# PURDUE POWERS

## Indiana Business

ANNUAL REPORT 1999

Technical Assistance Program

**PURDUE UNIVERSITY**

Creating high technology jobs in Indiana

# Directors' MESSAGE

## Promoting the growth of high technology jobs in Indiana

Robert A. Greenkorn
Director

David R. McKinnis
Associate Director

Thousands of Indiana students graduate from our colleges and universities each year. Since 1986, the Purdue University Technical Assistance Program has worked to keep this talent in our state by supporting the growth of advanced manufacturing and high technology businesses.

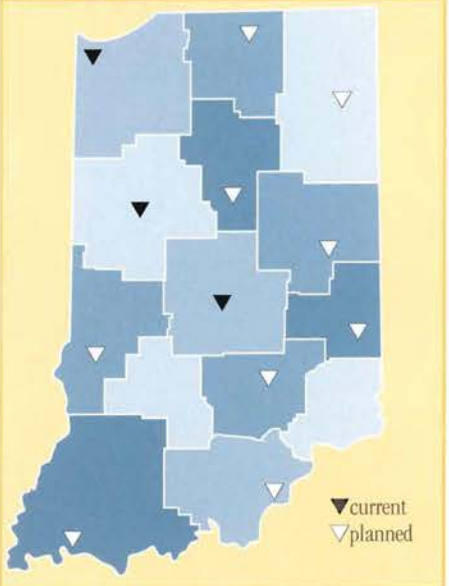
These companies need expert assistance, technical information, summer interns, and graduates for full-time positions. TAP employs a team of 40 Purdue faculty, graduate engineers, and staff from three campuses that works with hundreds of Indiana companies each year. Expert advice and technical information is provided on issues such as information technology, advanced manufacturing, factory modernization, new product development, environmental compliance, and industrial management. Our summer intern program helps companies find local students for important twelve-week projects. Many of these interns receive offers for full-time employment upon graduation. The High Tech Job Fair (exclusively for Indiana companies) provides our businesses with a significant advantage in filling high technology positions. The examples provided in this report illustrate the excellent working relationship between Purdue and Indiana businesses, a relationship that is providing substantial benefits to our citizens.

Purdue is working with the legislature to expand TAP to twelve metropolitan regions.

Can TAP do more to support Indiana businesses and promote the creation of new high technology companies? The answer is definitely yes. Purdue is working with the legislature to expand TAP to twelve metropolitan regions so that all companies and high technology entrepreneurs have local access to the expertise they need to prosper here in Indiana. We look forward to playing an expanded role in the support of existing businesses and the growth of new high technology companies.

Robert A. Greenkorn, Director
David R. McKinnis, Associate Director
July 1999

**Participating Campuses**



# Economic IMPACT

The Purdue University Technical Assistance Program makes the vast resources of Purdue readily available to Indiana business, industry, and governmental units. Since 1986, TAP has worked closely with Indiana companies to apply the latest information technology tools, improve manufacturing competitiveness, assist in new product development, implement advanced industrial management tools, and solve difficult environmental problems. Forty faculty, graduate students, and professional staff from three Purdue campuses work with hundreds of companies throughout the state each year.

The program staff meet in person with company representatives to define projects and ensure that the assistance provided is timely, feasible, and technically sound. Program effectiveness is measured in many ways, including the impact on capital investment, cost reduction, sales, and employment. Over ninety percent of those using the program report positive results.

*The many achievements listed in this report demonstrate the strong commitment of Indiana companies and Purdue University to work together to improve the state's economic competitiveness.*

David McKinnis (second from left), accepts a $30,000 check from Jim Abbott, manager, regional customer operations for GTE. Other GTE representatives are Brenda Coleman, public affairs manager, and Ron Plotner, local manager, customer operations. The GTE Foundation granted TAP the funding to provide management and technical assistance to not-for-profit workshops that serve physically and mentally handicapped adults in Indiana. The TAP assistance is being used to help these workshops develop meaningful employment opportunities for their clients.

## Program Funding

Fiscal Year 1998-99

During the past fiscal year, the Technical Assistance Program and the Technical Information Service were supported by state, business (fees for service), and private foundation sources.

| Funding Source | FY 98-99 Funding |
|---|---|
| State of Indiana | $1,081,600 |
| Fees for Service | $298,750 |
| GTE Foundation | $30,000 |
| **Total** | **$1,410,350** |

In addition to the above funding, the total payroll for TAP summer interns (paid directly to students by their employers) was $450,000.

The Technical Assistance Program is administered by the Purdue University Schools of Engineering.

## Technical Assistance Projects

To date, 4,218 projects have been undertaken for Indiana companies on a wide range of technical issues. The most common requests for assistance include:

### Information Technology

- Selection of engineering support systems.
- Web based computing.
- Improvement of computer assisted engineering methods.

### Advanced Manufacturing

- Plant layout in production and warehouse areas.
- Process improvements for machine centers, assembly lines, and individual workstations.
- ISO 9000 and QS 9000 issues.

### Product Development and Engineering

- Review of design changes and improvements.
- Material selection for specific applications.
- Problem solving such as corrosion or component failure.

### Environmental

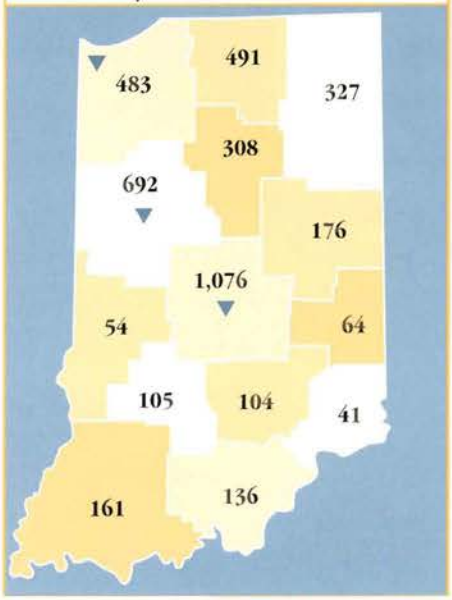
- Determine if a plant or process is within EPA regulations.
- Assist in understanding and completing the environmental permitting process.
- Solve specific waste treatment and disposal problems.

### Industrial Management

- Improvement of product costing and financial systems.
- Assistance with strategic planning.
- Development of improved methods for industrial marketing.

**Projects by Economic Region**

May 1986–June 1999




▼ TAP faculty are available from three Purdue campuses.
**Total Projects: 4,218**

## Technical Information Service (TIS)

Since 1989, companies and individuals have received 3,988 information searches and 121,169 documents from this service. Most questions fall into the following categories:

- Agriculture
- Biological, veterinary, and pharmaceutical sciences
- Engineering and technology
- Management
- Marketing

**Economic Impact Summary**

May 1986–June 1999

Based on Client Evaluations of TAP Work With Indiana Businesses

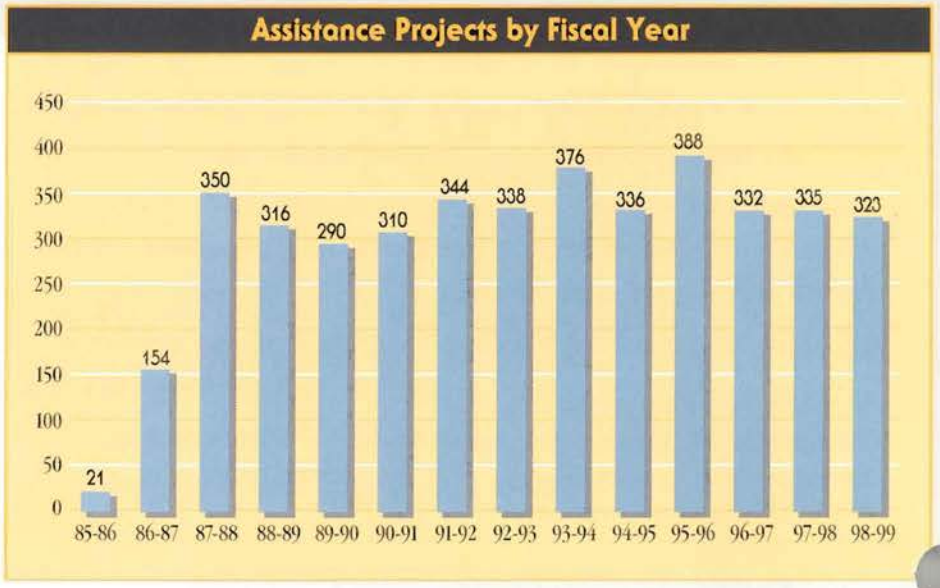
| | Year 1* | Year 2* | **Total** |
|---|---|---|---|
| Capital Investment | $38,070,900 | $9,140,600 | **$47,211,500** |
| Cost Savings | $10,632,430 | $7,944,590 | **$18,577,020** |
| Increased Sales | $53,496,300 | $122,212,100 | **$175,708,400** |
| Jobs Added | 432 | 900 | **1,332** |
| Jobs Saved | 1,254 | 1,050 | **2,304** |

**Following date of TAP assistance*

Creating jobs through

# Assistance PROJECTS

Purdue faculty and graduate engineers work with over 300 companies each year, offering assistance with information technology issues, advanced manufacturing, product development, environmental compliance, and industrial management. For qualifying projects, up to five days of confidential assistance is available at no cost.




Plant Layout

## Estes Design & Manufacturing

*Indianapolis*

Ron Estes, vice president of operations, and Jack Posey, TAP consultant, discuss production layout for custom metal products.

Estes Design & Manufacturing is a contract manufacturer that uses state-of-the-art technology to produce complex sheet metal products. TAP was asked to support the expansion of the company's business by providing an improved layout for their existing and new floor space. The TAP input has helped the company streamline product flow, identify optimal aisle space, and improve finished goods storage.

## Environmental Engineering
# LDI Manufacturing
*Logansport*

Mike Morock, plant operations manager, Ron Wukasch, professor of environmental engineering, Dan Richeson, senior design technician, and Dick Swennumson, president and CEO of LDI, discuss LDI's new product development plans.

LDI designs, produces, and installs HVAC and exhaust ventilation products worldwide. TAP was asked to assist in the development of a new product line: packed towers for ammonia absorption from exhaust gases and neutralization. With engineering assistance from Ron Wukasch, LDI has developed and successfully installed systems for Acme Soap Company and Traylor Chemical and Supply Company. The addition of this new product line supports company plans to enter new market sectors that require LDI's HVAC and exhaust ventilation expertise.

## Quality Assurance
# National Products
*LaPorte*

Trevor Pease, mechanical engineering technology summer intern, Bill Allen, executive vice president/ general manager of National Products, Regina Becker, manager of statistical consulting, and Dwight Beaudry, graduate student in statistics, discuss customer quality certification requirements.

National Products provides contract packaging of liquid products for major retailers including S. C. Johnson, Turtle Wax, and Miracle Gro. To ensure continued growth, the company asked TAP for assistance in obtaining customer quality certification and ISO 9002 registration. Regina Becker and Dwight Beaudry have helped National Products develop an execution plan for these efforts, and Trevor Pease has worked as a summer intern implementing the plan.

Strategic Planning

## Imagination Station

*Lafayette*

Barbara Pipher-Doran, executive director of Imagination Station, and Keith Smith, professor of management, tour the museum's interactive exhibits.

Imagination Station is a hands-on children's museum and science center that has hosted thousands of visitors since moving into its current site in 1996. TAP was asked to assist the Imagination Station Board plan for increased attendance and enhanced exhibits. With input from Keith Smith, the Board developed a mission statement and strategic plan to support the expanding role this unique center is finding in the community.

Materials Processing

## Stellite Coatings

*Goshen*

David Muir, process engineering manager, Herbert Rogers, powder business manager, Akin Ecer, professor of mechanical engineering at IUPUI, and Gary Linley, process engineer, discuss new powdered metal products.

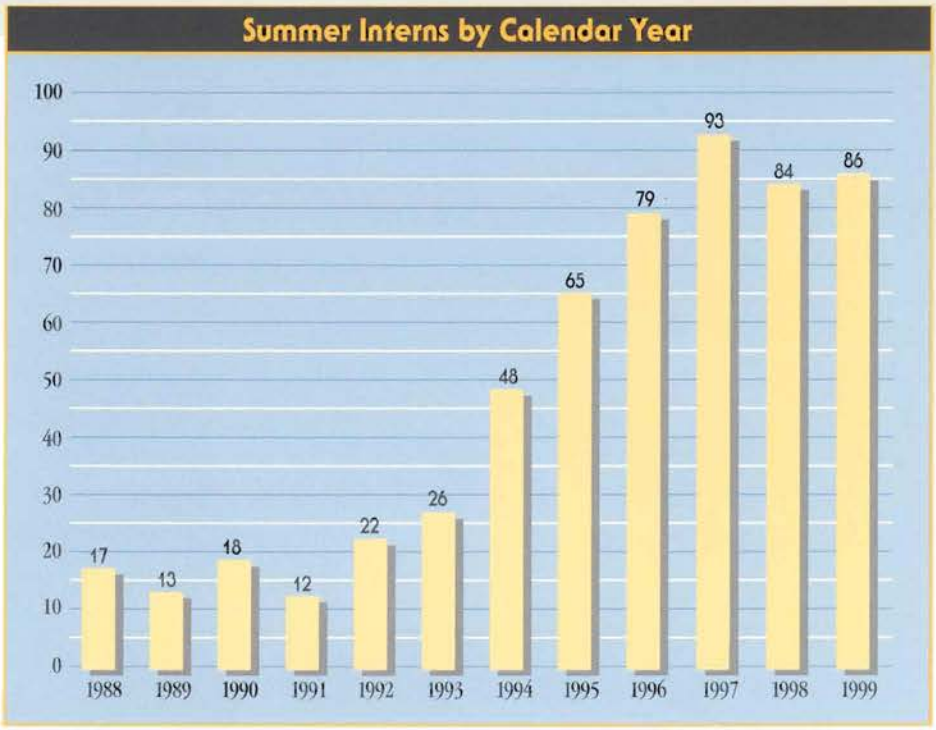
Stellite Coatings designs and processes custom powdered metals for the hard facing of parts used in the oil extraction, automotive, paper making, and other industries. Akin Ecer was asked to help the company design processing equipment needed to expand the company's business into new product lines with more stringent specifications. Construction of the new equipment should begin later this year and will add approximately four new jobs in the near future.

Creating jobs through

# Summer INTERNSHIPS

To date, 563 students have been placed with Indiana companies to work on product development, manufacturing, environmental, and industrial management projects. Typical projects include:

- Information technology.
- Plant layout and process improvement.
- Implementation of ISO and QS 9000.
- Development of environmental management systems.
- Improvement of management systems such as costing and scheduling.
- Product design, testing, modeling, and evaluation.
- Infrastructure projects for municipalities.




Engineering

## Bo-Witt Products, Inc.

*Edinburgh*

Mark Lawley, professor of industrial engineering, Dustin Davis, industrial engineering summer intern, Robbie Hall, plant manager, Bo-Witt Products, and James White, electrical engineering technology summer intern, discuss production processes for an electrical insulator.

Bo-Witt Products designs and manufactures specialty electrical insulators for the transportation industry. Dustin Davis was employed to develop production process improvements and to support the implementation of ISO 9002. James White spent the summer developing a new high-voltage insulator for the mass transit industry.

Mechanical Engineering

# Coachmen Industries

*Middlebury*

*"My TAP summer internship has led directly to an exciting career with a world-class company headquartered here in Indiana."*

Jim Keough

Jim Keough, director of advanced engineering of Coachmen, and David McKinnis, associate director of TAP, discuss new features of the company's popular Leprechaun Class C recreational vehicle.

Jim Keough (B.S. Mechanical Engineering, December 1989) was a TAP summer intern with Coachmen ten years ago, and accepted full-time employment in corporate engineering upon his graduation. Since that time, he has worked in several positions, and has recently been promoted to director of advanced engineering for the Coachmen recreational vehicle division. "My TAP summer internship has led directly to an exciting career with a world-class company headquartered here in Indiana."

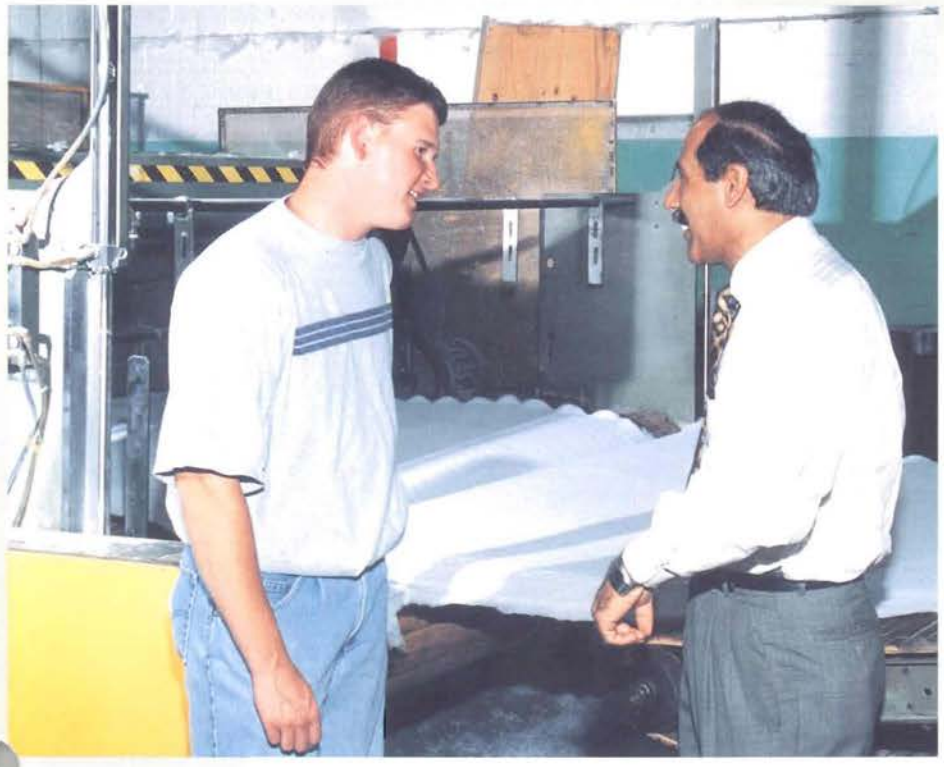
Web Design

## City of Indianapolis, Office of the Mayor

*Indianapolis*

Stevie Mulia, management summer intern, and Ken Barlow, IndyGov project manager, review new web options for city departments.

The City of Indianapolis has produced an award winning World Wide Web site (www.IndyGov) that provides extensive information and many service options. Stevie Mulia spent the summer developing systems that enable city departments to easily establish new web functions and display helpful information for Indianapolis residents.



Mechanical Engineering

## Filter Specialists

*Michigan City*

Tim Van Tornhout, mechanical engineering summer intern, and Masoud Mojtahed, professor of mechanical engineering at Purdue Calumet, discuss the company's new preventative maintenance program.

Filter Specialists, Inc. is an ISO 9000 certified global supplier of standard and custom liquid filtration vessels, filter bags, filter cartridges, and accessories. Tim Van Tornhout was employed to set up a preventative maintenance system for the electrical and mechanical components of the company's needlepunch felt equipment.

Creating jobs through a

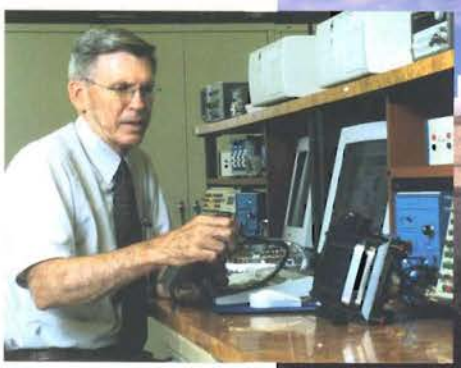
# Strategic ALLIANCE

## Siemens Power Transmission

*Lafayette*

In March 1999, Purdue University and the Siemens Power Transmission and Distribution Division entered into a strategic partnership. "We see this agreement as a winning situation for both parties," said Purdue President Steven C. Beering. "Partnerships with companies such as Siemens give Purdue University the opportunity to truly have an impact on economic growth in the state of Indiana and beyond." Siemens recently purchased the former Landis & Gyr electrical meter facility in Lafayette. In February 1999, they announced that as many as 100 new production and engineering jobs will be brought to the plant in the next twelve months. "We look forward to working with Purdue," said Jan van Dokkum, Siemens Power president and chief executive officer. "There are so many areas of mutual interest, the partnership was a logical next step to our expansion in Indiana."

The Technical Assistance Program actively participates in this partnership. Mysore Dayananda, professor of materials engineering, has provided advice on corrosion prevention and assembly processes, Eric Furgason, professor of electrical and computer engineering, has performed reliability studies on electronic components, and Joe Pearson, associate professor of mechanical engineering, has analyzed transient heat transfer effects in a resistor.



Creating jobs through the

# High Tech JOB FAIR for Indiana Companies

The High Tech Job Fair for Indiana companies provides Indiana employers a significant advantage in competing for high tech talent. This event is held each fall and attracts 100 companies seeking to fill 500 to 1,000 positions.

## A Cook Group Company

*Bloomington*

Cook Imaging Corporation/Cook Pharmaceutical Solutions is a rapidly growing Bloomington company that manufactures pharmaceutical products and develops and manufactures radio-graphic contrast media. Kevin Wong (B.S. Biology, May 1999) was recruited by CIC/CPS at the High Tech Job Fair and employed in the position of quality assurance associate.

## Horner Electric, Inc.

*Indianapolis*

The Horner advanced products group designs and builds advanced programmable logic controllers for industrial automation applications. Steve Anderson, product qualification engineer, and Roy Lowery, applications support engineer, learned about career opportunities with Horner Electric at the High Tech Job Fair. Both began employment after receiving their degrees in electrical engineering technology in May 1999.

# TAP PERSONNEL

## Affiliated Faculty

**Mysore A. Dayananda**
Professor
Materials Engineering

**Akin Ecer**
Professor
Mechanical Engineering
IUPUI

**Joseph I. ElGomayel**
Associate Professor
Industrial Engineering

**Eric S. Furgason**
Professor
Electrical and Computer Engineering

**Mark A. Lawley**
Assistant Professor
Industrial Engineering

## TAP Staff

**Robert A. Greenkorn**
TAP Director & Professor
Chemical Engineering

**David R. McKinnis**
Associate Director

**Regina Becker**
Manager
Statistical Consulting

**Cindy L. Meadows**
Administrative Assistant

**Sherry L. Million**
Secretary

## TIS Staff

**Suzanne M. Ward**
TIS Manager

**Claire L. Alexander**
Clerk

**Linda K. Chadwell**
Clerk

**Linda L. Christie**
Library Assistant

**Mary M. Dugan**
Information Specialist

## Graduate Engineers

**Venkatesh Alagirisamy**
Industrial Engineering

**Youngsam Bae**
Mechanical Engineering

**Dwight J. Beaudry**
Statistical Consulting

**Kerry E. Brown**
Industrial Engineering

**Santiago Estevas-Guilmain**
Industrial Engineering

**Herman Estrada**
Industrial Engineering

**Nagi Z. Gebraeel**
Industrial Engineering

**Mithran Gopinathan**
Mechanical Engineering

**Nathan K. Guthrie**
Industrial Engineering

**Renée Jones Hall**
Statistical Consulting

**Randall A. Hountz**
Management

**Thomas R. Kanaby**
Materials Engineering

**Richard L. Kennell**
Electrical and Computer Engineering

**Marco A. Lara**
Industrial Engineering

**Qimin Li**
Mechanical Engineering

**Lian Peet Loo**
Mechanical Engineering
IUPUI

**Aaron A. Mani**
Management

**A. James O'Malley**
Statistical Consulting

**Mei Ling Ong**
Statistical Consulting

**Jeffrey M. Richwine**
Mechanical Engineering

**Trevor C. Schick**
Management

**Surya Simanjuntak**
Mechanical Engineering

**Carlos E. Simon**
Industrial Engineering

**Chris D. Smith**
Electrical and Computer Engineering

**Clifford C. Travis**
Industrial Engineering

**Masoud Mojtahed**
Associate Professor
Mechanical Engineering
Calumet

**Joseph T. Pearson**
Associate Professor
Mechanical Engineering

**Garnet E. Peck**
Professor
Industrial Pharmacy

**Keith V. Smith**
Professor
Management

**C. Douglas Sutton**
Associate Professor
Civil Engineering

**Ronald F. Wukasch**
Professor
Civil Engineering

**Jack W. Posey**
Consultant
Industrial Engineering

**Juanita L. Thayer**
Secretary

**Vickie L. McLaughlin**
Library Assistant

**Damay Peter**
Information Specialist

## Industrial Advisory Council

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Viking Engineering Company, Inc.
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Indianapolis

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Muncie

**Keith Kirkpatrick**
President, KEM Group, Inc.
Valparaiso

**Mark Michael**
President, Fort Wayne Metals Research
Fort Wayne

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Whitney Tool Company
Bedford

**Ron Overton**
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Overton & Sons Tool & Die Company
Mooresville

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Newburgh

**Gary Rheude**
President, Adkev, Inc.
Goodland

**John W. Van Etten**
President, Wabash Products
Terre Haute

## Advisory Board

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Associate Vice Chancellor, Academic Affairs
Purdue University Calumet

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Dean, Libraries
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Indiana University-Purdue University Fort Wayne

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Purdue University

**H. Öner Yurtseven**
Dean, School of Engineering and Technology
Indiana University-Purdue University Indianapolis

# PURDUE ECONOMIC Partners

*Purdue University provides a full range of educational, business assistance, and research programs for Indiana manufacturers, businesses, and governmental units. Call 765-494-6838 to request a copy of the* ***Purdue Resource Directory*** *or visit Connect Indiana™ on the web (www.purdue.edu/Research/ConnectIndiana).*

Don K. Gentry serves as dean of the School of Technology, and special assistant to the president for economic development.

### Agri-business assistance
Cooperative Extension Service
Phone: 765-494-8491

### Distance learning
Distributed Learning Services
Phone: 765-496-3337

Continuing Engineering Education
Phone: 765-494-7015

Center for Lifelong Learning
Phone: 800-359-2968

### Exporting assistance
Center for International Business, Education, and Research
Phone: 765-494-4463

### Industrial painting and finishing
Coating Applications Research Laboratory
Phone: 765-463-4749

### Industrial recruitment and small business counseling
Business and Industrial Development Center
Phone: 800-787-2432

### Industrial training
School of Technology Centers for Excellence
Phone: 765-494-0887

### Pollution prevention
Indiana Clean Manufacturing Technology and Safe Materials Institute
Phone: 765-463-4749

### Purdue Research Park
Phone: 765-494-1726

### Research and development
Division of Sponsored Programs
Phone: 765-494-6200

### Technical assistance
Technical Assistance Program
Phone: 765-494-6258

### Technical information
Technical Information Service
Phone: 765-494-9876

### Transportation infrastructure assistance
Indiana Local Technical Assistance Program
Phone: 800-428-7639

**You may connect to the above programs at:**

**www.purdue.edu/TAP/Purdue_Outreach_State_Indiana/**

# How to Request Assistance

## Assistance Projects

These projects provide recommendations on a wide range of issues including manufacturing improvements, product development, industrial management, and environmental problems.

### Typical Projects

- Information technology
- Plant layout
- Process improvement
- Design recommendations
- Environmental problem resolution
- Activity-based cost accounting
- Statistical analyses

### Costs and Confidentiality

For qualifying projects, TAP provides up to five days of Purdue assistance at no charge. Extended assistance is available and quoted by project. All project information, including company name, is kept confidential.

## Summer Interns

This program provides companies with well-qualified students for twelve-week summer projects.

### Typical Projects

- Product design
- Environmental permits
- Facilities planning
- Product costing
- Manufacturing systems
- Civil engineering
- Engineering drawing
- Materials testing
- Safety programs and training
- Software development

### Costs and Confidentiality

Interns are employed directly by the company. Competitive compensation for the summer ranges from $5,000 to $7,500. There is no charge for limited faculty assistance. All project information is kept confidential.

## Technical Information

The extensive technical collections of Purdue University, as well as sources worldwide, are used to fill information needs on virtually any topic.

### Typical Projects

- Technical articles
- Patent searches
- Industry standards
- Marketing data

### Costs and Confidentiality

Each request is quoted individually. Typical fees are $150 for an in-depth information search and $14 for each document sent. All work is kept confidential.

## High Tech Job Fair for Indiana Companies

This event is held each fall at the Purdue West Lafayette campus and helps Indiana companies fill high tech positions.

### Information and registration are available at:

www.purdue.edu/JobFair/

## For More Information, Please Contact:

### Technical Assistance, Summer Interns, and High Tech Job Fair

David R. McKinnis, Associate Director
Technical Assistance Program
Phone: 765-494-6258
Fax: 765-494-9187
E-mail: tap@ecn.purdue.edu
Web: www.purdue.edu/TAP/

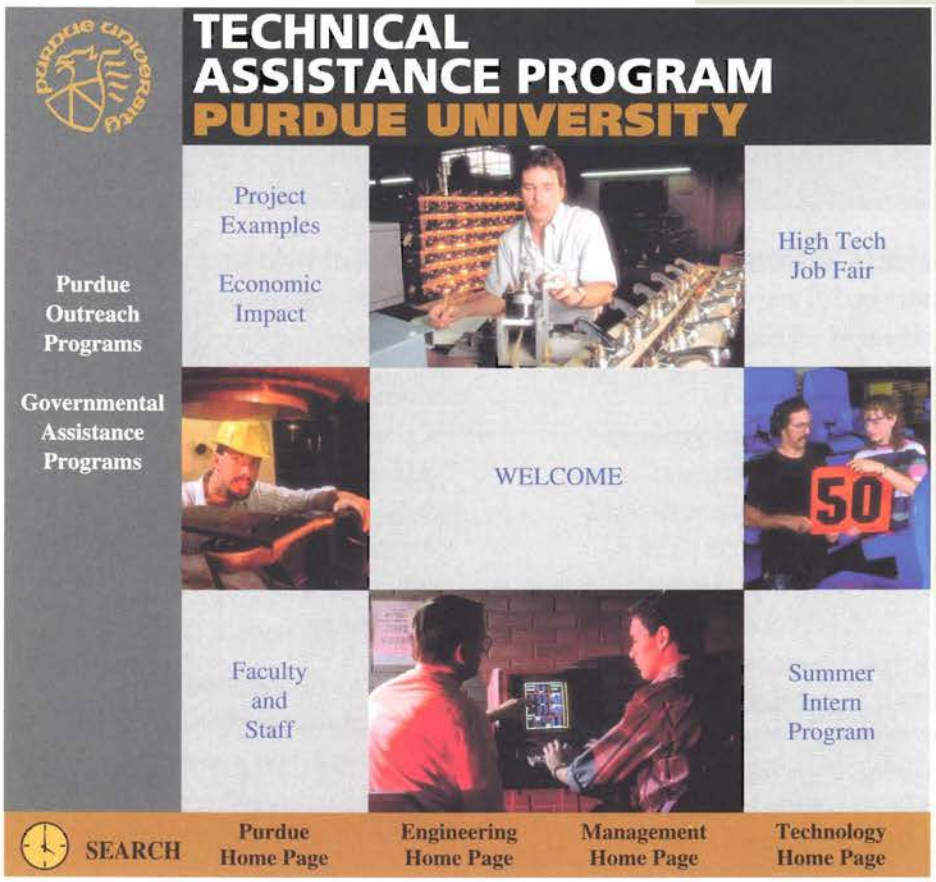
### Technical Information

Suzanne M. Ward, Manager
Technical Information Service
Phone: 765-494-9876
Fax: 800-289-3144
E-mail: tis@lib.purdue.edu
Web: www.lib.purdue.edu/tis/

# World Wide WEB

www.purdue.edu/TAP/

Current information about TAP is available on the World Wide Web. Companies can easily review project examples, learn about program services, and request assistance through this site.





Contact the Technical Assistance Program

Technical Assistance Program
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West Lafayette, Indiana 47907-1284

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**July 1999**


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