

DEPARTMENT OF INDUSTRIAL TECHNOLOGY
Annual Report for the 2004-2005 Academic Year
Dr. Niaz Latif, Department Head

Learning

- Fall 2004 undergraduate **enrollment** was **294**, compared to 285 in fall 2003. Of these students, there were 151 majors in industrial technology (IT), 33 majors in industrial distribution (ID), 33 in dual majors (IT and ID), and 74 majors in technology education (TE).
- The percentage of **female** students in 2004-2005 was **9.8%**, compared to 8.2% in 2003-2004.
- The percentage of **minority** students in 2004-2005 was **8.8%**, compared to 8.6 % in 2003-2004.
- The number of B.S. degree **graduates** during 2004-2005 was **87**, compared to 58 in 2003-2004.
- Graduated 1 student in the **Certificate** of Industrial Technology program in 2004-2005.
- Graduates' **employment** rate was excellent, with an average **starting salary** of **\$47,000**.
- Two students participated in the **Study Abroad program**. Continued success with student exchange between Griffith University in Australia and Purdue.
- Two **short-term faculty** exchanges: Dr. Matthew P. Stephens with the Dublin Institute of Technology (DIT) in Ireland, and Dr. Edie K. Schmidt with the Royal Melbourne Institute of Technology (RMIT) in Australia
- Thirteen students participated in **internships** (two students for credit).
- One **on-line course** was developed (IT 442).
- The Technology Education program was recognized as the **#1 Ranked** Tech Ed Program in the United States.
- One **new faculty** member (Dr. Kara S. Harris) has been hired for Technology Education, shared with the Department of Curriculum and Instruction.
- Dr. Mathias J. Sutton **received tenure** and has been promoted to the rank of associate professor.
- Four Technology Education graduates received PLTW (Project Lead The Way) **certification** as a part of their undergraduate program, the first in the nation.
- Two on-line courses (IT 230 and IT 345) were offered to students in **Statewide Technology**; a total of 16 students participated.

Discovery

- Sponsored research totaled **\$139,740** (as of 6/1/05).
- **Institutional** grant activities: internal grant amount totaled **\$183,024** (as of 6/1/05).
- 100% faculty participation in scholarly activities: **two** textbooks, **eleven** refereed articles, **four** refereed proceedings articles, **five** reviewed proceeding articles, and **two** trade journal articles
- Two faculty members served as editors for professional journals (Editor, and Production Editor). Five faculty members served as reviewers for journals.
- **Graduate** student enrollment totaled **43** M.S. (including Weekend Master's Degree students) and **12** Ph.D. students.
- Graduated **first Ph.D.** in Technology student from the department (Julia A. Kalish; advisor: Latif)
- A new graduate course (IT 545 Biometrics Technology and Applications) has been approved by the Graduate School.
- Recruited five **African-American** graduate students (two Ph.D. and three M.S.)
- Two provisional patent applications filed by Purdue Research Foundation on behalf of Dr. Stephen J. Elliott

Seven funded graduate RESEARCH assistantships already awarded for next year

- *Ross Fellowship (McLeod [new]; advisor: McWilliams)*
- *Andrews Fellowship (Modi [new]; advisor: Elliott)*
- *Special Initiative Fellowship (Sickler [new]; advisor: Elliott)*
- *Special Initiative Fellowship (Kukula [new]; advisor: Elliott)*
- *PRF Research Grant (Latif [renewal], to support a doctoral student)*

- PRF Research Grant (Stephens [renewal], to support a doctoral student)
- PRF Research Grant (Schmidt [renewal], to support a doctoral student)

Engagement

- Increased faculty involvement in national **leadership** roles in professional societies: five faculty members (50% of faculty) are involved in national leadership roles in NAIT, ASEE, ACTE, NAITTE, and NEDA.
- Increased **K-12** engagement: the department provides leadership in K-12 engagement through Project Lead The Way (PLTW) activities. Two affiliate professors, one affiliate director.
- Gifts-in-kind from industry: **\$244,073**
- Cash gifts for scholarships and student development: **\$31,472**
- Enhanced the new **biotechnology laboratory** with institutional and industry support
- Successful Job Fair in February 2005: 64 students from the department participated
- Established **articulation agreement** with Sinclair Community College, OH

Awards and Honors

- Dr. Kari L. Clase was nominated for the Outstanding Non-tenured Faculty Award.
- Dr. Edie K. Schmidt was nominated for the Outstanding Tenured Faculty Award.
- The TECA racing team (Grand Prix) won the Carol Becker Memorial “Spirit of Competition” Award.
- Mr. James B. Clary (B.S. 1972), President of Modern Graphics, Inc., received the School of Technology’s Distinguished Technology Alumnus Award.
- Ph.D. student Mr. Nathan C. Sickler was selected as co-editor of the ISO Standard on Biometrics Vocabulary.
- Ph.D. student (graduated May 2005) Julia A. Kalish won the Best Action Plan Contest for HFES’s National Ergonomics Month.
- Dr. Stephen J. Elliott was invited as the *distinguished keynote speaker* at the International Workshop on Biometrics Technologies in Calgary, Canada.
- Dr. Mathias J. Sutton was nationally elected as treasurer for the NAITTE.
- Mr. Eric P. Kukula was recognized at the Celebration of Graduate Student Teaching for his Outstanding Teaching Contribution.
- Dr. Matthew P. Stephens was selected to serve on Purdue’s Teaching Academy Executive Council.
- Undergraduate student Ms. Lindsay C. Tack received the Gary L. Buffington Scholarship (\$10,000) from ISA.

2004-2005 PUBLICATION LIST

National Textbooks in Print (2)

Meyers, F. E., & Stephens, M. P. (2005). *Manufacturing facilities design and material handling* (3rd ed.). New Jersey: Prentice Hall. ISBN: 0-13-112535-4

Stephens, M. P. (2004). *Productivity and reliability-based maintenance management*. New Jersey: Prentice Hall. ISBN: 0-13-096657-6

Refereed Journal Articles (11)

Elliott, S. J. (2004). Differentiation of signature traits vis-à-vis mobile and table-based digitizers. *ETRI Journal*, 26(6), 641-646.

Elliott, S. J., Peters, J. L., & Rishel, T. J. (2004) An introduction to biometrics technology: Its place in technology education. *Journal of Industrial Teacher Education* 41(4), 59-69.

- Kalish, J., & **Latif, N.** (2005). Pregnant employees: Special considerations for protecting their safety and health. *Professional Safety, Journal of the American Society of Safety Engineer*, 50(6), 32-36.
- Kukula, E. P., & **Elliott, S. J.** (2004, September). Evaluation of a facial recognition algorithm across three illumination conditions. *IEEE Aerospace and Electronic Systems Magazine*, 19(9).
- Lewis, M., **Schmidt, E.**, & **Newton, K.** (2005). Distributor process improvements: Using 6-Sigma. *Review of the Electronic and Industrial Distribution Industries*, 4(1), 77-96.
- McWilliams, D. L.**, Stanfield, P.M., & Geiger, C. D. (in press). Simulation optimization applied to the hub scheduling problem. *Computers and Industrial Engineering*.
- Newton, K. A.**, & **Schmidt, E. K.** (2004). Learning and growing: Integrating technology undergraduates into the development of an industrial case study. *Journal of Technology Studies*, 30(2), 66-70.
- Rogers, G. E.**, & Cardon, P. L. (2004). Factors influencing participation in technology education graduate studies. *Journal of Technology Studies*, 30(1), 46-52.
- Schmidt, E.**, Robertson, B., & **Newton, K.** (2004). The lean principles necessary for competitive advantage. *Review of the Electronic and Industrial Distribution Industries*, 3(1), 72-84.
- Stephens, M. P.**, & **Latif, N.** (2005). A cross-disciplinary biotechnology initiative: A new frontier for industrial technology. *Journal of Industrial Technology*, 21(2).
- Tracey, M., Fite, R. W., & **Sutton, M. J.** (2004). An explanatory model and measurement instrument: To guide supply chain management research and applications. *Mid-American Journal of Business*, 19(2), 53-70.

Refereed Conference Proceedings (4)

- Kukula, E., & **Elliott, S.** (2004). Effects of illumination changes on the performance of Geometrix FaceVision 3D FRS. *38th Annual International Carnahan Conference on Security Technology (ICCST)*, 331-337, Albuquerque, NM.
- Latif, N.** (2004). Integration of the study abroad program in technology education curriculum program development and implementation. *Proceedings of the 33rd International Symposium of IGIP/ASEE/IEEE*, Fribourg, Switzerland.
- Latif, N.**, & **Stephens, M. P.** (2004). Design, development, and implementation of the B.S. in Industrial Technology program for eight Statewide Technology locations in Indiana. *Selected Papers of the National Association of Industrial Technology Annual Conference*, Louisville, KY.
- McWilliams, D. L.**, & Stanfield, P. M. (2005). Improving the performance of transfer operations in parcel consolidation terminals. *Proceedings of the 11th International Conference on Industry, Engineering, and Management*, Cocoa Beach, FL.

Reviewed Conference Proceedings (5)

- Buskirk, D. D.**, & **Latif, N.** (2005). Project-based learning in a freshman industrial technology course (CD-ROM). *Proceedings of the 2005 Illinois-Indiana Section Conference of the American Society for Engineering Education*,
- Clase, K. L.** (2005). Curriculum implementation of a biotechnology minor in industrial technology (CD-ROM). *Proceedings of the Annual Conference of the American Society for Engineering Education*.
- Khiewnavawongsa, S., & **Schmidt, E.** (2005, March). Mathematical model validation for warehouse sizing problems. *Proceedings of the Industrial Distribution Educators Association*.
- Scott, R., & **Schmidt, E.** (2005, March). Integration in supply chain management. *Proceedings of the Industrial Distribution Educators Association*.
- Torres, P. A., & **Stephens, M. P.** (2005). Improving production performance through lean manufacturing techniques and education in lean concepts (CD-ROM). *Proceedings of the Annual Conference of the American Society for Engineering Education*.

Trade Journal Articles (2)

- Rogers, G. E., & Moser, J.** (2005). Service learning: The power of linking service to learning. *Tech Directions*, 64(7), 18-19.
- Rogers, G. E.** (2004). Pre-engineering education: Justification for its inclusion in the technology education curriculum. *Techniques*, 79(5), 44.

Invited Presentations (4)

- Elliott, S. J., Kukula, E. P., & Sickler, N. C.** (2004, June). *The challenges of environment and human-biometric device interaction on biometric system performance*. International Workshop on Biometric Technologies, Calgary, Canada.
- Newton, K. A.** (2005, March). *How to find and keep the right employees for your business without stealing from the competition!* Foodservice Equipment Distributors Association, Palm Springs, CA.
- Newton, K. A.** (2004, October). *Employee-based management: Finding and keeping good people*. Door and Hardware Institute, San Antonio, TX.
- Rogers, G. E.** (2005). *Pre-engineering education: Perceptions of Indiana technology education teachers*. Mississippi Valley Technology Teacher Education Conference, Chicago, IL.

Professional Presentations Without Proceedings (6)

- Elliott, S. J.** (2004, September). *Introduction to biometric research and education at Purdue University*. Biometrics Consortium, Washington, DC.
- McWilliams, D. L.** (2005). *A mathematical model to optimize consolidation terminal performance*. National Association of Mathematics Institute for Operations Research and Management Science.
- Meredith, O., & Sutton, M. J.** (2004). *Scan-to-print: Evaluating the effectiveness of an AIDC technology used to improve product quality, inventory, and distribution*. Annual Conference of the National Association of Industrial Technology, Louisville, KY.
- Newton, K. A., & Schmidt, E. K.** (2004, October). *Conducting a web-based survey research project for a national trade association: Big benefits for industrial technology programs*. Annual Conference of the National Association for Industrial Technology, Louisville, KY.
- Sickler, N. C., & Elliott, S. J.** (2004, September). *An evaluation of fingerprint quality vis-à-vis an 18-25 year-old population baseline*. Biometrics Consortium, Washington, DC.
- Stephens, M. P., and Latif, N.** (2004). *Emerging technology – Biotechnology minor within industrial technology*. Annual Conference of the National Association of Industrial Technology, Louisville, KY.

Editorship(2)

- Rogers, G. E., *Journal of Industrial Teacher Education*, Editor
- Latif, N., *Journal of Engineering Technology*, Production Editor