,500,000 Defense Personnel Support Center, June, 1995 (Funded)
11. Chen, F., Lee, S., and Swift, F., "*Improve Apparel Production Planning, Scheduling, and Control Practice*", \$908,680, Defense Logistics Agency, August, 1995. (Pending)
12. Lee, S., Chen, C., Chow, J., and Tansel, I., "*SME 1994 Capital Equipment Grant*", \$301,495, SME Manufacturing Engineering Education Foundation, Contract #594-1959, February, 1994. (Funded)
13. Lee, S., "*IVHS Planning and Consultation Services*", \$180,000, Florida Department of Transportation, October, 1995. (Funded)
14. Chow, J., and Lee, S., "*Development of a Laser-Based Reverse & Concurrent Engineering System for Aircraft Components Manufacturing*", \$150,000, Wright Lab., January, 1996. (Funded)

OTHER PROFESSIONAL ACTIVITIES:

- Chair of Technology Advisory Board, International Pressure Vessel Corp.
- Director of Computer Integrated Manufacturing Laboratory
 - Set-up and maintained various industrial robots and CNC machines
 - Interfaced robots and CNC machines for computer control

BIOGRAPHICAL FACULTY VITAE

NAME: Jose D. Mitrani

ACADEMIC RANK: Chairperson
Dept. of Construction Management
Florida International University - University Park
Miami, Florida 33199
(305) 348-3172

EDUCATION:	Major	Degree	Date
University of Florida	Engineering	Engineer Degree	1976
University of Florida	Construction Management	M.S.	1975
University of Florida	Civil Engineering	B.S.	1973

TEACHING AND ACADEMIC ADMINISTRATIVE EXPERIENCE

1991-present Associate Professor (Tenured) and Department Chairman, Department of Construction Management, College of Engineering and Design, Florida International Univ., Miami.

1989-1991 Associate Professor and Department Chairman, Department of Construction Management, College of Engineering and Design, Florida International University, Miami.

1988-1989 Adjunct Professor of Mechanical Engr., Florida International University, Miami.

1987-1989 Senior Associate Professor (Tenured) of Engineering, Miami-Dade Community College South Campus, Miami.

1985-1987 Associate Professor of Engineering, Miami-Dade Community College South Campus, Miami.

1980-1984 Assistant Professor of Civil and Architectural Engr., University of Miami, Miami.

1976-1980 Assistant Professor of Civil Engineering, University of Florida, Gainesville.

1977-1984 Instructor, Dave Buster's Schools of Construction, Gainesville.

PROFESSIONAL REGISTRATION AND LICENSES

Certified (Statewide) General Contractor: Florida, No. 11620
Registered Professional Engineer: Florida, No. 19943
Registered Real Estate Broker: Florida, No. 138646
Licensed Private Pilot, Federal Aviation Administration

PUBLICATIONS

1976-present Authored or co-authored sixteen articles in refereed journals and refereed national and international conference proceedings. Authored or co-authored nine research and two Building Code Committee reports. Also authored one book. Please see Publications Exhibit for details.

RESEARCH

1976-present Successfully obtained sponsored research from the Florida Department of Transportation and the Florida Department of Education through the Building Construction Industry Advisory Committee. Please see Research Exhibit for details.

SERVICE

1976-present Member of numerous university committees at the department, college and university levels. Member of several technical and professional committees and councils at the national level. Appointed to various local, regional, state, and nationwide committees working on issues related to the effects of Hurricane Andrew. Please see Academic, Professional, and Other Committee Membership Exhibit for details.

CONSTRUCTION MANAGEMENT EXPERIENCE

1977-1986 Vice-President, Mitrani Inc., General Contractors and Construction Managers. Work performed includes: General on-site supervision of construction. Coordination of subcontractors. Coordination of design, construction details, and construction methods with architects, engineers and subcontractors. Preparation of preliminary and final cost estimates. Development of cost monitoring and cost control systems. Preparation of project schedules using Critical Path and other scheduling techniques. Investigation of suitability and feasibility of land for single-family and multi-family housing projects and small commercial developments. Preparation of feasibility studies, cash flow projections and sensitivity analyses. Negotiation of financing packages including land acquisition and land development loans, construction loans, and permanent loan commitments. Please see Construction Management Exhibit for details.

COMPUTER EXPERIENCE

1972-present Extensive experience in the application of microcomputers in construction management. Selection and purchase of hardware and software. Implementation and application of microcomputer based software for construction scheduling and planning using CPM and other scheduling techniques. Development of models for construction estimating. Development and implementation of accounting, cost monitoring and cost control systems. Development and utilization of economic feasibility studies and cash flow models for analyses and projections. Knowledge of: Primavera, Super Project, Timberline, Microtrak, Construction Data Control, Peachtree, Lotus 123, Symphony, operating systems, spreadsheet programs, word processing, FORTRAN and BASIC. Please see Computer Experience Exhibit for details.

STRUCTURAL ENGINEERING EXPERIENCE

1974-present Miscellaneous and varied structural engineering consulting work. Design of substructure and superstructures of residential and commercial building structures, as well as tanks, pedestrian bridges and antenna towers. Design experience in reinforced concrete, structural steel, prestressed concrete, and timber. Investigation and analysis of structural failures. General structural inspections.

1991-1992 Managing Engineer, Failure Analysis Associates, Miami, Florida.

MEMBERSHIP IN PROFESSIONAL AND HONORARY SOCIETIES

Associated Schools of Construction (Departmental Membership)
American Council For Construction Education
Fellow American Society of Civil Engineers
Florida Engineering Society
National Society of Professional Engineers
Tau Beta Pi, National Engineering Honorary Society
Phi Kappa Phi, National Honorary Society

BIOGRAPHICAL FACULTY VITAE

NAME: Ali M. Parhizgari

ACADEMIC RANK: MBA Director, Professor
Finance and International Business Dept.
Florida International University - University Park
Miami, Florida 33199
(305) 348-3326 Fax: (305) 348-3278

EDUCATION:	Major	Degree	Date
University of Maryland	Economics	Ph.D.	1976
University of Maryland	Economics	M.A.	1970
Teachers Training College, Tehran	Education	M.A.	1964
Pahlavi University, Shiraz	Lit & Math	B.A.	1963

PROFESSIONAL EXPERIENCE:	Position	Dates
Florida International University	Director of MBA, Professor	1982-Present
Synergy, Washington D.C.	Senior Consultant	1977-1979 & 1982
PBO, Tehran	Director, Coordination & Research	1979-1981
National University, Tehran	Visiting Instructor	1979-1981
DECD, Maryland	Senior Economic Consultant	1974-1977
College of Insurance, Tehran	Instructor	1970-1971
University of Maryland	Graduate teaching/research Assist.	1969-1970
Ministry of Education, Passa	Instructor	1964-1968

SELECTED PUBLICATIONS:

1. Parhizgari, A.M. "The Dynamics and Competitiveness of Euro-Asian Trade Flows" Management International Review
2. Parhizgari, A.M. and M. de Boyrie, "Return to Shareholders if U.S. Targeted Companies Acquired by Foreign Corporations", Applied Financial Economics.
3. Parhizgari, A.M., K. Dandapani and A. Bhattachayra, "Global Market Place and Causality", Global Finance Journal, Vol. 5, No. 1, 1994.
4. Parhizgari, A.M. and A. J. Prakash "An Algorithm on the Equality of Dispersion Matrices" Applied Statistics: Journal of the Royal Statistical Society, Vol. 38, No. 3, 1989.
5. Parhizgari, A.M., A.J. Prakash and K. Dandapani, "Arbitrage Pricing theory and Investment Horizon Journal of Business Finance and Accounting, Vol. 20, No. 1, January 1993.
6. Dandapani, K., Parhizgari, M.A., A.J. Prakash and M. Robbani, "Margin Requirement and Cost of Portfolio Insurance", The International Journal of Finance, Vol. 6, No. 1, Autumn 1993.
7. Parhizgari, A.M., K. Dandapani and A. J. Prakash, "Black Monday: What Rang the Bell?" in Dilip K. Ghosh and S. Khaksari, Eds. Managerial Finance in Corporate Economy: Theory and Evidence Vol. 1, 1994.
8. Parhizgari, A.M. and R.E. Mathis, "Exchange Rate Determination in the Forward Exchange and Foreign Currency Future Markets" in Dilip K. Gosh and S. Khaksari Eds, Managerial Finance in Corporate Economy: Theory and Evidence, Vol. 2, 1995.

HONORS/AWARDS:

University Excellence in Research Award, FIU 1988
University Excellence in Teaching Award, FIU 1990
University Excellence in Service Award, FIU 1991

CURRICULUM VITAE
VASSILIOS ANDREW TSIHRINTZIS, Ph.D., P.E., P.H.

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EDUCATION

- Ph.D.** Department of Civil Engineering, University of Illinois at Urbana-Champaign, Illinois, October 1988
Thesis: Theoretical and Experimental Investigation of Three-Dimensional Boundary-Attached Density Currents.
- M.S.** Department of Civil Engineering, University of Illinois at Urbana-Champaign, Illinois, August 1983
- Diploma** Department of Civil Engineering, University of Patras, Patras 265 00, Greece, August 1982 (5-Year Curriculum)
Thesis: A Finite Difference Numerical Technique for the Structural Analysis of Cable Suspended Roofs.

PROFESSIONAL REGISTRATION

- P.E.** Registered Professional Civil Engineer in California (No. 46285)
P.H. Certified Professional Hydrologist by AIH (Certificate No. 946)
P.E. Registered Professional Civil Engineer in Greece and the Countries of the European Union

PROFESSIONAL AFFILIATIONS

- Member of the American Society of Civil Engineers (ASCE).
- Member of the International Association for Hydraulic Research (IAHR).
- Member of the International Water Resource Association (IWRA).
- Member of the American Water Resource Association (AWRA).
- Certified Member of the American Institute of Hydrology (AIH).
- Past Member of the American Geophysical Union (AGU).
- Past Member of the California Floodplain Management Association (FMA).
- Member of the Technical Chamber of Greece (TEE).
- Member of the Greek Society of Civil Engineers.

PROFESSIONAL AND ACADEMIC EXPERIENCE

August 1992-Present:

Assistant Professor, Department of Civil and Environmental Engineering and Drinking Water Research Center, College of Engineering and Design, Florida International University, University Park, VH169, Miami, Florida 33199, USA

Sponsored Research Projects:

- Development of Water Resources GIS Laboratory, FIU College of Engineering Start-up Funds, 1992, (\$40,000)
- Surface Water and Groundwater Responses to C-111 Canal Operations, Everglades National Park, 1992, (FIU Project No. 57-18-066-00, \$39,114).
- Development of a GIS Research Laboratory, FIU Drinking Water Research Center, 1993, (\$3,200)
- Purchase of Equipment, FIU Drinking Water Research Center 1994, (\$2,000)

- Use of GIS in Predicting, Mapping, Monitoring and Managing Pollutants from Urban and Agricultural Areas, FIU Office of the Provost/FIU Foundation, 1993, (FIU Project No. 51-18-024-00, \$15,202).
- Use of AutoCAD/ArcCAD GIS Package in Predicting, Mapping, Monitoring and Managing Pollutants from Urban and Agricultural Areas, International Geographic Information Foundation, 1993, (\$8,000 in software)
- Graduate Education of Environmental Engineers and Scientists at Florida International University, US Environmental Protection Agency 1993, (FIU Project No. 51-18-028-00, \$100,000)
- South Florida Shoreline Protection from Oil Spills, US Coastal Guard and University of Miami, 1994, (FIU Project No. 57-25-064-00, \$10,000)
- A Comparative Oil/Orimulsion Spill Assessment Program: Ecological Risk Assessment of Tampa Bay, University of Miami North-South Center/Florida Power and Light, 1995, (FIU Project No. 57-18-206-00, \$19,073)
- A Comparative Oil/Orimulsion Spill Assessment Program: Ecological Risk Assessment of Tampa Bay, University of Miami North-South Center/Florida Power and Light, 1995, (FIU Project No. 57-18-206-00, \$170,000)
- Oil Spill Research, FIU Drinking Water Research Center, 1995, (\$5,000)
- Field Monitoring and Analytical Modifications for Improvement of Hydrological Monitoring in Everglades National Park, Everglades National Park, 1995, (Cooperative Agreement No. CA5280-5-9027, FIU Project No. 57-25-068-00, \$20,040)
- Prototype Shared Resources Modules to Support Environmental Education, National Science Foundation/Gateway Coalition, Summer 1995, (FIU Project No. 57-18-193-00, \$9,000)
- Multi-year, Multi-university Projects (MYMUP), National Science Foundation/Gateway Coalition, Summer 1995, (FIU Project No. 57-18-193-00, \$5,500)

May 1992-Present:

Private Consulting Engineer,

California Office: 333 Junipero Avenue #1A, Long Beach, CA 90814, ph. 310/434-6032

Florida Office: 13433 SW 62 Street #5, Miami, FL 33183, ph. 305/348-3144, 383-3143

January 1989-August 1992:

Senior Water Resources Engineer and Assistant Corporate Director of Engineering, Psomas & Associates, Inc., 3420 Ocean Park Blvd., Santa Monica, California 90405.

August 1987-January 1989:

Water Resources Engineer, Simons, Li & Associates, Inc., Newport Beach, California.

September 1984-August 1987:

Research Associate, Illinois State Water Survey Research Center, Champaign, Illinois.

September 1983-August 1987:

Research Assistant, Department of Civil Engineering, University of Illinois at Urbana-Champaign, Urbana, Illinois.

Spring 1986:

Guest Lecturer, Stratified Flow graduate course, University of Illinois.

June 1981-June 1982:

Research Assistant, Department of Civil Engineering, University of Patras, Greece.

