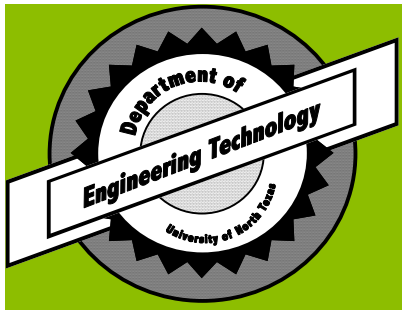


Engineering @ Technology a Glance

Engineering Technology Newsletter

Department of Engineering Technology

University of North Texas



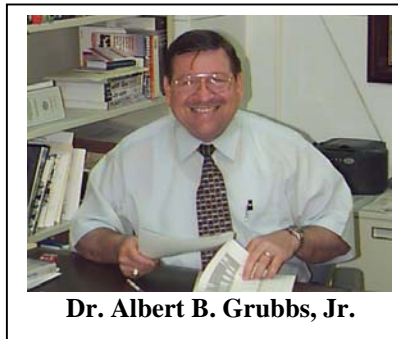
Phone: (940) 565-2022
 Fax: (940) 565-2666
 E-mail: <ETEC@UNT.EDU>

Issue Highlights

Topic	Page
Alumni Update	8
ANTEC 2001 a Success	5
ASHRAE	2
ASME	2
Chair's Message	1
Dr. Plummer Teams With Ukrainians	5
ETEC Web Site	6
FAA Approves UNT	4
IEEE Student Chapter	3
Industrial Advisory Committees	7
Laser Cutting Machine	7
Nanoindentation	4
New Faculty Members	6, 7
Outstanding Alumni	8
Outstanding Students	4
PACCAR Scholarships	3
Research Assistants	6, 7
Scholarships Awarded	3
SEML & FEL	5
SME Student Chapter	3
TASET Editor	2
Tau Alpha Pi	2
Telecommunication in Mongolia	4
TXU Update	6
UNT Engineering Week	5
Who's Who	4

Editor: Michael R. Kozak

Chair's Message



Dr. Albert B. Grubbs, Jr.

It is amazing how fast time passes when one is busy and having fun! Another year has passed since our last newsletter with significant developments in the department. This is also the tenth year since the department was officially changed from Industrial Technology to Engineering Technology.

And what a ten years it has been! During that time the Engineering Technology Building was remodeled;

ABET accredited and reaccredited the electronics, manufacturing, mechanical, and nuclear programs; the graduate program was further developed to include a thesis based on applying theory to real world problems; faculty increased its activities in the area of publications, professional service, and research. In addition, enrollments continue to grow in both the undergraduate and graduate programs. I am convinced that the accomplishments of the department contributed to the establishment of the university's desire for a comprehensive engineering program. After two committees and several consultants, the establishment of a College of Engineering was approved by the UNT Board of Regents. We are awaiting approval by the Texas Higher Education Coordinating Board. If approved as expected, the College of Engineering will be established in 2003 with the existing departments of Engineering Technology, Materials Science, and Computer Science. Additional departments of electrical and mechanical engineering will be established in 2004. The former Texas Instruments manufacturing facility has been purchased and designated as the future home of the new engineering college. It is located about 3 miles north of the main campus with a direct route from the main campus on a well maintained four lane road.

All programs in the department revised curriculum this year to reduce the number of hours required for the degree. In general, the requirements were lowered from 132 to 128 credit hours. In addition, technical electives were added to allow students to customize their learning experiences. The graduate faculty is looking at the graduate program to determine how to better manage a growing enrollment with a stable faculty allocation.

There were several developments regarding faculty during the past year. First, Dr. Perry McNeill, electronics, retired after many years service to the department. He continues to teach a few courses per year. Ms. Susan VanDerbeck and Dr. Vijay Vaidyanathan joined the faculty in the electronics program. Dr. Dan Parris,

mechanical, began this academic year as assistant professor. Lastly, Dr. Nasrazadani joined the department as associate professor and Director of the Mechanical, Manufacturing, and Nuclear Programs.

The department is optimistic and excited about its future in the proposed College of Engineering. Our emphasis on applications and solving real world problems will contribute to the overall mission of the new college and complement the missions of newly developed engineering science programs.

Please call if you have any questions. I invite you to visit anytime but request a phone call or email so we can better host your visit.

TASET Editor



Dr. Michael R. Kozak was elected newsletter editor for the Texas Association of Schools of Engineering Technology at the September, 2001 annual meeting in San Marcus, Texas. Mike replaces Carole Goodson of the University of Houston.

Tau Alpha Pi



Tau Alpha Pi is the national honor society for engineering technology, founded in 1953, managed by the American Society for Engineering Education and with 93 active chapters.

The Texas Iota Chapter of Tau Alpha Pi, established in 1996, nominated one student for membership from Manufacturing, four from Mechanical and six from Electronics Engineering Technology. The initiation ceremony will be on April 18.

According to its charter, each chapter may select one individual each year as an honorary member. The student members selected, for 2002, Mr. Charles Bittle, an electronics instructor in the department.

Officers for 2001 - 2002 are:

- President..... Victor Karani
- Vice President..... Taylor Blume-Webb
- Secretary..... Tera Saunders

President Karani is from Nairobi, Kenya, East Africa and is completing his BS in Electronics Engineering Technology. Officers for 2002 - 2003 will be elected on April 18.

Michael R. Kozak
Faculty Advisor

American Society for Mechanical Engineers



Mr. Burton Dict, Director of the Southern Regional Office presented a talk on February 26, 2002 to the members of the UNT Student Chapter. His presentation was titled: "The Benefits of Joining a Professional Society". Thanks go to Rachel Forsyth for organizing this meeting.

Dr. Seifollah Nasrazadani
Faculty Advisor



American Society of Heating, Refrigeration, and Air-conditioning Engineers

ASHRAE has indicated an interest in establishing a chapter at UNT and the paperwork is underway. The chapter will be looking for students who have an interest in HVAC to join the society and become active members.

ASHRAE representatives Mr. Nathan Hart and Mr. Grant Yaney presented a paper on January 30, 2002 on "Carrier Opportunities in the HVAC & R Field". ASHRAE donated \$750 after the presentation and promised to donate a split system air-conditioner and several controllers which will be used in a new thermal science laboratory.



Dr. Seifollah Nasrazadani
Faculty Advisor

IEEE Student Chapter



The Institute of Electrical and Electronics Engineers is a non-profit, technical professional association with more than 375,000 individual members in 150 countries. The students of Electronics Engineering Technology are proud to be associated with IEEE.

The UNT student branch is 20 members strong and hopes to increase this number. Guest speakers from industry and from campus spoke at the weekly meetings. Mr. Manuel Trevino, engineer from Siemens, spoke on Industry's Expectations of New Graduates and provided insight into his success after graduating from our department. Ms. Senta Thomas, professional career counselor at the UNT Career Opportunities Center, spoke on how to prepare a resume and will be back to discuss interviewing skills.

Ms. Janet Denny will be addressing the branch on the possibility of a technical job fair on campus. Field trips are planned to Verizon and Texas Instruments. Members are also participating in the Region 5 Web Site design competition. Interested students can contact the local branch at unt@ieee.org.

Office Bearers:

- President - Preeti Nagarajan
- Vice-President - Damian Marks
- Secretary - Michael Mohler
- Treasurer - Michael J. Sinnott
- Ambassador - Phi Nguyen

Albert B. Grubbs, Jr. and Susan VanDerbeck
Faculty Advisors

SME Student Chapter



The Society of Manufacturing Engineers Student Chapter 305S has fallen on hard times. After having thrived for the past five years, the chapter suffered major losses with the Spring 2001 graduation of most of its officers and active membership. The magnitude of the situation was compounded by the successful initiation of a new student chapter of ASHRAE. It would seem that the Mechanical/Manufacturing Division does not have the enrollment to support three active student organizations. Regardless, efforts are underway to resuscitate 305S.

Dr. Phillip Foster
Faculty Sponsor

Scholarships Awarded



A total of 11 scholarships have been awarded at the Departmental level to Engineering Technology majors.

The following scholarships were awarded during Fall 2001 for the Spring 2002 Semester:

Boeing Electronics -Huyen Huynh, Victor Karani

Departmental - Victor Karani

President's Excellence - Preeti Nagarajan, Thomas Ford

The following scholarships were awarded during Spring 2002 for the Fall 2003 Semester:

Southwestern Electronic Representatives Association - Ahmad El-Rifai

Boeing Electronics -.Sam Okate

CBS/Bell Memorial - (None Qualified)

Fritz Roberson - Ansel Reid

Jude Thaddeus - Ansel Reid

Departmental - Ansel Reid

President's Excellence - Ansel Reid

PACCAR Foundation Scholarships

Sincere congratulations go out to Enriquette Estrada (MEET) and Frank Armstrong (MEET), the two awardees of the PACCAR Foundation Scholarship. Each received, last July, \$2,000 for the Fall 2001 and Spring 2002 semesters.

PACCAR is the corporate umbrella which includes Kenworth as well as Peterbilt. This is the second year the scholarships have been awarded to qualified Manufacturing Engineering Technology (MFET) and Mechanical Engineering Technology (MEET) students. Special thanks to PACCAR for their support of our programs.



2001 - 2002 Outstanding Students



Each year the Engineering Technology Department faculty select one outstanding student from each program who qualify according to UNT guidelines. The following undergraduate students were selected by the Engineering Technology faculty as the best of 2001-2002.

Electronics - Victor Karani Mechanical - Thomas Ford
 Manufacturing - Randall Kelton
 The Outstanding Graduate Student for 2001-2002 was Edward Wynne

Who's Who Among Students in American Universities and Colleges



The following students were nominated for 2002.

Electronics Engineering Technology

Fatena Alabdulelah	Ali Assad
Taylor Blume-Webb	Raelyna Catalon
Sean Daly	Patrick Dunn
Almad El-Rifai	Huyen Huynh
Jeffrey Jendel	Michelle Johnson
Victor Karani	Aaron Kuehn
Timothy Mankin	Jacob McKean
Yoshiyuki Nida	Joshua Stohl
Chun-Yen Yeh	Osama Zatar

Manufacturing Engineering Technology

Randall Kelton	Adam Reiman
----------------	-------------

Mechanical Engineering Technology

Frank Armstrong	Shane Burkhard
Thomas Ford	Ansel Reid
Michael Siggins	Tamaki Yanagita

Nanoindentation Dr. Reza Mirshams



ability to analyze properties from nano to macro scales.

Characterizing surfaces to the level of a few nanometers has become increasingly important for manufacturers and researchers. Mechanical properties in nano and micro scales are different. Recent indenters have enhanced the

(Nanoindentation, continued)

The current effort in our laboratory is to extract mechanical properties for structural design by matching loading and unloading curves, design of special setups for tensile and fracture toughness testing, and application of finite element methods. Typical specifications include a maximum load of 500 mN, maximum indentation depth of 500 μm , and displacement of <200 nm. Load restriction is 50nN.

FAA Approves UNT as Airways Facilities - Collegiate Training Initiative Program



Dr. Grubbs (left) and Provost David Kesterson (right) accept plaque from FAA representative

The Federal Aviation Administration Southwest Region recognized UNT's Engineering Technology Department's inclusion into the national AF-CTI program during an award ceremony on September 19 in the Engineering Technology building. The AF-CTI program recruits students for employment with the FAA.

"We are pleased that the FAA chose to bestow this great honor upon us," said Dr. Bill Grubbs, Department Chair. Students enrolled in this program will gain hands-on, practical work directly related to their field of study. Up to \$3,000 in financial assistance for educational expenses is available.

A Model for Designing a New Telecommunication System in Mongolia



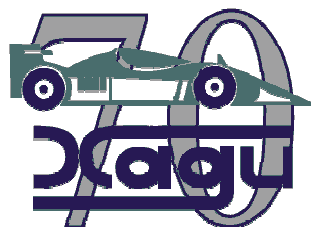
The objective of this research was to design, and determine the feasibility of, a telecommunication system for the city of Erdenet, Mongolia. The Mongolian Telecommunication Co, Telecommunication Company of Erdenet city and the National Statistical Office of Mongolia provided the data required for telecommunication forecasting of Erdenet. The resultant model should become a useful example for planning and updating the system and involves: analyzing and forecasting telephone traffic, calculating the required number of channels, determining exchange locations, traffic matrix, and establishing a basic hierarchical structure.

UNT Engineering Week 2002



On the occasion of Engineering Week, February 17-23, Dr. Rollie Schafer presented an update on the progress of establishing the College of Engineering at the University of North Texas. His presentation, "The UNT College of Engineering: Issues and Answers", indicated that a search is underway for a Dean to assume position in January 2003. Dr. Schafer mentioned that the three initial programs in the new College would be Engineering Technology, Computer Science and Engineering and Materials Science and Engineering, and that an Electrical Engineering program will be established in 2004 and a Mechanical Engineering program in 2006.

Dr. Mitty Plummer Teams with Ukrainians



UNT and Kharkov National Highway and Automobile University have been awarded a \$93,000 grant from the Civilian Resource Defense Foundation to improve performance of liquid nitrogen powered vehicles. Dr. Plummer is hopeful that one of the faculty from Kharkov National can visit the Engineering Technology Department to pursue some collaborative research. The students of Kharkov build race cars capable of 160 mph for their senior projects and are frequent winners of competition among the republics of the former USSR. It is great to have them on board.

ANTEC 2001 a Success

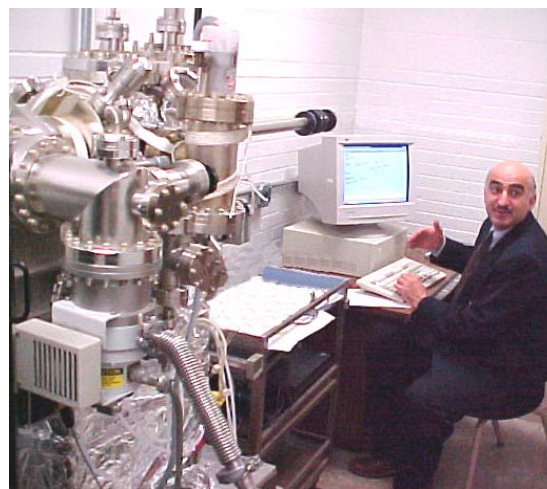


Dr. Michael Kozak, General Operating Chair for the 2001 Annual Technical Conference of the International Society of Plastics Engineers received information from SPE Headquarters that the May, 2001 Dallas meeting produced an income of more than \$1 million.

SEML & FEL



Dr. Seifollah Nasasrazadani has established a Scanning Electron Microscopy Laboratory (SEML) that houses a JOEL 840A scanning electron microscope donated by Mobil Chemical and has nanometer resolution. Engineering Technology graduate students are currently using the SEML facility in MSET 5010 and in individual research projects.



Dr. Nasrazadani is working on a research project funded by PIXTECH to develop suitable coating materials for Field Emission Displays. An effort is underway to establish a Field Emission Laboratory for testing Silicon-based Field Emission Arrays. This technology has applications in thin display panels used as TV and computer monitors.

Dr. Nasrazadani received a \$5,000 grant from the American Society of Heating, Refrigeration and Air-conditioning Engineers to design and develop several experimental setups to be used in a Thermal Sciences course for MEET and MFET students. The work will be accomplished by students in the Senior Design Course in Spring 2003. Students who would like to be involved in the development of thermal sciences experiments should contact Dr. Nasrazadai at (940) 565-2022.

TXU Update



Dr. Mitty Plummer

TXU renewed its agreements with UNT, in the amount of \$500,000+ to deliver degree plans in Nuclear and Electronics Engineering Technology to the Comanche Peak Steam Electric Station for the 13th year. The relationship with TXU has grown from a program only in NUET, initiated by Dr. Perry McNeill and directed by Dr. Mitty Plummer, to include a degree program in ELET with additional technician training to update skills in modern digital control system installation. Dr. Bill Grubbs assumed directorship of both the electronics and nuclear programs upon the retirement of Dr. McNeill in 2001.

This year has been distinguished by experiments with semester schedules different from those on campus to work around plant outages. Four TXU employees are seeking advanced degrees from UNT, 3 in Engineering Technology and one Ed.D. UNT is also providing an intensive review course for instrumentation and controls technicians to prepare them to meet the challenge of converting from a centralized analog control to a modem-distributed, digital control system which will enhance efficiency and safety.

Scheduled for May 29, 2002 the plant and UNT will acknowledge program participants with a graduation ceremony. Two are expected to receive their Masters degree and four their Bachelors degree. An MBA degree from UNT will be available to TXU employees via video-conference beginning the Fall 2002 semester.

Research Assistants

Padma Parakala is a Research Assistant with Dr. Reza Mirshams and is working on mechanical properties of metallic thin films for structural application in micro-electro mechanical systems (MEMS) and assists in instruction of material testing. Ms. Padma has a BS degree in Mechanical Engineering from Mahatma Gandhi Institute of Technology affiliated to Jawaharlal Nehru Technological University, India.

Prasanna Vemuri works under the supervision of Dr. Seifollah Nasarazadani. Her research is on synthesis of carbon nanotubes for field emission display applications. Ms. Vemuri holds a BS degree in Mechanical Engineering from Mahatma Gandhi Institute of Technology, affiliated with Jawaharlal Nehru Technological University, India. She came to the Engineering Technology Department in Fall 2001 and is working with Dr. Mitty Plummer on the TXU project.

Research Assistants (Continued)

Haritha Namduri is a Research Assistant with Dr. Seifollah Nasrazadani working on mechanical properties of diamond, and related, thin films. A member of ASME, Ms. Namduri has a BE degree in mechanical engineering from Chaitanya Bharathi Institute of Technology with a specialization in production. She is a lab monitor for the Scanning Electron Microscope Laboratory in the ETEC Department.

New Faculty Member: Dr. Dan Parris



Dr. Dan Parris, Assistant Professor, joined the Engineering Technology Department faculty in August 2001. His research interest is in product and process design, development and control and in materials joining, particularly welding. Dr. Parris's Ph.D. is from Rice University, Department of Mechanical and Aerospace Engineering and Materials Science with research in metallic solid solutions.

Dr. Parris has been CEO of National Welding Supply Co., Director of Professional Development for Airgas, Inc, Senior Lecturer at Texas A&M University and President of the National Welding Supply Association. He is an active member of ASEE, ASM, AWS and NWSA.

Dr. Parris's work includes aligning the real work of complex design organizations with express strategic intent, flexibility, resiliency and profitability. There is increasing acceleration of change in the technical environment and increasing demand for individual intellectual expertise in creation of novel and revolutionary complex technical products. This change requires engineering managers to excel both as engineers and as managers. Since professional engineers are more often placed in the role of managers than the reverse, and since people subject to engineering management are overwhelmingly engineers, it is critical to develop management understanding in terms appropriate, convincing and actionable for technical professionals.

ETEC Web Site

www.etc.unt.edu

New Faculty Member: Dr. Seifollah Nasarazadani



Dr. Seifollah Nasarazadani, Associate Professor, is a member of the Mechanical Engineering Technology faculty. He earned his BS, MS, and PhD degrees from LSU. He joined the Engineering Technology Department in Fall 2001 from the Materials Science Department of UNT.

His research interests are Diamond thin film deposition using Hot Filament Chemical Vapor Deposition (HFCVD) and its mechanical/physical characterization. He is also interested in corrosion studies pertaining to ferrous and nonferrous alloys exposed to industry's corrosive environments. He is involved in Field Emission Display (FED) materials characterization and is developing a Scanning Electron Microscopy (SEM) laboratory for failure analysis of mechanical components as well as electronic materials and devices.

Dr. Nasrazadani has published 16 journal articles, presented more than 20 technical papers at international conferences and has contributed a chapter in "Advanced Electronic Packaging" - a textbook published by IEEE-press (1998).

Research Assistant



Damian Marks is originally from Guyana but resides in the Bahamas. Mr. Marks received an Associates Degree in Pre-Engineering from the College of the Bahamas in 1998 and his BS in Electronics Engineering Technology from UNT in 2001. He is currently pursuing a dual degree with an MS in ELET and an MBA in the College of Business Administration. Mr. Marks is Vice President of the UNT chapter of IEEE and a member of the Association of Caribbean cultures. He plans to return home and work in the telecommunications industry.

Laser Cutting Machine: Justification of Initial Costs

The objective of Mr. Dwarakish Nagaraja's thesis research, under major professor Dr. Ratan Kumar, was to justify the initial costs of a laser-cutting machine for Kone, Inc. The primary areas of concern were to identify the equipment required and to justify the initial cost. Laser cutting was found suitable for the application after investigating a variety of non-traditional technologies. Parts to be manufactured using the machine were identified on the basis of annual usage, thickness, geometry considerations and purchased parts. Any part meeting at least two of the criteria was considered to be suitable for the study. Cut times for 118 parts were calculated using software provided by Mazak Corporation. Cost per part was calculated based on the cut time per part. Raw material and labor costs were added to render a total cost per part, which was compared to the initial cost of the part. Total cost savings for the 118 parts was calculated. The initial cost of the laser-cutting machine, with automated material handling, was compared to the total cost savings to determine the payback time.

Conclusions derived from the study included: 1) laser cutting is suitable for Montgomery Kone's application; 2) substantial cost savings can be achieved utilizing this technology; 3) most parts being out-sourced can be manufactured in-house using this technology; 4) reduction in the number of operations on the manufacturing floor can be achieved; 5) parts with complicated geometry can be manufactured utilizing laser cutting; and 6) laser cutting reduces the need for unskilled labor.

Industrial Advisory Committees to Meet

The Departmental Industrial Advisory Committees are scheduled to meet during the Spring 2002 semester. The following are members of the various committees.

ELECTRONICS

Jim Ballou, Verizon; Denis Ethridge, Motorola; Tom Filesi; Brent Kinnard, Texas Instruments; Peter Dicksson, Ericsson University North America; Russell Smith, TXU CPSES; Ronald A. Delaney, Boeing Defense and Space.

MANUFACTURING

Dr. William Garver, Lockheed Martin Aeronautics Co.; John Taylor, Peterbilt Motors Company; Lee Wiechmann, Poco Graphite; Mark Woodruff, Kone Elevators & Escalators.

MECHANICAL

Christian Belady, Hewlett Packard; Calvin E. Burgin, Peterbilt Motors Company; Don Halsey, Halsey Engineering and Manufacturing; Mike Garst, Lennox.

NUCLEAR

Mike Blevins, TXU; Richard Calder, TXU; Jerry Davis, TXU; J. J. Kelley, TXU; Charles Desinger, TXU; Matt Sunseri, TXU.

Outstanding Alumni



Engineering Technology Building

Beginning in 1984, recognition has been accorded to outstanding alumni of UNT. The following individuals have graduated from what is now the Engineering Technology Department and have been so recognized.

Education

Dave Pullias	Ron Foy	John Richards
David Greer	Ralph Schultz	David Duncan
Floyd Trimble	Roger McSween	Jerry Drennan
Dale Lemons	James C. Cooke	M. D. Williamson

Business or Industry

Lionel Sweeny	Guy Laney	Robert Lange
T. W. King, Jr.	Dwight Lowery	Robert Swanson
Robert Mitchell	Bennie Snyder	Alan Calvert
David Meinsinger	Hurles Scales	David C. Orf
Sean L. Mayes	Daniel Dickey, Jr.	Lee Palmer
Claudia Heinrich-Barna	Randall Reed	Robert Starrett
Toby Malone	Alan Triggs	Charles Cotton
Troy Wolf	J. Lee Natzic	Kevin K. Poole
	Keith Zimmerer	

For 2002, the Outstanding Alumni of the Engineering Technology Department are John J. Balzer, Richard Brabec, Dale A. Martin, Brent Payne and Stephen F. Spurgin.

John J. Balzer is President and CEO of J. J. Balzer Consultants. His prior experience includes 8 years in the US Air Force, 6 years industrial experience with AT&T/Bell Canada, and 17 years educational experience as electronics instructor with ITT Technical Institute and Lewisville ISD and as Dean of Engineering Technology at Collin County Community College. Mr. Balzer has received almost 3 million dollars of development grants and has served on the Governor's Science and Technology Core Curriculum Committee. Mr. Balzer received his Master of Science Degree in Engineering Technology from UNT in 1995.

Richard Brabec is Unit Supervisor for Comanche Peak Steam Electric Station at Glen Rose, Texas. Mr. Brabec is a US Nuclear Regulatory Commission licensed Senior Reactor Operator who manages and controls all facets of day-to-day plant operations, maintenance, and testing of

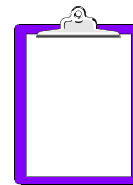
the 12 billion dollar facility. Prior to TXU, Mr. Brabec served 12 years in the US Navy as Division Officer, Reactor Controls Division Chief, and Reactor Operator. Mr. Brabec received his Bachelor of Science in Nuclear Engineering Technology from UNT in 1998.

Dale A. Martin is Manufacturing Support Manager for Valenite, Inc. in Gainesville, Texas. His responsibilities include financial analysis, lean manufacturing leadership and ISO/QS 9000 plant coordination. Prior to his promotion, he served Valenite as Production Supervisor and CNC Machinist. Mr. Martin received a Bachelor of Science degree in Manufacturing Engineering Technology from UNT in 1997 and is currently pursuing a Master of Science in Engineering Technology and an MBA in Operations Management from UNT.

Brent Payne is a certified Manufacturing Technologist and an Assistant Professor of Manufacturing Engineering Technology at Western Illinois University, Macomb, Illinois. Mr. Payne received his Master of Science Degree in Engineering Technology from UNT in 1993 and is currently pursuing a Ph.D. at Southern Illinois University. Prior to joining the academic ranks, Mr. Payne was an industrial engineer with Aerospace Technologies of Fort Worth.

Stephen F. Spurgin is Assistant Vice President and Senior Network Analyst Officer for First State Bank of Texas. Prior to coming to First State Bank in 1994, Mr. Spurgin worked for Jostens, Inc. for 14 years, beginning as an Industrial Engineer and leaving as Information System Supervisor. Mr. Spurgin received his bachelor of science degree in Industrial Arts in 1980 from the then North Texas State University.

Alumni Update Your Assistance is Needed



Are you recently married? Do you have any new additions to your family? Have you been recently promoted? Have you moved? Let us know what is happening in your life. News of alumni will be published in future issues of this newsletter. So, please keep us informed.

Along with your news, include your name, address, phone, date of graduation and degree. If possible also include a fax number, a recent photo of yourself and an e-mail address. Mail to: "At a Glance", Engineering Technology Department, P.O. Box 310679, University of North Texas, Denton, Texas, 76203-0679. Or you may fax us at (940) 565-2666 or email to <etec@unt.edu>.

Alumni We Will Miss:

Malcolm Graham, class of 1938, from Wichita Falls, received his degree in industrial arts education.