WHERE DO I BEGIN?
Great question!
The material presented in this brochure provides an overview of our programs, courses, faculty, and resources. It should also guide you through the application process, including admission criteria, plans of study, and degree options.

Of course, you might have many more questions than are answered in this flier. For more information, or to set up an appointment to talk directly with the faculty, send an email to the SE Graduate Program at segrad@ipfw.edu.

To learn more about Systems Engineering or to find the latest news, events, and opportunities in SE at IPFW, visit the Center of Excellence in Systems Engineering’s website:

http://cese.ipfw.edu/
MASTER OF SCIENCE IN ENGINEERING (M.S.E.)
The M.S.E. is a graduate degree program specializing in Systems Engineering. The program provides a core of Systems Engineering knowledge along with a flexible degree path to enhance any technical background.

HOW TO APPLY
Application to the IPFW graduate program in Systems Engineering is completed through the Purdue Graduate School. The online application form will guide you through the process.

The basic admission criteria are:
- a bachelor’s degree in engineering, technology, computer science, physical sciences, or mathematics
- an undergraduate GPA of 3.0 or higher
- English proficiency requirements for non-native speakers

If you are interested in the program but don't meet these criteria, email the SE Graduate Program at segrad@ipfw.edu before applying.

When you are ready to apply, you will need your transcripts, a written Statement of Purpose, and at least three letters of recommendation.

The application deadlines for U.S. students is June 30 for Fall admission and November 15 for Spring admission.

PLAN OF STUDY
Successful completion of the M.S.E. degree specializing in Systems Engineering requires completion of the following courses:

- Four core courses in Systems Engineering selected from:
  - SE 51000 - Introduction to Systems Engineering
  - SE 52000 - Engineering Economics
  - SE 53000 - Systems Engineering Management
  - SE 54000 - System Architecture
  - SE 55000 - Advanced Manufacturing Systems and Processes

- Two electives in Engineering
- Two electives in Mathematics, Statistics, or Computer Science
- Two general electives

THESIS OPTION
A thesis option is available for students who would like to do research in the area of Systems Engineering. Six hours of thesis research replaces the two general electives in the generic Plan of Study. Thesis research can be focused on a project sponsored by the student’s employer or in conjunction with work being done by the Center of Excellence in Systems Engineering.

Contact the SE Graduate Program at segrad@ipfw.edu to learn more.

GRADUATE CERTIFICATE
IPFW also offers a Graduate Certificate for students who are not interested in undertaking the full Master's degree program. Students must complete four of the five core courses in Systems Engineering to receive the certificate.

The certificate program has the same application requirements as the M.S.E. program; applications are also handled through the Purdue Graduate School.
SYSTEMS ENGINEERING COURSE DESCRIPTIONS

**SE 52000 - Engineering Economics**
Financial parameters of a project are often a driving force in its management and, eventually, its success. This course presents an overview of accounting principles and economic concepts that drive project selection, design, and development, including such topics as the time-value of money, cash flow, return on investment, and risk.

**SE 53000 - Systems Engineering Management**
The goal of systems engineering management is to align the enterprise focus to successfully develop products and processes that satisfy customer requirements. This course studies the relationships between human organizations and the project management tools that are designed to create a seamless workflow and keep projects on-time and on-budget.

**SE 54000 - System Architecture**
An architecture is a conceptual model that defines the structure and behavior of a system. It defines viewpoints that address concerns and views which attempt to answer those concerns. This course examines existing frameworks for creating and using system architectures and augments understanding with a class project to architect a system.

**SE 55000 - Advanced Manufacturing Systems and Processes**
Production is a system design that is often overlooked but vastly important to the success of the enterprise. This course analyzes the design of manufacturing processes to meet the overall system requirements and discusses lean tools and Six Sigma techniques and when to apply them.

CURRENT SYSTEMS ENGINEERING COURSE SEQUENCING

The planned schedule for the four core courses in Systems Engineering is shown below. The schedule is subject to change.

- Fall of odd years: SE 53000
- Spring of even years: SE 54000
- Fall of even years: SE 55000
- Spring of odd years: SE 52000

SPONSORED ELECTIVES

- **ECE 54300**
  - Wireless Communications
- **ECE 54000**
  - Digital Communications
- **ECE 54900**
  - Software Defined Radio
- **ENGR 58000**
  - Engineering Optimization
- **ME 54500**
  - Finite Element Analysis
- **ACS 56400**
  - Human-Computer Interaction
- **STAT 51200**
  - Applied Regression Analysis
- **STAT 51400**
  - Design of Experiments
- **BUFW D542**
  - Strategic Cost Management
- **OLS 51000**
  - Foundations of Behavior & Leadership in Organizations
- **OLS 54000**
  - Leading Collaborative Projects & Work Teams
- **TECH 54000**
  - Reliability & Maintenance
- **TECH 57400**
  - Advanced Quality Engineering Methods

To start your application, visit: [http://cese.ipfw.edu/apply/](http://cese.ipfw.edu/apply/)
CAMPUS RESOURCES

The Systems Engineering resources are among the most capable and most comprehensive at IPFW. The development of these facilities was made in part by funding from the Lilly Endowment and the Northeast Indiana Talent Initiative.

The Enterprise Design and Leadership (EDL) Lab provides an environment dedicated to enterprise systems by uniting people through collaboration. The lab’s modular layout can be changed to meet many different needs: classes, workshops, seminars, conferences, and business meetings.

The EDL Lab is also used for modeling physical systems. The lab provides IPFW faculty and students the tools for the research and development of real-world applications and industry projects.

The Systems Engineering Analysis, Modeling, and Simulation (SEAMS) network puts the latest versions of engineering software at the fingertips of students anywhere on IPFW’s network.

SYSTEMS ENGINEERING FACULTY

David S. Cochran, Ph.D.
Associate Professor of Systems Engineering Director, Center of Excellence in Systems Engineering

Prof. Cochran leads the core curriculum in Systems Engineering and serves on the Purdue University Graduate School Council, the Orthoworx Advanced Manufacturing Council, and the Board of Directors of the Institute of Industrial Engineers Lean Division.

Prior to joining IPFW, Dr. Cochran established the Production System Design Laboratory in the Department of Mechanical Engineering at MIT.

COLLABORATING FACULTY

Zhuming Bi, Ph.D.
Associate Professor of Mechanical Engineering

Don Mueller, Ph.D.
Associate Professor of Mechanical Engineering

Todor Cooklev, Ph.D.
Associate Professor and Director, Wireless Technology Center

Gordon Schmidt, Ph.D.
Assistant Professor of Organizational Leadership & Supervision

Barry Dupen, Ph.D.
Associate Professor of Mechanical Engineering Technology

Claude Setzer, Ph.D.
Associate Director, Wireless Technology Center