

Comprehensive Program Review for Board of Regents

Program: Mechanical Engineering Technology Baccalaureate Degree

Mission: The overall mission of the Mechanical Engineering Technology Program is to develop students into Engineering Technologists capable of functioning in industry, government, and business. Graduates of the program should be capable of applying “state-of-the-art” technical concepts to industrial applications

Teaching and Learning, Research and Scholarship, and Service

Students: *{Vol.I, pg 18}*

SPSU’s minimum requirements for admission as a regular freshman include the following:

- Graduation from a regionally accredited high school or a high school accredited by the Georgia Accreditation Commission or an approved University System of Georgia agency or from a public school under the authority of the State Department of Education;
- Completion of the 16 required CPC units, plus two additional academic units;
- Have an academic HSGPA of at least a 2.0 and minimum scores of 500 on the SAT I Verbal (22 ACT-English) and 500 on the SAT I Math (22 ACT-Math).

{Vol.I, pg 44 1st paragraph}

Engineering and engineering technology students are similar in their interests and have high motivation toward career objectives. They both generally have higher mathematical aptitudes and skills than verbal. There are significant differences in the scholastic aptitude of Southern Polytechnic State University and Georgia Institute of Technology entering freshmen as measured by the mean SAT score and high school grade point average. The entering Georgia Institute of Technology student has a mean combined SAT of approximately 1321. The comparable means for the Southern Polytechnic State University students are an SAT of 1094 GPA or 2.87 (mean). (Appendix X.1)

Faculty and Staff:

Faculty

Faculty are a key component to educational and employment success of students. Discuss the strengths and limitations of the faculty as a whole. Consider such factors as academic credentials, industrial experience, teaching effectiveness, currency, scholarship and involvement in student activities. The morale of the faculty is also important -- are there serious issues related to turnover, promotion and tenure, communication with administration, salary, workload, and impending retirements? Discuss the changes in the faculty size since the last ABET visitation or five years if initial accreditation [retirements, terminations, resignations, new hires].

Many engineering technology programs use part-time or adjunct faculty. How are these faculty members selected, supervised and compensated? What ratio of courses are taught by these faculty members? Does the institution feel that this ratio is appropriate?

Full time Faculty

The strength of the MET faculty lies in its extensive and varied industrial and academic experience and in its commitment to the mission of preparing its graduates to become effective contributing members of society. The program now has 9 full-time faculty members. This faculty has had one new hire (in 1996), four retirements and two resignations since the last ABET accreditation visit. It is a mature faculty with the newest member hired in 1995. Because of a steady decline in student enrollment since the last ABET accreditation visit, no replacements have been warranted. All current faculty members, including those teaching skills courses, have

graduate degrees. Three of them hold the Ph.D. degree in engineering or science. Industrial experience for all faculty totals more than 90 years and spans a wide range of industries and functions.

Eight of the 9 full-time faculty are tenured. Since the last accreditation visit, four of these faculty received tenure and three of them were promoted from Assistant Professor to Associate Professor. One of the faculty positions (for the one faculty member who is not tenured) is a non-tenure track position. The distribution by rank is: zero Assistant Professors, seven Associate Professors, and two full Professors.

The faculty maintains an active professional life. All full-time faculty are members of at least one professional society. Several of them are active in the affairs of these societies at the local, regional, and national levels. One faculty member is a State Director for GSPE. One faculty member is outgoing Chairman of Region XI of the Mechanical Engineering Technology Department Heads Committee of ASME. One faculty member has held several offices of the Atlanta Section of SAE. Five of the current faculty are licensed Professional Engineers. One faculty member won a Fulbright Scholarship to teach in Africa for the 2001-2002 academic year. Faculty members have attended numerous short courses and a few conferences. Several faculty members are maintaining active consulting practices. Faculty have also been successful in obtaining equipment and software grants as well as grants to support professional development.

One additional retirement is anticipated in the near future. It is not known if a replacement can be justified. Justification of a replacement will depend upon changes in program enrollment in the coming year. The biggest concern if a replacement is not justified is the ability to cover the wide range of topics in the program with the expertise available.

Part time Faculty

The use of part time faculty from 1997 to 2001 has been almost nonexistent because of the declining student enrollment. Several part time instructors were employed in the 2001-2002 academic year after a faculty retirement and the unexpected loss of a faculty member who returned to industry. Less than 10 % of the total credits offered were taught by Part time instructors last year. All of the part time faculty who taught in 2001-2002 have taught in the program for a number of years. They participate in student evaluations of their courses just as regular faculty do. Additional input is provided on their teaching effectiveness is provided through the Exit Interview process. Part time faculty are mentored by the Lead Professor for the course(s) they teach. Part time faculty salaries are poor and this factor often creates problems in filling these positions when the need arises. It has become a bigger concern since the institution set a goal to increase the use of part time instructors.

Full Name Title of Position	Acad. Rank	FT or PT (Inst)	FTE (Prog)	Education-Give Degree, Field & Year	Date Hired	Years Teaching Experience		Years Techn Experience
						ET/ENG	Other#	ET/ENG
Example Mr. Smith Program Coordinator	Assoc. Prof.	FT	.75	BSME 1970 MSME 1972	9/1/89	13	2-1/2	3
Orren W. Williams	Prof.	FT	1.0	BMES 1975 MSNE 1976 MSNE 1978	Sept. 1978	24	0	6
Mitchell Cole	Asst. Inst.	PT	0.167	BSMET 1984	Mar 1994	4	0	18
Millard Q. Davis	Asst. Inst.	PT	0.125	BSMET 1996	Sept. 1996	5	0	12
Richard L. Harris	Inst.	PT	0.125	BSME 1957 MSME 1962	Mar 1992	11	0	27
Edward J. Jordan	Asst. Inst.	PT	0.167	BSMET 1982	Sep 1983	15	0	20
Dwayne A. Whittle	Asst. Inst.	PT	0.167	BSMET 1981	Mar 1982	17	0	21
Total			9.75	Check if basic credentials are r				

Facilities – space: Physical facilities

Describe the classroom and laboratory facilities including major items of equipment. To what extent are the facilities utilized? Discuss what extent laboratory facilities are used in support of physics, chemistry, and other basic science courses as well as core courses in the program. Discuss any important equipment deficiencies and explain what procurement action has been initiated or is projected to remedy such deficiencies. Appraise the existing facilities with respect to their adequacy to accommodate present enrollments. If enrollments increase, will expansion be required? What provision has been made to provide for any such expansion? Discuss procedures for equipment replacement and maintenance.

Since the last TAC of ABET visitation, or five years if initial accreditation, list and describe specific additions in laboratory equipment and the cost of this additional equipment by year. Also, discuss any changes in laboratory space and the effect on program quality.

Overview

The Mechanical Engineering Technology Program is housed in the cluster of three buildings known collectively as Building “K”. A general floor plan of these buildings is shown on the following page. Buildings K1 (11,000 sq. ft.), K2 (5,000 sq. ft.) and K3 (11,000 sq. ft.) provide a total of approximately 27,000 square feet of classroom, laboratory and office space. All program faculty offices, labs, and most classroom activities are housed in this complex. Overflows of classes at the busiest times of the day can be accommodated in other classrooms across the campus.

All MET space is utilized regularly and is reserved exclusively for MET use with the following exceptions:

- Students from ATET, CPET, EET, IET and TET use the Graphics Labs when enrolled in EG 1210.
- The Strength of Materials Lab is shared with the CET program.
- The Strength of Materials Lab is used occasionally for demonstrations for the ATET program.
- The CIM Lab is used occasionally for Robotics demonstrations by the Construction program and
- The IET program occasionally has tours of our Machine Shop to acquaint their students with metal cutting equipment.

The space is adequate for classroom activities for the current student enrollment, although we currently need additional space for student project work. There are also other capabilities we hope to include in the future in the areas of Composite Materials and Mechatronics (see Section VI-I for further discussion) which will require additional space. The age of the buildings makes them unattractive in general in comparison to the newer buildings on campus; however, they are functional. The current facilities have accommodated as many as 600 MET students in previous years, although we were not as actively involved in student projects at that point in time. We hope to increase enrollment significantly from the current level of 300. Experience has shown that approximately 500 students is the maximum that can be accommodated effectively with current space. The campus Master Plan calls for a new building for MET in the distant future, following the construction of two other new buildings to house a number of other programs.

Building K1

Building K1 contains two classrooms, one large (seating up to 50 students) and one of average size (accommodates up to 30 students). Both classrooms are equipped with overhead projectors, chalkboards and computers, VCR's and monitors for presentation of multimedia materials by instructors. The rest of the building is devoted to one faculty and two staff offices and a number of laboratories. The laboratories include the Machine Shop/Numerical Control Laboratory, Fluids Laboratory, Engineering Materials and Strength of Materials Laboratories and an area dedicated to Special Student Projects for two of our Competition Teams (Formula Race Car and Supermileage Vehicle both sponsored by the Society of Automotive Engineers).

The largest of the laboratories in Building K1 is the Metal Cutting (Machine Tool) and Numerical Control Lab (Room K122). This lab is equipped with 11 conventional (manual) lathes, four conventional (manual) milling machines, three NC milling machines (one table top and two full size), three NC lathes (one table top and two full size), a shear and several drill presses, saws, and grinders. The Machine Tool Lab is primarily used for the laboratory portions of two courses (1) the metal cutting portion of the course MET 1321, Manufacturing Processes, Lab I and the Numerical Control portion of the course, MET 2322, Manufacturing Processes, Lab II. This lab is sometimes used to prepare samples for strength testing and to provide general machine shop services for the program and the campus. The lab is used for scheduled classes approximately 15 to 20 hours per week and is open at most other times for student project work.

A room at the end of the machine tool lab (K124) houses a machine shop reserved for the use of the program technicians and their assistants. It contains a large drill press, a lathe and work tables. It is used in support of all program laboratories.

The next largest laboratory space in this building is shared by the Fluids Laboratory and the Student Special Projects Laboratory (Room K102). In this laboratory, students are familiarized with various types of industrial instrumentation and measuring techniques. The Fluids Lab includes performance testing of a variety of machines and devices. The equipment housed here includes: pressure and temperature measuring devices, deadweight testers, manometers, flow rate devices, viscometers, fluid flow systems, heat exchangers, fluid power systems, electric motors, pumps, a dynamometer, a steam engine, heat pumps, a refrigeration system, a process control simulator, a hydraulic robot, fans, duct systems and other measurement and control devices. The room and equipment are used for the Fluid Mechanics Lab, for some Instruments and Controls experiments and for some Refrigeration and Air Conditioning experiments. Special projects such as the SAE Formula Car Project, the SAE Supermileage Project and the ASME Human Powered Vehicle Project (inactive currently) also have space reserved in this large room. Scheduled classes and labs used this room 12 to 15 hours per week.

At the east end of Building K1 are the Strength of Materials and Engineering Materials Labs (Rooms K100 and K103). The Strength of Materials Lab (K100) is shared with the Civil Engineering Technology Department. Equipment in the lab includes a 120 kip Universal Testing Machine (UTM) with associated accessories and strain gauge equipment, a 60 kip UTM, a Torsion testing machine, a Charpy impact tester, and a fatigue (bending) testing machine. The MET department's computer controlled 20 kip UTM is in the adjacent Engineering Materials Lab (Room K103). It is capable of automated tensile testing and fatigue testing. This lab also contains heat treating furnaces, hardness testers, metallographic microscopes, an electronic materials balance and space for corrosion experiments.

Building K2

Building K2 houses the program office, several MET faculty offices, two classrooms of average size (accommodate up to 30 students) and the Computer Projects Laboratory. One of the two classrooms is equipped with drawing tables which can be used in design classes where working space is needed. Both classrooms are equipped with overhead projectors, chalkboards and computers, VCR's and monitors for presentation of multimedia materials by instructors.

The Computer Projects Laboratory (Room K155) supports upper level MET mechanics, manufacturing and design courses (MET 3123, 3131, 3331, 4141, 4142 and 4342). Fourteen Pentium III personal computers provide students with access to CAD/CAM/FEA/NC software. Specific software available in this lab includes: Algor Finite Element Analysis and Modeling; MicroStation, Versions J7.1 and SE; Working Model 2-D, Version 4.0, QBasic and Structural Dynamics Research Corporation (SDRC) I-DEAS software. Word processing and routine graphics work are not permitted in this laboratory to reserve its use for higher level activity. Hard copy output is provided by two plotters and two printers (one is a B-size printer). A new addition to the lab is a 3-D printer providing Rapid Prototyping capability to our students. This lab is not routinely scheduled for class use, so it is available for individual project work most of the time.

Building K3

Building K3 houses several laboratories and faculty offices. The laboratories include Engineering

Graphics, Metal Joining, Metrology, Automated Manufacturing and Energy Management/Numerical Control. Room K196 is dedicated to another of the student competition teams – the Aerial Robotics Team.

The two Engineering Graphics Laboratories (Rooms K174 and K176) serve not only the MET department but most of the Engineering Technology and Management School. The MET Program teaches Engineering Graphics for the ATET, CPET, EET, IET and TET programs. Most non-MET students take only MET 1210, Survey of Engineering Graphics. MET students are required to complete two courses: MET 1211, Engineering Graphics I and MET 1212, Engineering Graphics II. Each of these labs is equipped with 25 Pentium III personal computers including MicroStation, Version J7.1 software which is utilized in all of the graphics courses. Hard copy output is provided by two laser printers in each lab. Both of these labs are scheduled for class use about 20-30 hours per week. Student lab monitors, who are familiar with the software and Graphics principles, supervise an additional 20-30 hours per week when students can return at their convenience to complete class assignments and get basic assistance.

The Metal Joining Laboratory (Room K180) is used in the freshman level manufacturing course, MET 1321, Manufacturing Processes, Lab I, to provide students with hands-on experience with major welding and flame cutting processes. Welding equipment ranges from basic arc welding equipment to both wire-feed and tungsten electrode inert gas (heliarc) welders. Several stations of each type of welder are available for course use. Most welding stations have been updated in the last few years. The lab also houses a large CNC cutting table with plasma-arc and oxy-acetylene cutters. This table is equipped with an optical tracing head to allow programming from patterns or existing parts. However, maintenance of the CNC cutter has proven to be beyond our capabilities and prevents regular use of the equipment for course work. This lab is scheduled for classes 6 to 9 hours per week with other times available for student project work.

The Metrology Laboratory (Room K195) is used both as a classroom and lab for the metrology course. The equipment in this lab includes: rules, vernier and dial calipers, micrometers, height gauges, bench micrometers, toolmaker's microscope, linear measuring machine, various types of gauges, precision transit, optical comparator, gauge blocks, surface finish gauges, ultrasonic equipment, magnaflux, dye penetrant test kits, and a computer controlled coordinate measuring machine. This lab is scheduled for use 6 to 9 hours per week.

The Automated Manufacturing Laboratory (Room K188) houses a variety of automated manufacturing equipment and software including a flexible manufacturing system. The flexible manufacturing system features a programmable conveyor system which carries pallets to and from two machining cells and a robot assembly cell. The machining cells include a lathe cell with a pneumatic robot and CNC lathe and a mill cell with a fully articulated robot serving a four-axis CNC mill. A Pentium IV PC provides a system controller and a host computer. The computer houses a variety of CAD/CAM and CIM system software. The lab also houses an assembly robot system (IBM-Technovate). There are also 14 individual student workstations. Each includes a Pentium III personal computers with LabView data acquisition software and Versa Pro PLC programming software. Each station also includes a GE Fanuc Series 90-30 PLC. This lab is scheduled for 6 to 9 hours of classes per week with the remainder of the time available for student and faculty project work.

The Energy Management/NC Laboratory (Room K188) contains 11 Pentium I personal computers, several printers and several pieces of equipment for refrigeration and air conditioning experimentation. Carrier software for determining heat loads, sizing equipment, etc. is available for use in conjunction with upper level thermal design courses. The lab also serves the Numerical Programming portion of the MET 2322 course with Anilam NC software available for student use. This lab is scheduled for 6 to 9 hours of classes per week with the remainder of the time available for student and faculty project work.

For the most part, we believe that these laboratory facilities are adequate for our current program and enrollment with the exception of the need for more student project space and for expansion of capabilities in the composite materials and Mechatronics areas. We are continuing to update and expand our laboratory equipment holdings with particular emphasis on computer-controlled or computer-aided systems. We have developed and continue to update a long-range plan to gradually replace equipment with more modern versions. Although budget allotments averaging approximately \$100,000 per year for capital equipment were once a reality, there have been few budget years of that

magnitude recently and it is anticipated that future budget allocations from the state will be much smaller. Faculty realize that state funds will need to be supplemented with external funds through grants or donations of various sorts.

Curriculum: Curriculum

List the courses making up the curriculum required for graduation, according to the categories described in the ABET criteria.

Technical Sciences (See ABET criteria, section I.C.1.)*	Required Hours			
	Courses (Title & No.)	Lecture	Lab.	Credits
	Statics MET 3121	3	0	3
	Fluid Mechanics MET 3101	3	3	4
	Dynamics MET 3122	3	0	3
	Strength of Materials MET 3131	3	3	4
	Engineering Materials MET 3132	3	3	4
	Thermodynamics I MET 3401	3	0	3
	Electrical Principles ECET 3000	3	3	4
	Subtotal	21	12	25

Technical Specialties (See ABET criteria, section I.C.2.)*	Required Hours			
	Courses (Title & No.)	Lecture	Lab.	Credits
	MET Orientation MET 1000	1	0	1
	Manufacturing Processes MET 1311	3	0	3
	Manufacturing Processes Lab I MET 1321	1	3	2
	Manufacturing Processes Lab II MET 2322	2	3	3
	Dynamics of Machines MET 3123	3	0	3
	Tool Design MET 3331	3	0	3
	Thermodynamics II MET 3402	3	0	3
	Machine Design I MET 4141	4	0	4
	Instruments and Controls MET 4421	3	3	4
	Engineering Graphics I EG 1211	3	3	4
	Engineering Graphics II EG 1212	3	3	4
	Subtotal	29	15	34

*The institution may adjust the format of this form to facilitate word-processing.

Technical Electives (See ABET criteria, section I.C.3.)*	Required Hours		
	Courses (Title & No.)	Lecture	Lab.
Vibrations and Advanced Dynamics MET 4124	3	0	3
Advanced Engineering Materials MET 4133	3	0	3
Machine Design II MET 4142	3	0	3
Advanced Tool Design MET 4332	3	0	3
Automation Systems and Controls MET 4341	2	3	3
Numerical Control of Machines MET 4342	2	3	3
Manufacturing System Design Project MET 4351	0	9	3
Refrigeration MET 4411	3	0	3
Air Conditioning MET 4412	3	0	3
Plant and Power Applications MET 4431	3	0	3
Subtotal			6**

** Only two Technical Elective courses of 3 semester credits each are required.

Basic Sciences (See ABET criteria, section I.C.4.)*	Required Hours		
	Courses (Title & No.)	Lecture	Lab.
Principles of Chemistry CHEM 1211K	3	3	4
Principles of Physics I PHYS 2211K	3	3	4
Principles of Physics II PHYS 2212K	3	2	4
Subtotal	9	8	12

Mathematics (See ABET criteria, section I.C.1.)*	Required Hours		
	Courses (Title & No.)	Lecture	Lab.
Precalculus MATH 1113	4	0	4
Calculus I MATH 2253	4	0	4
Calculus II MATH 2254	4	0	4
Ordinary Differential Equations MATH 2306	3	0	3

Mathematics (See ABET criteria, section I.C.I.)*	Required Hours		
Subtotal	15	0	15

Written and Oral Communications (See ABET criteria, section I.C.5.a.)*	Required Hours		
Courses (Title & No.)	Lecture	Lab.	Credits
English Composition I ENGL 1101	3	0	3
English Composition II ENGL 1102	3	0	3
Public Speaking SPCH 2400	2	0	2
Technical Writing ENGL 2010	3	0	3
Subtotal	11	0	11

Humanities & Social Sciences (See ABET criteria, section I.C.I.)*	Required Hours		
Courses (Title & No.)	Lecture	Lab.	Credits
World History Area E Group 2	3	0	3
Science, Technology, and Society STS 2400	2	0	2
Arts or Language Area C Group 2	3	0	3
U.S. History Area E Group I	3	0	3
Economics or Psychology Area E Group 3	3	0	3
Literature Area C Group I	3	0	3
Culture and Society Area A Group 4	3	0	3
Subtotal	20	0	20

**The institution may adjust the format of this form to facilitate word-processing.*

Computer Courses (See ABET criteria, section I.C.6.)*	Required Hours		
Courses (Title & No.)	Lecture	Lab.	Credits
C Programming CS 2123	2	2	3
Subtotal	2	2	3

Other Courses*	Required Hours		
Courses (Title & No.)	Lecture	Lab.	Credits

Other Courses*	Required Hours
Free Elective	3
Subtotal	3

**The institution may adjust the format of this form to facilitate word-processing.*

***The institution should only list the most commonly taken courses. Do not exceed ten courses. Specify the total required credits only.*

Other Learning and Service Activities

Research and Scholarship:

CURRICULUM VITAE MECHANICAL ENGINEERING TECHNOLOGY

1. Name: R. Glenn Allen
2. Department/section/program: Mechanical Engineering Technology
3. Date hired or assigned to department/section/program: September 1995
4. Number of years of service to department/section/program: 7
5. Present academic rank and date obtained: Associate Professor, Full time, May 1999
6. Degrees [state field, institution, and date of graduation]:
 - M.S.C.S., Southern College of Technology, 1995
 - B.S.M.E.T., Southern College of Technology, 1980
7. Other teaching experience [state where, dates, and in what capacity]:

Part-time:
Instructor, Engineering Graphics I, 1994, Southern College of Technology
Instructor, Computer Graphics, 1982, Southern College of Technology
8. Full-time industrial experience [state where, dates, and in what capacity]:
 - CadCom Incorporated, June 1988 - November 1993, Co-Founder, Chairman, President, Executive Vice President
 - Intel Corporation, November 1984 - June 1988, Field Sales Engineer
 - Lockheed-Georgia, June 1980 - November 1984, Flight Test Engineer, Senior Quality Engineer
 - Cole-Layer-Trumble Company, May 1976 - February 1977, Office Supervisor, Tax Mapping Division
 - Data Dynamics, Incorporated, March 1975 - May 1976, Field Office Supervisor, Tax Mapping Office
 - Southland Engineers and Surveyors, June 1973 - March 1975, Survey Crew Chief and Survey Instrument Operator
9. Part-time industrial experience [state where, dates, and in what capacity]:

Computer-Aided Mfg. Engineer (Co-Op), Lockheed-Georgia Co., 1978-1980.
10. Consulting work [brief description, including dates and nature of work during past five years]:
 - Provided engineering consulting services for the development of a data acquisition and analysis system for AquaDyn Technologies. AquaDyn has developed emerging technology in the use of ionic and magnetic techniques for the treatment of water used in refrigeration and heating processes. I have provided expertise in developing a system to monitor ammonia R717 and R22 refrigerant-cooling systems utilizing energy meters, flow sensors, thermocouples, and pressures transducers in a Modbus networked environment. My involvement includes sensor selection and calibration, data acquisition system development, and data analysis. The analytical aspect

includes developing the algorithms for determining cooling system efficiency gains due to implementation of AquaDyn's water treatment system. AquaDyn Technologies, Marietta, Georgia, July 2000 – present.

- Provided engineering services for the development of a new CD-ROM disc manufacturing process. Services were provided in the area of recruiting a very specialized engineering team and assisting in the control system design for photolithographic thin-film polymer production. Also provided services in developing design and manufacturing documentation. Sage Technology, Inc., Marietta, Georgia, August 1997 – October 1997.
 - Lectured two classes to prepare ABB, Inc. employees for the Mechanical Inspector's certification. Topics included the fundamentals of blue print reading, views, details, and, geometric dimensioning and tolerancing. ABB, Inc., Athens, Georgia, 1995.
11. Professional recognition--Indicate [a] if registered as a Professional Engineer, Licensed Surveyor or Architect, and name the State[s] of registry; [b] if certified by the National Institute for Certification in Engineering Technologies, give date and classification; [c] if a Certified Manufacturing Engineer or Quality Engineer, give expiration date; [d] other applicable certifications:
- Engineer-in-Training, Georgia, 1980

12. Principal publications during the last five years [give bibliographical notation]:

MET 4421 - Instruments and Controls, developed laboratory exercises and wrote the following laboratory manuals:

- "VersaPro User Interface for Creating Ladder Logic", 11 pages, Spring 2000.
- "Introduction to LabVIEW, G-Code Programming, Temperature measurement, & Frequency Response", 28 pages, Spring 1999.
- "Determining Time Constant, Rise Time, and Response Time of Thermocouples using LabVIEW", 4 pages, Spring 1999.
- "Graphical Analysis of Engineering Data using Microsoft Excel", 14 pages, Spring 1999.
- "Pendulum Frequency, Amplitude, and Phase using LabVIEW Data Acquisition and Analysis Tools", 9 pages, Spring 1999.
- "Using PLCs for Process Control Programming", 4 pages, Spring 1999.
- "Introduction to PLCs, Creating Ladder Diagrams and Using Delay Timers", 28 pages, Fall 1998.

MET 436 / 4341- Automation Control Systems, developed laboratory exercises and wrote the following laboratory manuals:

- "LabVIEW Digital Input and Output", 14 pages, Spring 1998.
- "LabVIEW, Working with Timer / Counters, Event Counters, Measuring Pulse Width, & Pulse Generation", 19 pages, Spring 1998.

13. Scientific and technical societies of which a member [state grade, any offices held, committee assignments, other activity]:

- ISA, the Instrumentation, Systems, and Automation Society, 1999 – present.
- a. ASEE, American Society for Engineering Education, 2000 – present.
- b. ASME, American Society of Mechanical Engineers, 1995 – present.
- c. SME, Society of Manufacturing Engineers, 1995 – present.

14. Honors and awards:

- . Outstanding Faculty Award, 1996
 - a. Most Outstanding Master's of Science Student in Computer Science, 1995
 - b. Tau Alpha Pi National Honor Society, 1980
 - c. Science-Physics Award - Highest GPA for Graduates, 1980
 - d. Who's Who Among Students in American Universities & Colleges, 1980 & 1995
15. Specific programs and activities to maintain and enhance professional competence in which participated during the last five years:
- . Using WebCT 4 hr training course, August 27, 1999.
 - a. Scholarship Presentation by Dr. Glassic, February 19, 1999.
 - b. "Using Foundation Fieldbus", 1-day instrumentation training class, May 6, 1999.
 - c. Society of Manufacturing Engineers International Conference on Education in Manufacturing, October 14-16, 1998.
 - d. SurfCam Computer-Aided Manufacturing, 8 hr training course 1, March 13, 1998.
 - e. SurfCam Computer-Aided Manufacturing , 8 hr training course 2, February 20, 1998.
 - f. Coordinated WaterJet cutting workshop, Sage Technology, February 21, 1997.

16. Other duties performed for regular base salary during academic year, with average hours per week:

		Avg. Hrs <u>per wk</u>	Extra <u>Comp</u>
Student Advising	2	None	
Committee Work	4	None	
Laboratory Development	8	None	

17. Other duties performed for extra compensation during academic year, with average hours per week:

18. Recent summer or other assignments not shown above:

19. Any other pertinent information related to teaching effectiveness, professional activities or service to the engineering technology unit:

CURRICULUM VITAE MECHANICAL ENGINEERING TECHNOLOGY

1. Name: David M. Brani
2. Program: Mechanical Engineering Technology
3. Date hired or assigned to program: September 1992
4. Number of years of service to program: 9 years
5. Present academic rank and date obtained: Associate Professor, Full time, August 1998
6. Degrees:
 - . **Ph.D.**, Mechanical Engineering, Georgia Institute of Technology, August 1994
 - . **M.S.**, Mechanical Engineering, Georgia Institute of Technology, August 1989

- **B.S.**, Mechanical Engineering, University of Florida, December 1983
7. Other teaching experience: None
 8. Full-time industrial experience:
 - Georgia Tech Research Institute, EOEML Lab, Atlanta, GA, January 1989 to August 1992, Graduate Research Assistant
 - Lockheed-Martin Aeronautical Systems Co., Marietta, GA, January 1984 to August 1987, Aircraft Engineer (Production Liaison Group), Aide and assist all elements of inspection and manufacturing in building of the C-130 aircraft. Member of the Material Review Board. Also Summer 1986, Summer 1987, Summer 1988 (all 3 summers full-time)
 9. Part-time industrial experience:
 - Georgia Tech Research Institute, EOEML Lab, Atlanta, GA, June 1996 to August 2000, Research Scientist II
 - Georgia Tech Research Institute, January 1989 - August 1992 Graduate Research Assistant, Calculated thermal signatures of exhaust plumes for several military aircraft.
 10. Consulting works:
 - Applied Technical Services, Marietta, GA, July 1999 to present, Forensic Engineer
 - Continuing Education Instructor at SPSU, Marietta, GA, Refresher courses for FE and PE exam. Introductory CAD course
 - Course Instructor, Building Blocks, Inc., March 1995 - present
 - Technical Advisor, Lincoln Tile Company, December 1995 – present
 11. Professional recognition:
 - Professional Engineer, GA, No. 022526, January 1996 to present
 12. Principal publications during the last five years: None
 13. Scientific and technical societies of which a member:
 - ASEE, August 1999 to present
 - Society of Manufacturing Engineers
 14. Honors and awards:
 - Fulbright Scholar, 2001-2002 academic year, University of Botswana, Gaborone, Botswana
 - Selected for Who's Who Among America's Teachers, Fall 1995
 - Outstanding Faculty Award, SPSU, Fall 1995
 - Teacher of the Year Award, Cobb County Chamber of Commerce, Fall 1995
 - General Electric Foundation Graduate Fellowship, Fall 1987
 - High Honors, University of Florida, Fall 1983
 - Member Pi Tau Sigma, Fall 1983
 - National Merit Scholarship, Semi-Finalist, Spring 1978
 15. Specific programs and activities to maintain and enhance professional competence in which participated during the last five years:
 - Fulbright Scholar, 2001-2002 academic year, University of Botswana, Gaborone,

Botswana

- Applied Technical Services, Marietta, GA, July 1999 to present, Forensic Engineer
- IDEAS 8 Generative Machining Course, one week, Structural Dynamics Corp., Cincinnati, Ohio, December 2000

16. Other duties performed for regular base salary during academic year, with average _____ hours per week:

	<u>Avg. Hrs per Wk</u>	<u>Extra Comp.</u>
Committee Work	2.0	None
Student Advisement	1.0	None

17. Other duties performed for extra compensation during academic year, with average hours per week:

- Dependent on semester, ranges from 3 hours to none.

18. Recent summer or other assignments not shown above: None

1. Any other pertinent information related to teaching effectiveness, professional activities or service to the engineering technology unit:

- Judge for Engineering of the Year Awards presented by Georgia Society of Professional Engineers, Spring 2000 and 2001
- Established educational partnership with Structural Research Corp., use of IDEAS 8 manufacturing software, August 1999
- Mission Possible Event State Coordinator, High School Science Olympiad, Emory University, April 2001
- Mission Possible Regional Coordinator, High School Science Olympiad, SPSU, February 2001 through 2001
- Mission Possible Judge, High School Science Olympiad, SPSU, February 1997 through 2000
- Treasurer, SME local chapter, SPSU, January 1993 to present

CURRICULUM VITAE
MECHANICAL ENGINEERING TECHNOLOGY

1. Name: Mitchell R. Cole
2. Department/section/program: Mechanical Engineering Technology
3. Date hired or assigned to department/section/program: March 1994
4. Number of years of service to department/section/program: 8
5. Present academic rank and date obtained: Assistant Instructor, Part-time, March 1994
6. Degrees [state field, institution, and date of graduation]:
 - BS MET, Southern College of Technology, 1984
7. Other teaching experience [state where, dates, and in what capacity]:
 - Have taught numerous Continuing Education courses for SPSU
8. Full-time industrial experience [state where, dates, and in what capacity]:
 - Georgia Tech Research Institute - Marietta, GA, Research Technologist I, 1984-present
Currently manage the computer systems used in the Design Services Group (DSG). DSG supports many Laboratories in mechanical/electrical design, desktop publishing, presentation graphics, and reprographics. As Research Technologist, support engineers in the design of mechanical hardware for electronics systems. Design documentation includes Military Spec Level III drawing packages. Also prepare conceptual designs for proposals to the military. Currently serve as a member on the Laboratory Computer Committee. This committee determines computer hardware and software standards. Have a Secret security clearance granted by Defense Investigative Service.
9. Part-time industrial experience [state where, dates, and in what capacity]:
 - Georgia Institute of Technology - Marietta, GA., Mechanical Engineering CO-OP, 1980-1984
Worked as a CO-OP several quarters doing computer graphics in support of proposal preparation and project management reporting. Worked as a Mechanical Engineering CO-OP on a Mobile Radar System. Aided in rack and equipment installation, and design and fabrication of hardware under the supervision of a Senior Research Engineer.
10. Consulting work [brief description, including dates and nature of work during past five years]:
11. Professional recognition--Indicate [a] if registered as a Professional Engineer, Licensed Surveyor or Architect, and name the State[s] of registry; [b] if certified by the National Institute for Certification in Engineering Technologies, give date and classification; [c] if a Certified Manufacturing Engineer or Quality Engineer, give expiration date; [d] other applicable certifications:
12. Principal publications during the last five years [give bibliographical notation]:

13. Scientific and technical societies of which a member [state grade, any offices held, committee assignments, other activity]:
14. Honors and awards:
15. Specific programs and activities to maintain and enhance professional competence in which participated during the last five years:
16. Other duties performed for regular base salary during academic year, with average hours per week:
17. Other duties performed for extra compensation during academic year, with average hours per week:
18. Recent summer or other assignments not shown above:
19. Any other pertinent information related to teaching effectiveness, professional activities or service to the engineering technology unit:

**CURRICULUM VITAE
MECHANICAL ENGINEERING TECHNOLOGY**

1. Name: Gregory M. Conrey
2. Department/section/program: Mechanical Engineering Technology

3. Date hired or assigned to department/section/program: January, 1985
4. Number of years of service to department/section/program: 17
5. Present academic rank and date obtained: Associate Professor, Full time, April 1993
6. Degrees [state field, institution, and date of graduation]:
 - o M.Ed., Adult and Vocational Ed., Georgia State University, 1988
 - o B.S., Industrial Arts Ed., Eastern Kentucky University, 1982
1. Other teaching experience [state where, dates, and in what capacity]:
 - Brunswick Junior College, Instructor, Drafting and Design Technology,
 - June 1982-December 1984
2. Full-time industrial experience [state where, dates, and in what capacity]: None
3. Part-time industrial experience [state where, dates, and in what capacity]:
 - § Greg Ferguson & Associates Engineering, September 1995-Present,
 - § HVAC CAD Drawings
4. Consulting work [brief description, including dates and nature of work during past five years]:
 - Simtech, 1997 - 2002, Aircraft Simulator Drawings
 - Yancey Brothers, 2001 – 2002 Record Drawings of Co-gen plant.
11. Professional recognition--Indicate [a] if registered as a Professional Engineer, Licensed Surveyor or Architect, and name the State[s] of registry; [b] if certified by the National Institute for Certification in Engineering Technologies, give date and classification; [c] if a Certified Manufacturing Engineer or Quality Engineer, give expiration date; [d] other applicable certifications:
12. Principal publications during the last five years [give bibliographical notation]:
 1. Scientific and technical societies of which a member [state grade, any offices held, committee assignments, other activity]:
 - Member MMAC – Atlanta MicroStation User’s Group
 2. Honors and awards:
 - Iota Lambda Sigma
 - Outstanding Faculty Award, 1993-1994
15. Specific programs and activities to maintain and enhance professional competence in which participated during the last five years:
 - Short Courses:
 - HTML, Introduction - April 2001
 - HTML, Intermediate - April 2001
 - HTML, Advanced - April 2001
 - Fundamentals of Web Site Technology &

Production - April 2001

16. Other duties performed for regular base salary during academic year, with average hours per week:

	Avg. Hrs <u>per wk</u>	Extra <u>Comp</u>
Manage Graphics Labs	5-6	None
Graphics Committee	0.5	None
Advising Students	1	None

17. Other duties performed for extra compensation during academic year, with average hours per week:

18. Recent summer or other assignments not shown above:

19. Any other pertinent information related to teaching effectiveness, professional activities or service to the engineering technology unit:

**CURRICULUM VITAE
MECHANICAL ENGINEERING TECHNOLOGY**

- NAME: Millard Quillian Davis
- Department/section/program: Mechanical Engineering Technology
- Date hired or assigned to department/section/program: Sept. 1996
- Number of years of service to department/section/program: 6
- Present academic rank and date obtained: Instructor, Part time, Sept. 1996
- Degrees [state field, institution, and date of graduation]:
 - B.S.M.E., Southern Polytechnic State University, 1996
- Other teaching experience [state where, dates, and in what capacity]:

- Marietta-Cobb Vocational-Technical School, Marietta, Georgia, 1982,
Machine Shop Instructor

8. Full-time industrial experience [state where, dates, and in what capacity]:

- AutoVentShade, Lawrenceville, GA, 2001-present, Manufacturing Engineer
- Amitech Inc., Marietta, GA, 1995-1996, Toolmaker
- ERB Industries Inc., Woodstock, GA, 1991-1995, Toolroom Manager
- Superior Optics Inc., Kennesaw, GA, 1989-1991, Toolmaker
- Carson Tool & Mold Inc., Marietta, GA, 1985-1989, Toolmaker
- Burrelloco Inc., Kennesaw, GA, 1983-1985, Shift Supervisor
- Foster Tool & Die Inc., Marietta, GA, 1982-1983, Apprentice Toolmaker

9. Part-time industrial experience [state where, dates, and in what capacity]:

10. Consulting work [brief description, including dates and nature of work during past five years]:

11. Professional recognition--Indicate [a] if registered as a Professional Engineer, Licensed Surveyor or Architect, and name the State[s] of registry; [b] if certified by the National Institute for Certification in Engineering Technologies, give date and classification; [c] if a Certified Manufacturing Engineer or Quality Engineer, give expiration date; [d] other applicable certifications:

12. Principal publications during the last five years [give bibliographical notation]:

13. Scientific and technical societies of which a member [state grade, any offices held, committee assignments, other activity]:

14. Honors and awards:

- Nominated for Georgia Engineer of the Year in Education 2001
- Outstanding Faculty of the Year 1999

CURRICULUM VITAE (Davis – continued)

15. Specific programs and activities to maintain and enhance professional competence in which participated during the last five years:

- Engineered and Manufactured the University's Ceremonial MASE, 1996-2001
- Active member of the Society of Automotive Engineers
- Society of Manufacturing Engineers
 - Certificate of Completion: Manufacturing of Plastic Gears, 09/27/2000
 - Certificate of Completion: Plastic Gearing Fundamentals, 09/26/2000
 - Certificate of Completion: Understanding Gear Metrology, 09/26/2000
 - Certificate of Completion: Fundamentals of Surface Treatment for Tooling 09/10/97
- Southern Polytechnic State University
 - Attended Banner Navigation Course 10/99
 - Attended MET 4331; Advanced Tool Design, 8/99-12/99 to teach in the future.
 - Attended CS 1301, Introduction to Computer Science, 8/99-12/99
 - Attended MET 417, Advanced Computer Aided Design (CAD) and Finite Element Analysis (FEA), 1/98-3/98
- Hobart Institute of Welding Technology, Welding Instructor Course, 07/11/97

16. Other duties performed for regular base salary during academic year, with average hours per week:

Manufacturing Advisor for:

- | | | |
|---|-----|-----|
| · Formula Society of Automotive Engineers 1996-2001 | 0.5 | |
| · Race Car Team 1996-2001, two hours per week | | 0.5 |
| · Human Powered Vehicle Team, two hours per week | 0.5 | |
| · Aerial Robotics Team 1996-2001, two hours per week | 0.5 | |
| · Faculty Advisor for the Society of Manufacturing Engineers
1998-2001 | | 0.5 |

17. Other duties performed for extra compensation during academic year, with average hours per week:

18. Recent summer or other assignments not shown above:

19. Any other pertinent information related to teaching effectiveness, professional activities or service to the engineering technology unit:

- Assisted in the publication of Amitech's monthly newsletter
- Society of Manufacturing Engineers' Student Chapter.
- Program participation which introduced high school students to engineering disciplines.
- Volunteered in bridge building competition for high school students sponsored by SME.
- Member Society of Automotive Engineers' Race Car Team of Southern College of Technology (FSAE).
- Engineered and manufactured assemblies for the organization's race-car and provided for continuity of the project through workshops for new team members.

CURRICULUM VITAE
MECHANICAL ENGINEERING TECHNOLOGY

1. Name: Richard L. Harris
2. Department/section/program: Mechanical Engineering Technology
3. Date hired or assigned to department/section/program: March 30, 1992
4. Number of years of service to department/section/program: 10
5. Present academic rank and date obtained: Instructor, Part-time, August 2001
6. Degrees [state field, institution, and date of graduation]:
 - M.S.M.E., Mississippi State University, 1962
 - B.S.M.E., Mississippi State University, 1957
7. Other teaching experience [state where, dates, and in what capacity]:
 - § Southern Polytechnic State University, Full-time, 1992-2000
 - § Mississippi State University, 1960-1962
8. Full-time industrial experience [state where, dates, and in what capacity]:
 - § Bell Laboratories, Member of technical staff, 1962-1970
 - Western Electric/AT&T, Senior Engineer, 1970-1989
9. Part-time industrial experience [state where, dates, and in what capacity]:
10. Consulting work [brief description, including dates and nature of work during past five years]:
1. Professional recognition--Indicate [a] if registered as a Professional Engineer, Licensed Surveyor or Architect, and name the State[s] of registry; [b] if certified by the National Institute for Certification in Engineering Technologies, give date and classification; [c] if a Certified Manufacturing Engineer or Quality Engineer, give expiration date; [d] other applicable certifications:
 - P.E., Illinois
12. Principal publications during the last five years [give bibliographical notation]:
13. Scientific and technical societies of which a member [state grade, any offices held, committee assignments, other activity]:
14. Honors and awards:
 - Tau Beta Pi
 - Pi Tau Sigma
 - Phi Kappa Phi
15. Specific programs and activities to maintain and enhance professional competence in which participated during the last five years:

CURRICULUM VITAE (Harris – continued)

16. Other duties performed for regular base salary during academic year, with average hours per week:
17. Other duties performed for extra compensation during academic year, with average hours per week:
18. Recent summer or other assignments not shown above:
19. Any other pertinent information related to teaching effectiveness, professional activities or service to the engineering technology unit:
 - Patent: Printed wiring board repair technique, #3462540

**CURRICULUM VITAE
MECHANICAL ENGINEERING TECHNOLOGY**

1. Name: Donald D. Horton, P.E.
2. Department/section/program: Mechanical Engineering Technology
3. Date hired or assigned to department/section/program: Sept. 1984

4. Number of years of service to department/section/program: 17 Years
5. Present academic rank and date obtained: Associate Professor, Full time, Sept. 1989
6. Degrees:
 - § M.S.M.E., Michigan Technological University, 1972
 - § B.S.M.E., Michigan Technological University, 1970
7. Other teaching experience:
 - § Lecturer: Southern College of Technology Continuing Education Dept.
 - EIT Refresher, twice/year 1990-2001
 - EIT Workshop, 5 week twice/year 1993-1996
 - An overview of Defense-Related CAD/CAM, 2 week courses, 1986,1987
 - DCASR CAD/CAM/CIM, 2 week courses, 1987
 - § Lecturer: American Technical Institute, full-time summer 1990
 - § Lecturer: Institute of Industrial Engineers, part-time, 1986-1990
 - § Guest Lecturer: Learning Labs, North GA Tech., 1989
 - § Guest Lecturer: Learning Labs, Augusta Tech, 1988
 - § Lecturer: Alpena Community College, part time mathematics teacher 1973-78
8. Full-time industrial experience :
 - § Project Manager and Project Engineer, Polysius Corporation, 1980-1984
 - § Maintenance Manager/Planter Engineer, Martin Marietta Corporation, 1978-1980
 - § Project Engineer, National Gypsum Company, 1974-1978
 - § Manager of Value Engineering, Supervisor, Tool Engineering, Besser Company, 1972-1974
9. Part-time industrial experience:
 - Startup Engineer: Big Jack Blowers, 1990
10. Consulting work: NONE
11. Professional recognition:
 - Professional Engineer, Georgia 014404, 1984-2002
12. Principal publications during the last five years:
 - EIT Refresher Course Notebook-Thermodynamics, Fluid Mechanics and Dynamics sections; published twice annually by SPSU Continuing Education Department.
 - Edited lecture notes and practice problems for EIT Refresher Course, -1996-2001
13. Scientific, technical, and Professional societies of which a member Member [state grade, any offices held, committee assignments, other activity]:
 - Georgia Society of Professional Engineers, 1980-1996
State Director, 1996-2002
14. Honors and awards:
 - Outstanding Faculty of the Year, Southern College of Technology, 1989
15. Specific programs and activities to maintain and enhance professional competence in which

participated during the last five years:

- Course (1) week TQM Spring 1996, SPSU
- Seminar (1.5) days Multimedia series Fall of 1996, SPSU
- Seminar (1) hour titled Putting your course On Line, November 13, 1997
- Workshop (2 day) titled Process Education at SPSU on May 8 and 9th 1997
- Seminars (3 days) NSPE Regional Professional Edge Conference and Seminars. Charlotte, NC, 1997

A. Attended GSPE Summer Meeting Technical Sessions June 11-14, 1998

Jekyll Island, GA

1. Dangers of the computer in Engineering 06/11/98 (2) hours
2. Professional Engineer's Rules of Professional Conduct 06/11/98 (1) hour
3. Design Build: Implication for Engineers 06/12/98 (4) hours
4. Business Management Trends in A/E Industry 06/13/98 (2) hours

B. Attended GSPE/CEC Monthly Seminars at Atlanta Marriot

1. OZONE ALERT! Regional Business Coalition Progress Report
09/15/99 (1) hour
2. Passenger Rail Service in GA 10/20/99 (1) hour
3. Y2k Ready or Not??? 11/16/99 (1) hour
4. Restructuring In the Electric Utility Industry 12/15/99 (1) hour

C. Attended GSPE Winter Annual Meeting Technical Sessions, Atlanta GA, Dec. 28-29, 1999

1. "Legislative Forum", 01/28/99 07:00 am to 10:00 am
2. "Scroll Compressor Technology – Past, Present, and Future", Thursday, Jan. 28, 1999, 1:00-3:00 p.m.
3. "Plugged Into the Future: Electric Vehicles and Advanced Transportation" Thursday, Jan. 28, 1999, 3:15-5:00 p.m.

D. Attended NSPE Winter Annual Meeting Organizational Sessions, Atlanta GA Jan. 28-31, 1999.

1. NSPE Licensure and Qualifications for Practice Committee Jan. 29, 1999, 9:00-5:00 (Part time).
2. NSPE Leadership Training Seminar (part time)
3. NSPE Leadership Consensus Congress, Saturday, Jan. 30, 8:30-5:00 and Sunday, Jan. 31, 8:30-2:00, 1999.

E. International Forum SPSU, noon

1. "The World Powers in the New Millennium", Feb. 23, 1999, (1) hour.
2. "Russia During the New Millennium", March 2, 1999, (1) hour
3. "China During the New Millennium", March 23, 1999, (1) hour

F. Information Technology User Services, SPSU, Spring 1999

1. Introduction to Netscape Communicator, Monday, March 22, 1:00-3:00 p.m.
2. Introduction to Eudora Light for E-mail, Monday, March 29, 1:00-3:00 p.m.
3. Introduction to MS Excel, Monday April 12, 1:00-4:00 p.m.

G. Georgia, Conference on College and University Teaching March 18-19, 1999, Kennesaw State University.

H. Faculty Development Program Fall 1999

4. Creating a Web-Based Syllabus, Sept. 17, 1999 (1 hr.)
5. Web CT Experiences, Oct. 22, 1999 (1 hr.)
6. Creating a Web-based Portfolio, Nov. 19, 1999 (1hr.)
7. Digital Camera Basics, Sept. 24, 1999, (4 hrs.)

8. Web CT Basic Training, Oct. 15 and Nov. 5, 1999 (8 hrs.)
9. Front Page, Nov. 5, 1999 (6 hrs.)

I. Attended GSPE Annual Winter and Summer meetings, Technical Sessions Jan. and Jun. 2000.
Approx. 12 Hours of instruction

J. GSPE meeting SPSU, "Ethics in Engineering Series Feb. and Nov. 2000 (2 hrs.)

K. GSPE Annual Winter meetings Technical Sessions Jan 2001.
Approx. 12 Hours of instruction on Technical and Professional Topics.

L. Faculty Links Seminars (6 hrs) Spring 2001.

16. Other duties performed for regular base salary during academic year, with average hours per week:

• Minority Team Advisor	0.5
• ABET preparation four years	1.0
• Member, CIM Lab Committee (sub committee of Mfg. Comm.)	0.5
• Member, Process course committee	0.5
• Member, Design course committee	0.5
• GSPE student chapter advisor	3.0
• Campus advisor and coordinator for GSPE activities	2.0
• Coordinator GEF	1.0
• Coordinator E-week Campus and Atlanta Metro	2.0
• Multi Department Advisor, FE/EIT	2.0
• Maintain FE/EIT Library	0.5

17. Other duties performed for extra compensation during academic year, with average hours per week:

• Lecturer, EIT Refresher	2.0
---------------------------	-----

18. Recent summer or other assignments not shown above: None

19. Any other pertinent information related to teaching effectiveness, professional activities or service to the engineering technology unit:

- Independent Study on (16) personality types. Kirsey, Myers, Briggs
- Edited and produced a manual for graphics instruction, Microstation for Dummies 1999-2002.
- Edited and produced a manual for review of geometry, units, ratios, fractions for freshmen taking EG1210 Do You Measure Up?
- Edited and produced a manual for work holding and tooling, Common Sense Work holding, 2002
- Edited and produced a series of supplementary notes for lab report writing for MET3101, 2000-2001

CURRICULUM VITAE
MECHANICAL ENGINEERING TECHNOLOGY

1. Name: Edward F. Jordan
2. Department/section/program: Mechanical Engineering Technology
3. Date hired or assigned to department/section/program: September 1983
4. Number of years of service to department/section/program: 18 years
5. Present academic rank and date obtained:
Part-time, Assistant Instructor, September 1983
6. Degrees [state field, institution, and date of graduation]:
 - B.S., Mechanical Engineering Technology, Southern Polytechnic State Univ., 1982
7. Other teaching experience [state where, dates, and in what capacity]: N/A
8. Full-time industrial experience [state where, dates, and in what capacity]:
 - Lockheed – Martin Aeronautical, 1983 – present, Manufacturing – Tooling;
 - Assoc. Engineer up to Dept Mgr. Standard Tool Engineering in 1997.
 - Presently Sr. Staff Engineer – Build To Package – Tooling Group.
9. Part-time industrial experience [state where, dates, and in what capacity]: N/A
10. Consulting work [brief description, including dates and nature of work during past five years]:
N/A
11. Professional recognition--Indicate [a] if registered as a Professional Engineer, Licensed Surveyor or Architect, and name the State[s] of registry; [b] if certified by the National Institute for Certification in Engineering Technologies, give date and classification; [c] if a Certified

Manufacturing Engineer or Quality Engineer, give expiration date; [d] other applicable certifications: N/A

1. Principal publications during the last five years [give bibliographical notation]: N/A
2. Scientific and technical societies of which a member [state grade, any offices held, committee assignments, other activity]: N/A
14. Honors and awards:
 - Leukemia Society of America Silver Award
 - Southern Polytechnic, Alumni Association Award for Outstanding Service and Dedication to the College, 1982
 - Who's Who in American Colleges and Universities, 1980
 - First Place Winner, Spring Bathtub Race, 1980-1984
15. Specific programs and activities to maintain and enhance professional competence in which participated during the last five years:
 - Six Sigma, Quality Assurance for LMAC
16. Other duties performed for regular base salary during academic year, with average hours per week:
17. Other duties performed for extra compensation during academic year, with average hours per week:
18. Recent summer or other assignments not shown above:
19. Any other pertinent information related to teaching effectiveness, professional activities or service to the engineering technology unit:

CURRICULUM VITAE
MECHANICAL ENGINEERING TECHNOLOGY

1. Name: Britt K. Pearce
2. Department/section/program: Mechanical Engineering Technology
3. Date hired or assigned to department/section/program: September 1984
4. Number of years of service to department/section/program: 18
5. Present academic rank and date obtained: Professor, Full Time, Fall 1992
6. Degrees [state field, institution, and date of graduation]:
 - Ph.D., Mechanical Engineering, Georgia Institute of Technology, 1969
 - M.S., Mechanical Engineering, Georgia Institute of Technology, 1967
 - B.S., Mechanical Engineering, Clemson University, 1965
7. Other teaching experience [state where, dates, and in what capacity]:
 - Clemson University, Associate Professor of Mechanical Engineering, 1978-1984
8. Full-time industrial experience [state where, dates, and in what capacity]:
 - Exxon Production Research Co., 1971-1978, Research Specialist, Offshore Engineering Division
 - E.I. DuPont, Savannah River Plant, Summer 1965, Mechanical Engineer
9. Part-time industrial experience [state where, dates, and in what capacity]:
10. Consulting work [brief description, including dates and nature of work during past five years]:
11. Professional recognition--Indicate [a] if registered as a Professional Engineer, Licensed Surveyor or Architect, and name the State[s] of registry; [b] if certified by the National Institute for Certification in Engineering Technologies, give date and classification; [c] if a Certified Manufacturing Engineer or Quality Engineer, give expiration date; [d] other applicable certifications:
 - P.E., Texas, No. 43089
12. Principal publications during the last five years [give bibliographical notation]:

- ABET 2002 Self Study
13. Scientific and technical societies of which a member [state grade, any offices held, committee assignments, other activity]:
- American Society for Engineering Education
 - American Society of Mechanical Engineers
 - Chair, ASME Region XI MET Department Heads Committee ASME Region XI Regional Operating Board
14. Honors and awards:
- 1998 SPSU Outstanding Faculty of the Year Award
15. Specific programs and activities to maintain and enhance professional competence in which participated during the last five years:
- Audited EG 1210, Survey of Engineering Graphics, 30 hours of classroom instruction, Spring 2002 semester
 - Audited MET 4141, Machine Design, 60 hours of classroom instruction, Fall 2001 and Spring 2002 semesters
 - SPSU Workshop: "Managing Conflict", 2 hours, Feb 19, 2001
 - SPSU Workshop: "Performance Appraisals", 2 hours, Jan 12, 2001
 - 2000 ABET Annual Meeting: TAC Day Workshop, Marriott Hotel, Buckhead, GA, 8 hours, Oct 25, 2000
 - SPSU Workshop: "Understanding Change and Transition", 2 hours, Oct 12, 2000
 - SPSU Supervisor Training Workshop: "How to be an Effective Supervisor", 2 hours, Dec 1, 1999
 - Workshop on Conflict Resolution, "Rising Above the Turmoil: Department Chairs Managing Conflict Effectively" by Consortium on Negotiation and Conflict, 1 day, SPSU, Feb 24, 1999
 - 3 Banner (SPSU administrative software) workshops, 2 hrs each, SPSU, Navigation, advising, registration; 1998
 - Workshop on "Teaching and Learning" by James E. Stice, U. of Tex, 1 day, SPSU, Apr 17, 1998
 - 1997 ASEE Southeastern Regional Conference, Marietta, GA
 - Workshop on Faculty Mentoring and Evaluation, 1 day, Georgia State University, Jan 21, 1997
16. Other duties performed for regular base salary during academic year, with average hours per week:
- Duties of Program Head performed until May 2002
17. Other duties performed for extra compensation during academic year, with average hours per week:
18. Recent summer or other assignments not shown above:
19. Any other pertinent information related to teaching effectiveness, professional activities or service to the engineering technology unit:

CURRICULUM VITAE
MECHANICAL ENGINEERING TECHNOLOGY

1. Name: Norman Russell
2. Department/section/program: Mechanical Engineering Technology
3. Date hired or assigned to department/section/program: January 1994
4. Number of years of service to department/section/program: 8.5 years
5. Present academic rank and date obtained: Associate Professor, Full time, January 1994
6. Degrees [state field, institution, and date of graduation]:
 - B.S. Pulp and Paper Technology, North Carolina State University, 1960
 - M.S. Paper Science and Technology, The Institute of Paper Chemistry, 1962
 - Ph.D. Paper Science and Technology, The Institute of Paper Chemistry, 1965
7. Other teaching experience [state where, dates, and in what capacity]:
 - The Institute of Paper Science and Technology, spring semesters 2001 & 2002, Temporary instructor
8. Full-time industrial experience [state where, dates, and in what capacity]:

S.D. Warren Paper Company:

 - Product Engineer, 1965 to 1967
 - Stock Prep Supervisor, 1967 to 1969
 - Water Conservation Project Manager, 1969
 - Graphic Arts Manager, 1970 to 1973
 - Solvent Coating Manager, 1973 to 1977
 - Coating Technology Manager, 1977 to 1978
 - Paper Machine Division Manager, 1978 to 1980
 - Technical Manager, 1980 to 1984
 - Technical & Quality Manager, 1984 to 1987
 - Pulp Mill Superintendent, 1987 to 1990
 - Paper Mill Superintendent, 1990 to 1991
 - Business System Leader, 1992 to 1993
9. Part-time industrial experience [state where, dates, and in what capacity]:
 - Williams Brownell Co. summer 1957, lumber sorter
 - Mead Corporation, summer 1958, pollution control technician
 - Chesapeake Corporation, summer 1959, research technician
 - St. Croix Paper Co., summer 1961, paper mill engineer
 - St. Regis Paper co., summer 1962, research associate
10. Consulting work [brief description, including dates and nature of work during past five years]:
 - April 2000 tested and analyzed data for particleboard hardness trials; Georgia Pacific Co.
11. Professional recognition--Indicate [a] if registered as a Professional Engineer, Licensed Surveyor or Architect, and name the State[s] of registry; [b] if certified by the National Institute for Certification in Engineering Technologies, give date and classification; [c] if a Certified Manufacturing Engineer or Quality Engineer, give expiration date; [d] other applicable

certifications:

- Professional Engineer, Alabama

12. Principal publications during the last five years [give bibliographical notation]:
13. Scientific and technical societies of which a member [state grade, any offices held, committee assignments, other activity]:
 - Technical Association of the Pulp and Paper Industry
14. Honors and awards:
 - Graduated with honors, NCSU
 - Phi Kappa Phi National Academic Honor Scholarship Fraternity, NCSU
 - Phi Alpha Pi National Forestry Honor Society, NCSU
 - Fourdrinier Society, NCSU
15. Specific programs and activities to maintain and enhance professional competence in which participated during the last five years:
 - TAPPI Summit, annual technical meeting, 2002
 - HMTL Training Seminar, SPSU, 2001
 - Technidyne Optical Control Seminar, 2000
16. Other duties performed for regular base salary during academic year, with average hours per week:
 - Maintain and upgrade Fluids and Engineering Materials labs – 1 hour per week
 - Undergraduate Curriculum Committee – 0.5 hours per week
 - Library Committee – 0.5 hours per week
17. Other duties performed for extra compensation during academic year, with average hours per week:
18. Recent summer or other assignments not shown above:
19. Any other pertinent information related to teaching effectiveness, professional activities or service to the engineering technology unit:
 - Prepare and upgrade MetWeb presentations for every lecture sessions. Shows key learning points, assignments, and pertinent scheduling dates.

**CURRICULUM VITAE
MECHANICAL ENGINEERING TECHNOLOGY**

1. Name: Julio A. Santander
2. Department/section/program: Mechanical Engineering Technology
3. Date hired or assigned to department/section/program: September 1983
4. Number of years of service to department/section/program: 19
5. Present academic rank and date obtained: Associate Professor, Full-time, September 1988
6. Degrees [state field, institution, and date of graduation]:

- M.S.M.E, Georgia Institute of technology, 1975
- B.S.M.E, University of Michigan, 1968

7. Other teaching experience [state where, dates, and in what capacity]:

- Universidad de Carabobo, Valencia, Venezuela, Associate Professor and Head, Mechanical Engineering Research Center, School of Mechanical Engineering, 1975-1981
- Universidad de Carabobo, Valencia, Venezuela, Assistant Professor and Acting Head, Physics Department, 1972-1975
- Universidad de Carabobo, Valencia, Venezuela, Instructor, Physics Department, 1970-1972

8. Full-time industrial experience [state where, dates, and in what capacity]:

- Williams, Russell, Johnson and Associates, Atlanta, Georgia, Design Engineer, January 1981 – January 1982
- Ford Motor Company, Valencia, Venezuela, Product and Resident Engineer, April 1969 – April 1970
- Super-S (Division of International Milling Company, Minneapolis, Minnesota), Valencia, Venezuela, Plant Superintendent, April 1968 – April 1969

9. Part-time industrial experience [state where, dates, and in what capacity]:

None

10. Consulting work [brief description, including dates and nature of work during past five years]:

- SPSU Extended University. Taught problem sessions (chemistry, physics, thermodynamics, fluids, engineering economics) of the EIT refresher course, Spring 1998
- AquaDyn Technologies: Presented ten hours of educational material (HVAC) to four employees of this firm. (Summer 2000)

11. Professional recognition--Indicate [a] if registered as a Professional Engineer, Licensed Surveyor or Architect, and name the State[s] of registry; [b] if certified by the National Institute for Certification in Engineering Technologies, give date and classification; [c] if a Certified Manufacturing Engineer or Quality Engineer, give expiration date; [d] other applicable certifications:

None

12. Principal publications during the last five years [give bibliographical notation]:

None

13. Scientific and technical societies of which a member [state grade, any offices held, committee assignments, other activity]:

- Member, American Society of Heating, Refrigerating and Air Conditioning Engineers
- Member, American Society for Engineering Education
- Senior Member, Association of Energy Engineers
- Member, Refrigeration Service Engineers Society

14. Honors and awards:

- Department of Energy Grant to attend the 1988 Institute on Energy and Engineering Education
- National Science Foundation Grant to purchase instrumentation for the MET laboratories (1990)
- The University of Michigan Grant to attend the course Flow Visualization Techniques (1990)
- Outstanding Faculty Award (1990)
- National Association for Engineering Education Grant to attend the National Effective Teaching Institute (1991)
- The University of Michigan Grant to attend the course Combustion Engine Economy, Emissions, and Controls (1992)
- Engineer of the Year in Education. American Society of Heating, Refrigerating and Air Conditioning Engineers. (1993)
- Engineer of the Year in Education. National Society of Professional Engineers. (1994)
- Obtained, through Mr. Tom Cave of Atlanta Gas Light Co., free membership for SPSU in the American Gas Cooling Centers, Inc. (1996)

15. Specific programs and activities to maintain and enhance professional competence in which participated during the last five years:

Attended the following training seminars:

- Gas Fired Unitary System Design, Atlanta Gas Light Co, September 10, 1997
- Gas Technology Workshop, Atlanta Gas Light Co, October 24, 1997
- What Every HVAC Professional Needs to Know About the Future of Refrigerants, Atlanta Chapter of ASHRAE, December 9, 1997
- Design and Installation Requirements for Mechanical Room Safety, Atlanta Chapter of ASHRAE, January 13, 1998
- Psychrometrics, the Starting Point for Good HVAC Design, Atlanta Chapter of ASHRAE, February 10, 1998
- Teaching/Learning Workshop, SPSU, April 6, 1998
- Utility Deregulation, Atlanta Chapter of ASHRAE, April 14, 1998
- Fundamentals of HVAC Control Systems, Atlanta Chapter of ASHRAE, May 12, 1998
- Hydronic System Balance, Atlanta Chapter of ASHRAE, September 8, 1998
- Assessing Indoor Air Quality and Ventilation Effectiveness, Solomat division of Zellweller Analytics, Inc, Atlanta, October 18, 1998
- Residential HVAC Design, Atlanta Chapter of ASHRAE, October 13, 1998
- Indoor Air Quality, Atlanta Chapter of ASHRAE, Atlanta, November 10, 1998
- Chiller Plant Optimization, Atlanta Chapter of ASHRAE, January 12, 1999
- Energy Recovery Systems, Atlanta Chapter of ASHRAE, February 9, 1999
- Designing Mechanical Systems for Maintainability, Atlanta Chapter of ASHRAE, October 12, 1999
- Improving Indoor Air Quality and Avoiding Litigation, Carrier Complete Systems, Atlanta, Feb 16, 2000
- Demand Control Ventilation, Carrier Complete Systems, Atlanta, January 16, 2001
- Variable Frequency Drives for Centrifugal Chillers, Carrier Complete Systems, Atlanta, February 14, 2001
- Carrier Centurion (high efficiency 12.5 to 25 ton rooftop units), Carrier Complete Systems, Atlanta, February 21, 2001
- Carrier Aquasnap (integrated hydronic chiller with built-in pumps, storage tanks, valves and controls), Carrier Complete Systems, Atlanta, February 21, 2001
- Sterling Engineered Products Rooftop, Carrier Complete Systems, Atlanta, February 21, 2001
- Energy Recovery Ventilators and Powered Exhaust Fans Along With Adaptor Curbs, Carrier Complete Systems, Atlanta, May 15, 2001

- Utilizing a Variable Air Volume System to Achieve Demand Control Ventilation, Carrier Complete Systems, May 16, 2001

16. Other duties performed for regular base salary during academic year, with average hours per week:

- Lead Professor, MET 4411, MET 4412, MET 4431 – 2hr
- Chair, MET Awards Committee – 0.25 hr
- Student Advising – 1 hr
- ASHRAE Student Chapter Advisor – 0.5 hr
- Developing instructional material - varies

17. Other duties performed for extra compensation during academic year, with average hours per week:

None

18. Recent summer or other assignments not shown above:

None

19. Any other pertinent information related to teaching effectiveness, professional activities or service to the engineering technology unit:

CURRICULUM VITAE
MECHANICAL ENGINEERING TECHNOLOGY

1. Name: John F. Sweigart
2. Department/section/program: Mechanical Engineering Technology
3. Date hired or assigned to department/section/program: September 1992
1. Number of years of service to department/section/program: 10
2. Present academic rank and date obtained: Associate Professor, Full time, September 1998
6. Degrees:
 - M.S., Engineering Mechanics, University of Missouri-Rolla, 1983
 - B.S., Mechanical Engineering, University of Missouri-Columbia, 1976
7. Other teaching experience:
 - University of Missouri-Columbia, Teaching Assistant, 1976-1978
8. Full-time industrial experience:
 - Amoco Performance Products, 1988-91, Research Engineer
 - Sikorsky Aircraft Co., 1986-88, Materials Engineer
 - McDonnell Aircraft Co., 1978-86, Engineer
9. Part-time industrial experience: none
10. Consulting work:
 - Design test fixtures for Precision Avionics and Instruments
8 hours in September 1999, 5 hours in October 2000
15. Professional recognition: P.E., Georgia (1996)
12. Principal publications during the last five years:
 - Burleson, W.L.; den Haring, D.; Hudak, J.G.; Sweigart, J.F., "SPSU Autonomous Remote Reconnaissance System," to be published in *Proceedings of Association for Unmanned Vehicle Systems*.
13. Scientific and technical societies of which a member:
 - Society for the Advancement of Material and Process Engineering
14. Honors and awards:
8. Specific programs and activities to maintain and enhance professional competence in which participated during the last five years:

16. Other duties performed for regular base salary during academic year, with average hours per week:

	Avg. Hr <u>Per week</u>
· Served as Faculty Advisor to Aerial Robotics Team	8.0
· Served on Department and University Peer Review Committees (1998-present)	1.0
· Served on Faculty Senate (Fall 1999 thru Fall 2001)	1.0
· Chairman, MET Design & Mechanics Curriculum Committee (continuous)	0.25
· Tours for, and meetings with, prospective students	0.5
· Student advisement	2.0
· Review student graduation petitions	0.5

17. Other duties performed for extra compensation during academic year: none

18. Recent summer or other assignments not shown above: none

19. Other service:

- Co-leading (with Omar Zia in ECET) effort to start a Mechatronics Engineering program.
- Participated in discussions with Enplas-America, Inc. that led to \$50,000 gift to SPSU.
- Participated in discussions with Lockheed that led to donation of composites laboratory equipment.

CURRICULUM VITAE MECHANICAL ENGINEERING TECHNOLOGY

1. Name: Dwayne Whittle
2. Department/section/program: Mechanical Engineering Technology
3. Date hired or assigned to department/section/program: March 1982
4. Number of years of service to department/section/program: 20
5. Present academic rank and date obtained: Assistant Instructor, Part-time, March, 1982

6. Degrees [state field, institution, and date of graduation]: BSMET, SPSU, 1980
7. Other teaching experience [state where, dates, and in what capacity]:
8. Full-time industrial experience [state where, dates, and in what capacity]:
Lockheed Martin Aeronautics Company, Marietta, GA 2001-present
 - Current full- time position is Quality Engineer. Job entails responsibility for Quality issues on final assembly on F-22 aircraft.
 - 1981 – 2001 Calibration Supervisor. Job entailed all responsibilities necessary to maintain a functioning metrology lab for 14,000 pieces of measurement and test equipment. The position also included overseeing 21 employees who provide the skills needed to perform the daily work routine.
9. Part-time industrial experience [state where, dates, and in what capacity]:
 - Interplants, Inc., Dunwoody, GA. 1978-1981
 - Engineer of production shop. Job entailed design, manufacturing of prototypes
 - and production of dental implants and their installation tools.
 - Harvey Industries, Inc., Stone Mountain, GA 1972-1975
 - Part-time position as furniture builder. Job entailed fabrication of furniture as well as maintenance of carpentry machinery.
10. Consulting work [brief description, including dates and nature of work during past five years]:
11. Professional recognition--Indicate [a] if registered as a Professional Engineer, Licensed Surveyor or Architect, and name the State[s] of registry; [b] if certified by the National Institute for Certification in Engineering Technologies, give date and classification; [c] if a Certified Manufacturing Engineer or Quality Engineer, give expiration date; [d] other applicable certifications:
12. Principal publications during the last five years [give bibliographical notation]:
13. Scientific and technical societies of which a member [state grade, any offices held, committee assignments, other activity]:
14. Honors and awards:
15. Specific programs and activities to maintain and enhance professional competence in which participated during the last five years:
16. Other duties performed for regular base salary during academic year, with average hours per week:
17. Other duties performed for extra compensation during academic year, with average hours per week:
18. Recent summer or other assignments not shown above:
19. Any other pertinent information related to teaching effectiveness, professional activities or service to the engineering technology unit:

**CURRICULUM VITAE
MECHANICAL ENGINEERING TECHNOLOGY**

1. Name: Orren W. Williams
2. Department/section/program: Mechanical Engineering Technology
3. Date hired or assigned to department/section/program: September, 1978
4. Number of years of service to department/section/program: 24
5. Present academic rank and date obtained: Professor, 1989
6. Degrees [state field, institution, and date of graduation]:
 - B.S. Engineering Science, Louisiana State University, 1975
 - M.S. Nuclear Engineering, Louisiana State University, 1976
 - M.S. Nuclear Engineering, Georgia Institute of Technology, 1978
7. Other teaching experience [state where, dates, and in what capacity]:
 1. Full-time industrial experience [state where, dates, and in what capacity]:

- United States Navy, Aviation Fire Control Technician, 1968-1972

1. Part-time industrial experience [state where, dates, and in what capacity]:
 - Nuclear Regulatory Commission Licensed Reactor Operator, Georgia Tech
 - Research Reactor, 1976-1978
 - Tri-Metals Fabrication, Baton Rouge, La. Assistant Layout Engineer, 1972-1976
10. Consulting work [brief description, including dates and nature of work during past five years]:
11. Professional recognition--Indicate [a] if registered as a Professional Engineer, Licensed Surveyor or Architect, and name the State[s] of registry; [b] if certified by the National Institute for Certification in Engineering Technologies, give date and classification; [c] if a Certified Manufacturing Engineer or Quality Engineer, give expiration date; [d] other applicable certifications:
12. Principal publications during the last five years [give bibliographical notation]:
 1. Scientific and technical societies of which a member [state grade, any offices held, committee assignments, other activity]:
 - American Society of Mechanical Engineers, member, Faculty Advisor
 - Society of Automotive Engineers, member, Faculty Advisor,
 - Atlanta Section, Chairman 1999-2000, Treasurer 1998-1999, Membership 1997-1998
 - Faculty Advisor for the FSAE Racecar projects, and the Supermileage projects
 2. Honors and awards:
 - Who's Who Among America's Teachers: 1996, 1998
15. Specific programs and activities to maintain and enhance professional competence in which participated during the last five years:
16. Other duties performed for regular base salary during academic year, with average hours per week:
 - Faculty advisor for FSAE special projects, 12 hrs per week
17. Other duties performed for extra compensation during academic year, with average hours per week:
18. Recent summer or other assignments not shown above:
19. Any other pertinent information related to teaching effectiveness, professional activities or service to the engineering technology unit:

Performance Indicators

Faculty Qualifications:

Initial appointment requirements for faculty in engineering technology (ET) and engineering institutions are significantly different. Engineering institutions generally require an earned engineering doctorate, while ET requires the appropriate masters degree and professional industrial experience. For promotion and tenure, engineering requires demonstrated competence in teaching; scholarly achievement in research, publishing, and professional practice; and service to the institute, community and profession. An ET program institute requires demonstrated teaching competence, service to the institute, community and profession, and continued professional experience. In both situations, the faculty in the general education area are required to possess the doctorate.

Faculty basic credentials

For those program faculty members who do not explicitly meet ABET criteria for faculty basic credentials, explain why the institution feels the individual should be considered as meeting basic credential criteria. Include only faculty members, full-time and part-time, who teach specific technology courses in the program. Do not include service area faculty or administrators who do not teach specific technology courses. For any master's degree that is not engineering or engineering technology, the institution must document the analytical nature of the degree and the appropriateness of the degree for the engineering technology program offered.

Note: Section I.F.2. of ABET criteria allows for limited exceptions to strict adherence to the basic credentials as long as the intent of the criteria is met. However, the institution must clearly and completely document that the faculty member meets the intent of the basic credentials criteria, section I.F.1.

Faculty/Student ratio:

Instructional Technology:

Facilities and non-traditional technical support:

Physical facilities

Describe the classroom and laboratory facilities including major items of equipment. To what extent are the facilities utilized? Discuss what extent laboratory facilities are used in support of physics, chemistry, and other basic science courses as well as core courses in the program. Discuss any important equipment deficiencies and explain what procurement action has been initiated or is projected to remedy such deficiencies. Appraise the existing facilities with respect to their adequacy to accommodate present enrollments. If enrollments increase, will expansion be required? What provision has been made to provide for any such expansion? Discuss procedures for equipment replacement and maintenance.

Since the last TAC of ABET visitation, or five years if initial accreditation, list and describe specific additions in laboratory equipment and the cost of this additional equipment by year. Also, discuss any changes in laboratory space and the effect on program quality.

Overview

The Mechanical Engineering Technology Program is housed in the cluster of three buildings known collectively as Building "K". A general floor plan of these buildings is shown on the following page. Buildings K1 (11,000 sq. ft.), K2 (5,000 sq. ft.) and K3 (11,000 sq. ft.) provide a total of approximately 27,000 square feet of classroom, laboratory and office space. All program faculty offices, labs, and most classroom activities are housed in this complex. Overflows of classes at the busiest times of the day can be accommodated in other classrooms across the campus.

All MET space is utilized regularly and is reserved exclusively for MET use with the following exceptions:

- Students from ATET, CPET, EET, IET and TET use the Graphics Labs when enrolled in EG 1210.

The Strength of Materials Lab is shared with the CET program.

- The Strength of Materials Lab is used occasionally for demonstrations for the ATET program.
- The CIM Lab is used occasionally for Robotics demonstrations by the Construction program and
- The IET program occasionally has tours of our Machine Shop to acquaint their students with metal cutting equipment.

The space is adequate for classroom activities for the current student enrollment, although we currently need additional space for student project work. There are also other capabilities we hope to include in the future in the areas of Composite Materials and Mechatronics (see Section VI-I for further discussion) which will require additional space. The age of the buildings makes them unattractive in general in comparison to the newer buildings on campus; however, they are functional. The current facilities have accommodated as many as 600 MET students in previous years, although we were not as actively involved in student projects at that point in time. We hope to increase enrollment significantly from the current level of 300. Experience has shown that approximately 500 students is the maximum that can be accommodated effectively with current space. The campus Master Plan calls for a new building for MET in the distant future, following the construction of two other new buildings to house a number of other programs.

Building K1

Building K1 contains two classrooms, one large (seating up to 50 students) and one of average size (accommodates up to 30 students). Both classrooms are equipped with overhead projectors, chalkboards and computers, VCR's and monitors for presentation of multimedia materials by instructors. The rest of the building is devoted to one faculty and two staff offices and a number of laboratories. The laboratories include the Machine Shop/Numerical Control Laboratory, Fluids Laboratory, Engineering Materials and Strength of Materials Laboratories and an area dedicated to Special Student Projects for two of our Competition Teams (Formula Race Car and Supermileage Vehicle both sponsored by the Society of Automotive Engineers).

The largest of the laboratories in Building K1 is the Metal Cutting (Machine Tool) and Numerical Control Lab (Room K122). This lab is equipped with 11 conventional (manual) lathes, four conventional (manual) milling machines, three NC milling machines (one table top and two full size), three NC lathes (one table top and two full size), a shear and several drill presses, saws, and grinders. The Machine Tool Lab is primarily used for the laboratory portions of two courses (1) the metal cutting portion of the course MET 1321, Manufacturing Processes, Lab I and the Numerical Control portion of the course, MET 2322, Manufacturing Processes, Lab II. This lab is sometimes used to prepare samples for strength testing and to provide general machine shop services for the program and the campus. The lab is used for scheduled classes approximately 15 to 20 hours per week and is open at most other times for student project work.

A room at the end of the machine tool lab (K124) houses a machine shop reserved for the use of the program technicians and their assistants. It contains a large drill press, a lathe and work tables. It is used in support of all program laboratories.

The next largest laboratory space in this building is shared by the Fluids Laboratory and the Student Special Projects Laboratory (Room K102). In this laboratory, students are familiarized with various types of industrial instrumentation and measuring techniques. The Fluids Lab includes performance testing of a variety of machines and devices. The equipment housed here includes: pressure and temperature measuring devices, deadweight testers, manometers, flow rate devices, viscometers, fluid flow systems, heat exchangers, fluid power systems, electric motors, pumps, a dynamometer, a steam engine, heat pumps, a refrigeration system, a process control simulator, a hydraulic robot, fans, duct systems and other measurement and control devices. The room and equipment are used for the Fluid Mechanics Lab, for some Instruments and Controls experiments and for some Refrigeration and Air Conditioning experiments. Special projects such as the SAE Formula Car Project, the SAE Supermileage Project and the ASME Human Powered Vehicle Project (inactive currently) also have space reserved in this large room. Scheduled classes and labs used this room 12 to 15 hours per week.

At the east end of Building K1 are the Strength of Materials and Engineering Materials Labs (Rooms K100 and K103). The Strength of Materials Lab (K100) is shared with the Civil Engineering Technology Department. Equipment in the lab includes a 120 kip Universal Testing Machine (UTM) with associated accessories and strain gauge equipment, a 60 kip UTM, a Torsion testing machine, a Charpy impact tester, and a fatigue (bending) testing machine. The MET department's computer controlled 20 kip UTM is in the adjacent Engineering Materials Lab

(Room K103). It is capable of automated tensile testing and fatigue testing. This lab also contains heat treating furnaces, hardness testers, metallographic microscopes, an electronic materials balance and space for corrosion experiments.

Building K2

Building K2 houses the program office, several MET faculty offices, two classrooms of average size (accommodate up to 30 students) and the Computer Projects Laboratory. One of the two classrooms is equipped with drawing tables which can be used in design classes where working space is needed. Both classrooms are equipped with overhead projectors, chalkboards and computers, VCR's and monitors for presentation of multimedia materials by instructors.

The Computer Projects Laboratory (Room K155) supports upper level MET mechanics, manufacturing and design courses (MET 3123, 3131, 3331, 4141, 4142 and 4342). Fourteen Pentium III personal computers provide students with access to CAD/CAM/FEA/NC software. Specific software available in this lab includes: Algor Finite Element Analysis and Modeling; MicroStation, Versions J7.1 and SE; Working Model 2-D, Version 4.0, QBasic and Structural Dynamics Research Corporation (SDRC) I-DEAS software. Word processing and routine graphics work are not permitted in this laboratory to reserve its use for higher level activity. Hard copy output is provided by two plotters and two printers (one is a B-size printer). A new addition to the lab is a 3-D printer providing Rapid Prototyping capability to our students. This lab is not routinely scheduled for class use, so it is available for individual project work most of the time.

Building K3

Building K3 houses several laboratories and faculty offices. The laboratories include Engineering Graphics, Metal Joining, Metrology, Automated Manufacturing and Energy Management/Numerical Control. Room K196 is dedicated to another of the student competition teams – the Aerial Robotics Team.

The two Engineering Graphics Laboratories (Rooms K174 and K176) serve not only the MET department but most of the Engineering Technology and Management School. The MET Program teaches Engineering Graphics for the ATET, CPET, EET, IET and TET programs. Most non-MET students take only MET 1210, Survey of Engineering Graphics. MET students are required to complete two courses: MET 1211, Engineering Graphics I and MET 1212, Engineering Graphics II. Each of these labs is equipped with 25 Pentium III personal computers including MicroStation, Version J7.1 software which is utilized in all of the graphics courses. Hard copy output is provided by two laser printers in each lab. Both of these labs are scheduled for class use about 20-30 hours per week. Student lab monitors, who are familiar with the software and Graphics principles, supervise an additional 20-30 hours per week when students can return at their convenience to complete class assignments and get basic assistance.

The Metal Joining Laboratory (Room K180) is used in the freshman level manufacturing course, MET 1321, Manufacturing Processes, Lab I, to provide students with hands-on experience with major welding and flame cutting processes. Welding equipment ranges from basic arc welding equipment to both wire-feed and tungsten electrode inert gas (heliarc) welders. Several stations of each type of welder are available for course use. Most welding stations have been updated in the last few years. The lab also houses a large CNC cutting table with plasma-arc and oxy-acetylene cutters. This table is equipped with an optical tracing head to allow programming from patterns or existing parts. However, maintenance of the CNC cutter has proven to be beyond our capabilities and prevents regular use of the equipment for course work. This lab is scheduled for classes 6 to 9 hours per week with other times available for student project work.

The Metrology Laboratory (Room K195) is used both as a classroom and lab for the metrology course. The equipment in this lab includes: rules, vernier and dial calipers, micrometers, height gauges, bench micrometers, toolmaker's microscope, linear measuring machine, various types of gauges, precision transit, optical comparator, gauge blocks, surface finish gauges, ultrasonic equipment, magnaflux, dye penetrant test kits, and a computer controlled coordinate measuring machine. This lab is scheduled for use 6 to 9 hours per week.

The Automated Manufacturing Laboratory (Room K188) houses a variety of automated manufacturing equipment and software including a flexible manufacturing system. The flexible manufacturing system features a programmable conveyor system which carries pallets to and from two machining cells and a robot assembly cell. The machining cells include a lathe cell with a pneumatic robot and CNC lathe and a mill cell with a fully articulated robot serving a four-axis CNC mill. A Pentium IV PC provides a system controller and a host computer. The computer houses a variety of CAD/CAM and CIM system software. The lab also houses an assembly robot system (IBM-Technovate). There are also 14 individual student workstations. Each includes a Pentium III personal

computers with LabView data acquisition software and Versa Pro PLC programming software. Each station also includes a GE Fanuc Series 90-30 PLC. This lab is scheduled for 6 to 9 hours of classes per week with the remainder of the time available for student and faculty project work.

The Energy Management/NC Laboratory (Room K188) contains 11 Pentium I personal computers, several printers and several pieces of equipment for refrigeration and air conditioning experimentation. Carrier software for determining heat loads, sizing equipment, etc. is available for use in conjunction with upper level thermal design courses. The lab also serves the Numerical Programming portion of the MET 2322 course with Anilam NC software available for student use. This lab is scheduled for 6 to 9 hours of classes per week with the remainder of the time available for student and faculty project work.

For the most part, we believe that these laboratory facilities are adequate for our current program and enrollment with the exception of the need for more student project space and for expansion of capabilities in the composite materials and Mechatronics areas. We are continuing to update and expand our laboratory equipment holdings with particular emphasis on computer-controlled or computer-aided systems. We have developed and continue to update a long-range plan to gradually replace equipment with more modern versions. Although budget allotments averaging approximately \$100,000 per year for capital equipment were once a reality, there have been few budget years of that magnitude recently and it is anticipated that future budget allocations from the state will be much smaller. Faculty realize that state funds will need to be supplemented with external funds through grants or donations of various sorts

Learning resources for Faculty and Students:

The Central library, named the Lawrence V. Johnson Library, houses all of the technology collections. None of the cataloged acquisitions reside outside of the central library. The Engineering technology collection is classified in the Library of Congress Scheme under T-TZ. This collection is housed on the second floor of the library with the exception of TH that is housed adjacent to N-NA, the Architecture collection. There are 13 double-faced ranges of shelves housing the entire T-TZ sections in the library that has about 47 such ranges of circulating books. The building has two floors and a Mezzanine. The first floor or Lower Level has three sections. Construction books are housed in the Lower Level/ Lower Tray. The Mezzanine consists of the non-circulating materials such as Reference and Current Periodicals. The top or second floor consists of all other circulating materials. Bibliographic access is gained through the newly acquired software, Endeavor/VOYAGER. The software permits users to gain access on campus or from remote sites such as campus offices, dormitory rooms, or locations off campus and in their homes. VOYAGER is in use by all of the state of Georgia libraries, so our users can gain easy access to the electronic catalogs of other state academic libraries as well. The State also sponsors a collection of databases for the library known as GALILEO where full-text journal articles are found in a variety of formats: the abstract, full text, and/or full-image forms are available. Early in 2001, the Engineering Technology Fee Committee chose a proposal for the funding of access to engineering Village 2 and paid the cost of \$9,800 for the year. The Reference Department handles all bibliographic instruction for these databases and for other research materials. Either group or individual sessions may be arranged.

Years covered – 1996 – March 2002

	Added		Total	
	Books	Periodicals	Books	Periodicals
(Without Bound Periodicals) Entire Institution's Library Collection	15,600	-14	103,379	716
In the fields of Engineering and	6,200	172	15,951	527
Chemistry	438	0	1,124	3
Mathematics	265	2	2,883	14
Physics	222	0	2,118	13
Other (Specify	8,475	-188	81,303	159

Budget Resources: FINANCES RELATED TO THE PROGRAM*

Indicate below the operating funds allotted to the engineering technology program during the current school year and during the school year of the last previous ABET visit (or five years ago if this is an initial visit). Exclude funds for addition to physical facilities.

Purpose	Amount and Year	
	Current Year: 2001- 2002	Previous Year Reported: 1995- 1996
Administrative Salaries and Expenses	0	\$37,525
Salaries-Teaching	\$717,254	812,132
Other Salaries	\$115,577	131,292
Supplies	\$29,925	54,500
Maintenance	See notes below.	See notes below.
Promotional Expense	See notes below.	See notes below.
New Equipment	\$43,400	25,000
Replacement Equipment	See notes below.	See notes below.
Research	See notes below.	
Faculty Development	See notes below.	
Staff Development	See notes below.	
Other (Specify) Travel	\$5,800	8,000
Other: Fringe Benefits	\$179,703	250,370
Total	\$1,091,659	\$1,318,819

**The institution may adjust the format of this form to facilitate word-processing.*

NOTES:

Current Year Budget:	Based on 04/03/02 Budget Report (after operating budget reductions and addition of travel funds).
Administrative Salaries:	1995-1996 includes 50% of Department Head salary. Currently the Program Head is not considered an Administrative position.
Salaries – Teaching:	Includes regular faculty, summer faculty and part-time faculty.
Other Salaries:	Includes technical and clerical support (Administrative Secretary, Mechanical Technician, Electronics Technician) and student assistants.
Supplies:	Includes all operating expenses including maintenance, promotional expenses, replacement equipment and non-inventory equipment.
New Equipment:	Includes appropriated funds for both new and replacement equipment since it could not be easily separated. Current year includes Technology Fee funding (distributed through an annual proposal process) of \$41,900.
Research and Faculty Development:	Academic Affairs entertains proposals from faculty annually for funding of Professional Development, Research and Scholarship activities.

Staff Development:

Human Resources entertains proposals from staff annually for funding of Professional Development activities.

Program, learning, and Service Outcomes:

Success of Graduates: Overview

Graduates of the MET Program at SPSU are very successful in obtaining employment after graduation. Our graduates command starting salaries that are competitive with other graduates of the institution and with those of other institutions in engineering technology and related positions. They obtain appropriate job titles and duties and are successful in advancing their careers. Employers are very pleased with their performance with only rare exceptions.

FOLLOW-UP WITH GRADUATES AND EMPLOYERS

NOTE: The institution must be able to present data and documentation demonstrating the placement and satisfactory employment of its graduates in positions appropriate to the purposes of the program. Information is specifically required showing employer satisfaction with graduates, graduates' satisfaction with employment, career mobility opportunities, appropriate starting salaries, and appropriate job titles. No specific format is prescribed by ABET for the collection and presentation of such data, but information should be current and reasonably complete.

A. Employment history

Discuss the recent employment history of the graduates of the engineering technology program. What specific industrial organizations have recruited on campus? What has been the hiring history with respect to starting salaries, job titles, responsibilities assigned, and subsequent promotions? What percentage of graduates continue in advanced study? What percentage have not obtained satisfactory employment? Do the program faculty assist students in finding employment?

Overview

Graduates of the MET Program at SPSU are very successful in obtaining employment after graduation. Our graduates command starting salaries that are competitive with other graduates of the institution and with those of other institutions in engineering technology and related positions. They obtain appropriate job titles and duties and are successful in advancing their careers. Employers are very pleased with their performance with only rare exceptions.

Assistance to Graduates in Finding Employment

The institution and the MET program assist graduates in finding employment in several ways: (1) through the SPSU Career and Counseling Center, (2) with assistance from the MET Program Office and (3) with the assistance of individual MET faculty.

Southern Polytechnic maintains an active Career and Counseling Center which provides assistance to (a) students seeking part-time and temporary employment and Cooperative Education opportunities while attending school and (b) graduating students seeking entry level employment and (3) alumni seeking job changes. Among the activities they coordinate are: on-campus job interviews, Job Fairs, Career Days and other employment related activities such as resume development and critiquing, interview preparation and resume referral. The Career and Counseling Center maintains a website to assist with many of these activities.

As an example of the activity of the Career and Counseling Center in assisting students with employment in 1997, the following statistical information was available:

·	Number of companies listing jobs	1489
·	Number of companies recruiting on campus	139
·	Number of student campus interviews	768
·	Number of student resumes sent out for job listings	42,853

·	Number of jobs listed for graduates (excludes campus interviews	2,387
·	Number of jobs listed for Alumni	812
·	Number of jobs listed for co-op students	313
·	Number of part time jobs listed	727
·	Number of Career Day exhibitors (companies)	61

A current report of Career and Counseling Center statistics will be available at the time of the accreditation visit.

Numerous inquiries and solicitations about employment and job listings come directly to the MET Program office from industry representatives, many of whom are our own graduates. Job opportunities are regularly posted on the MET Program bulletin board and relayed to the Career and Counseling Center.

MET faculty are also active in assisting graduates find employment through their personal contacts with industry representatives. The faculty activity complements that of the Career and Counseling Center rather than competing with it. Formal records of faculty activity are not maintained, however.

Graduate Starting Salaries

Based upon data collected and analyzed by the Career and Counseling Center, the average annual starting salary for Mechanical Engineering Technology graduates at the Bachelor degree level (for those who participated in the survey) was \$45,981 for the 2001 calendar year (includes Spring 2001, Summer 2001 and Fall 2001 graduates). A history of average starting salaries for baccalaureate graduates for the last six years is presented in Table III.A.1.

Table III.A.1. BS Starting Salaries (Annual)

		High - MET <u>Graduates</u>	Low - MET <u>Graduates</u>	Average - MET <u>Graduates</u>	Average - SPSU <u>Graduates</u>
\$34,458	Sep96-Aug97	\$50,000	\$24,000	\$35,956	
\$35,067	Jan-Dec 1997	\$56,000	\$26,500	\$36,491	
\$37,760	Jan-Dec 1998	\$52,000	\$30,000	\$38,545	
\$40,468	Jan-Dec 1999	\$52,000	\$33,000	\$42,135	
\$42,281	Jan-Dec 2000	\$52,900	\$36,500	\$43,596	
\$42,538	Jan-Dec 2001	\$58,443	\$36,000	\$45,981	

Employers of M.E.T. Graduates

Based upon a Spring 2002 survey of M.E.T. alumni, a list of companies for whom they are (or have been) employed was compiled. Table III.A.2 on the following page presents the names of some of the employers of M.E.T. students who have graduated in the past 10 years.

Employer Satisfaction

Based upon data collected by the Career and Counseling Center, employers of Southern Polytechnic graduates are very satisfied with their capabilities. More than 70 firms responded to a 2002 survey including manufacturing companies, engineering/consulting firms and computer and construction firms. Twelve of these firms indicated that

they employ MET graduates. A compilation of employer feedback regarding the capability of SPSU graduates is presented in Table III.A.3 at the end of Section III.A. The only negative comment among the 29 included in the compilation did not apply to MET graduates. The survey showed no clear indications of areas that need improvement. It appears that a better survey instrument could be designed prior to the next survey.

Table III.A.2. List of Companies Employing M.E.T. Alumni (from 2002 Survey)

Applied Engineering & Science
Atlanta Attachment Company
Atlanta Southeast Airlines
Bard Mfg.
Brake & Hegyan, Inc.
Brink's Inc., Engineering Division
C. Larry Owens, Inc.
Caldwell Tanks
Clorox (formerly First Brands)
The Coca-Cola Co.
Cooper Lighting
Cummins Engine
Delta Airlines - II
Don Park, Inc.
EOn Communications
Gemu Values
General Electric
General Electric-Nuclear Energy
General Electric-Power Systems
General Maint. & Cont., Inc.
Georgia Institute of Tech.
Great Dane Trailers, Inc.
Gulfstream Aerospace Corp.
Horsburgh & Scott
Hussman Corporation
Integrated Storage Solutions
Invensys Building Systems
Jennings Machine & Gear
Johnson Controls, Inc.
Kelly Lundstrom Group, Inc.
Kennesaw State University
Kimberly-Clark Corp. - II
Lake Shore Truss
Landis & Gyr
Lockheed Aeronautical
Lucent/OFS

Lucent Technologies
Marta
Mason Atlanta
Milliken & Company - II
Mohawk Carpet
Multisoft, Inc.
Nor-Ral Plastics, Inc.
Nortons Company
Outboard Marine Corp.
Panoz Auto Development
Printpack, Inc.
Remtec Engineering
Research Air Flo, Inc.
Riverwood International
Ross Technology-II
Seasons4, Inc.
Self-Employed
Shaw Industries
Southern Company Services
Southern Conveyor Concepts
Steel King
Sterling Development & Engineering Corp.
Sweetheart Cup. Co.
T-Tech, Inc.
The Torrington Co.
Tropical Air
Underwood Air Systems
United Parcel Service
Verso Technologies, Inc.
Video Cart, Inc.
Wave Air Corp.
Westinghouse Elec. Corp.
Williams-Russell & Johnson, Inc.
Yanmar Manufacturing America

Alumni Satisfaction

In the Spring of 2002, the MET Program sent an Alumni Survey to approximately 470 graduates of the program from 1990 to 2001. Only 45 graduates responded. One conclusion from the disappointing number of responses was that the survey was too detailed. A copy of the survey form is presented in Appendix B. By comparison, the previous Alumni survey received almost twice the number of responses (while fewer were mailed out) and was considerably less detailed. The next survey should be shortened or more focused.

The latest survey of MET alumni shows that most of these graduates have found appropriate employment, if not in their first position after graduation, at least in their current positions. A chart summarizing survey responses is presented in Table III.A.4 at the end of Section III.A. On a scale of one to ten (higher is better), these graduates give their education an average score of approximately 6.6 for relevance to their job positions indicating that our graduates are using their education in a much broader range of jobs than they have in the past. This supports the argument to provide more flexibility in the curriculum through additional elective courses as planned for next year. With regard to the quality of instruction, our graduates rate the program at 8.4 on a scale of one to ten. These numbers indicate that our graduates are generally well satisfied with the education they have received. Over 30% of the respondents have passed the Fundamentals Exam (our graduates are eligible for professional registration in Georgia). Very few are PE's; however, most would not have accumulated enough work experience to qualify (Georgia requires 7 years work experience for Engineering Technology graduates. While professional registration may be less important in the mechanical field than in some others, we are actively encouraging our students to take the FE exam during their senior year. The number of students taking advantage of this opportunity has grown gradually over the past several years.

Statistics provided by the Georgia Board of Registration show that the numbers of M.E.T. students passing the FE in 1999-2000 are higher than indicated by the alumni survey. The pass rates for 1999-2000 are shown in the chart below. Two-thirds of the M.E.T. students who took the test that year passed. This is quite a bit higher than the pass rate indicated by the alumni survey and may indicate improving performance in more recent years. FE pass rates will continue to be monitored.

E.I.T. Performance for SPSU Students/Graduates

Date of Fundamentals (EIT) Examination: FALL 1999

Department:	<u>CET</u>	<u>CNST</u>	<u>ECET</u>	<u>IET</u>	<u>MET</u>	<u>TOTALS</u>
Number Taking Exam:	19	1	3	0	10	33
Number Passing Exam:	7	0	1	0	8	16
Number Failing Exam:	12	1	2	0	2	17

Date of Fundamentals (EIT) Examination: SPRING 2000

Department:	<u>CET</u>	<u>CNST</u>	<u>ECET</u>	<u>IET</u>	<u>MET</u>	<u>TOTALS</u>
Number Taking Exam:	19	0	0	3	6	28
Number Passing Exam:	4	0	0	1	3	8
Number Failing Exam:	15	0	0	2	3	20

Advanced Degrees and Continuing Education

The MET program, as with most engineering technology programs, is not specifically designed as preparation for graduate study. We find that few of our graduates pursue higher degrees. As seen in Table III.A.4, only one of the Alumni responding in 2002 had a Masters degree (an MBA); however, through personal contacts we are aware of a number who have completed MS degrees. Those graduates that we are aware of doing graduate work have attended graduate schools at Clemson University, Lehigh and the University of Texas. They apparently did not respond to the survey. The only public university offering graduate degrees in

Mechanical Engineering in the state of Georgia is Georgia Institute of Technology and they do not accept our graduates into their MSME graduate program. A number of our graduates have applied there without success; a number would attend Georgia Tech if given the opportunity. However, most of our graduates are active in continuing education activities related to their employment. The most recent Alumni survey shows that only about 15% say they have not continued their education in some form. They rate their preparation to continue their education as 4.1 on a scale of one to five (higher is better).

Other Observations

Other conclusions that may be drawn from the Alumni Surveys, which are indicated in Tables III.A.2 and III.A.4, are the following:

- A wide range of companies hire our graduates (Table III.A.2).
- Graduates hold a wide variety of job titles (Table III.A.4).
- Most graduates appear to be progressing well in their careers. Some indication of graduate career progress can be seen by comparing their "First Job Title" with their "Current Job Title" (Table III.A.4).
- Fewer than 5% of the Alumni believe that they have not successfully advanced to appropriate levels of increasing responsibility in their careers" (Table III.A.4).

Conclusions

We find that our graduates and their employers are generally satisfied with the quality and preparation of Southern Polytechnic alumni. This satisfaction is also generally supported by our Industrial Advisory Committee. After filtering out those suggestions which are highly specialized or company specific, the most commonly perceived need is for more experience with new applications of computers. We are making every effort to bring these new applications into the curriculum, with notable success in several areas such as data logging techniques, automated manufacturing and Finite Element Analysis. The most significant change in recent years has been the increase in the number of personal computers available in the department. This has enabled the faculty to more effectively integrate them into the curriculum.

Scholarship Contribution:

Community Service and outreach:

Retention Rates:

Enrollment trends and retention

Trace the five year enrollment history for this program, offering explanations for any pronounced or significant changes in the established pattern. Discuss programs in effect to aid student retention. Indicate percentages for the first year attrition and overall start-to-finish attrition.

Enrollment Trends

Fall Semester enrollment figures for the past six years are shown below in Table VI.E.1.

Table VI.E.1. 1996 - 2001 M.E.T. and SPSU Enrollment History*

Year	M.E.T. <u>Freshman</u>	M.E.T. <u>Sophomore</u>	M.E.T. <u>Junior</u>	M.E.T. <u>Senior</u>	M.E.T. <u>Total</u>	SPSU <u>Total</u>
1996	Detailed enrollment breakdown not available				468	3923
1997	Detailed enrollment breakdown not available				486	3925
1998	62	72	96	179	409	3684
1999	69	66	82	159	376	3631

2000	67	62	72	130	331	3531
2001	57	68	62	112	299	3551

* Sources: SPSU Web Reports – WSGR1300 and IRPA Web reports

As seen in Table VI.E.1, M.E.T. enrollment and SPSU institutional enrollment have followed a similar trend over recent years with a significant drop in enrollment occurring in Fall 1998 with the conversion to the semester system. The institution has made recruiting a top priority since 1998. Hopefully, the small increase in Fall 2001 is the beginning of an upward trend. However, it is believed that additional resources for recruiting are still desperately needed.

The distribution of class enrollments in Table VI.E.1 appears to be the reverse of what would be expected for a traditional student population. The fact is that our student population is a diverse mixture. More than half of our students are Transfer students and many of them are part time students. Thus, the high number of both Juniors and Seniors.

Retention

Retention of M.E.T. students is typically slightly lower than for the institution as a whole. A summary of retention data as provided by SPSU Web Report WSGR1600 is presented in Table VI.E.2. The values in Table VI.E.2 are much higher than they have historically been. For instance, over the period from 1987 to 1995, institutional retention of first-year students from one year to the next varied from 56% to 67%. Either retention efforts have produced dramatic improvement or SPSU Web Report WSGR1600 produces questionable information. Data presented in the September 2001 Board of Regents “Enhancement Team Report” indicate that retention of First-time, Full-time Freshman from Fall semester to the following Fall term is from 58% to 66% which is more in line with historical values. Table VI.E.3 shows that SPSU Freshman retention was comparable to that of the University System of Georgia (USG) from 1995 to 1997, but SPSU retention has dropped significantly since the conversion to the semester system in 1998. The institution is studying this change to determine what can be done to remedy it.

Table VI.E.2. Retention Data*

<u>Retention</u>	<u>One Year</u>	<u>M.E.T. Retention</u>	<u>SPSU</u>
	F98 to F99	83.6%	86.1%
	F99 to F00	82.7%	85.9%
	F00 to F01	78.9%	85.2%
	<u>Two Year</u>	<u>M.E.T. Retention</u>	<u>SPSU Retention</u>
	F98 to F00	81.2%	87.7%
	F99 to F01	81.4%	87.4%
	S00 to S02	76.1%	83.7%
	<u>Three Year</u>	<u>M.E.T. Retention</u>	<u>SPSU Retention</u>
	F98 to F01	79.7%	88.2%
	<u>Three & 1/2 Year</u>	<u>M.E.T. Retention</u>	<u>SPSU Retention</u>
	F98 to S02	79.7%	88.3%

* Source: SPSU Web Report WSGR1600

Table VI.E.3. First-year, Full-time Freshman Retention**

	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>
SPSU	62.0%	66.5%	65.8%	58.3%	61.3%

USG	62.8%	65.4%	66.0%	66.9%	66.4%
-----	-------	-------	-------	-------	-------

** Source: September 2001 Board of Regents "Enhancement Team Report"

The institution has implemented a number of programs aimed at the retention of native freshmen and other lower division students as well as upper division students. These include:

1. A system of academic advisement provides each student with an assigned faculty member in the program as Faculty Advisor. Undeclared (General Studies) students are also assigned to an advisor in Social and International Studies. The same Faculty Advisor is retained unless the student changes majors or requests a change (or the Faculty Advisor leaves).
2. Each engineering technology program requires their majors to take an Orientation course to provide students with early advice and information on career choices and important academic information.
3. The ATTIC (Advising, Testing, Tutoring, International student Center) provides a variety of student services in a central facility.
4. The Career and Counseling Center offers academic counseling, career counseling and personal counseling for all students.
5. The Math and Humanities programs provide special help sessions for students desiring out-of-class assistance in basic math and English courses.
6. A committee of faculty, the Academic Advising Committee, studies ways to improve academic and career advising at Southern Polytechnic.
7. The University sponsors a Freshman Experience program to provide special assistance and group interaction for new Freshman students.
8. Program Heads provide individual counseling to students who have been dismissed prior to their reinstatement. The Program Heads determine if the student has special needs and help guide the student in the choice of courses for the next few semesters.

Student Learning Outcomes:

Processes:

Design of Learning experience:

Instruction

Discuss the philosophy of instruction. Explain in detail any approaches that are considered unique or that have proven to be significantly effective or ineffective.

The Southern Polytechnic MET Program's approach to instruction is based on faculty and students working together to identify and solve technical problems in the classroom and the laboratory. Our goal is to provide students with the tools of analysis and design and to provide them with opportunities to apply these tools on the scale and level that will be expected of them in an industrial setting.

Emphasis on the application of engineering concepts is stressed throughout the curriculum through projects, laboratories and teamwork. Of the 18 required Technical Sciences and Technical Specialties courses, 9 require laboratory work and 5 require design project work. The laboratory experience of students starts as freshmen with basic machine tools and extends through experiences with modern computer controlled machines and systems. Communication skills, including graphical communication, are developed through courses in written and verbal communication and engineering graphics and further refined through practice in technical courses. Skills and techniques of analysis are based on a solid grounding in mathematics and science and are further developed in a rigorous series of engineering mechanics and thermodynamics courses. Design is addressed in a variety of courses beginning with the freshman graphics and orientation courses and continuing through the advanced design courses.

Teamwork is emphasized in small laboratory groups and in team projects in design and manufacturing courses. Special projects, such as our Formula Race Car (sponsored annually by the Society of Automotive Engineers), Supermileage Vehicle (also sponsored annually by the Society of Automotive Engineers) and Aerial Robotics Team also provide good opportunities for developing teamwork skills. These student-designed and constructed vehicles have been successful in international competitions at the collegiate level.

Active student chapters of several professional societies involve students in working together and in developing leadership skills. Over the years, the MET Department has had active student chapters of several professional organizations:

- (1) the Georgia Society of Professional Engineers (GSPE),
- (2) the American Society of Mechanical Engineers (ASME),
- (3) the Society of Manufacturing Engineers (SME),
- (4) the Society of Automotive Engineers (SAE) and
- (5) the American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE).

In recent years, we have concentrated our efforts on the GSPE, SAE and SME organizations. Professor Horton has nurtured the GSPE student chapter which serves all students in the engineering technologies not just M.E.T. students. He has been particularly active in encouraging professional registration for SPSU students and he has participated actively in local and state GSPE activities. SAE has been of special interest to our program since it sponsors both the Formula Race Car and the Supermileage Vehicle competitions in which we participate. SME has also been popular with our students and faculty. Because of a faculty resignation, the SME group has been inactive this past year. However, Dr. Brani has agreed to revive the SME student chapter when he returns from teaching in Botswana (Fulbright Scholarship) in the Fall of 2002. We still participate in some ASHRAE and ASME activities but at a lower level than in previous years before some of the other organizations became more prominent.