W | INDUSTRIAL & SYSTEMS **ENGINEERING**

Forging leaders and innovators in complex engineering systems.

Combining machine learning, mathematical models and human factors, ISEs analyze, design and optimize complex systems where people, engineering and information intersect.

What makes industrial and systems engineers special?

ISE is a close-knit, intellectually vibrant community, offering classes in machine learning, AI, data visualization, optimization, human factors and production systems. ISE students learn to master the power of data.

All undergraduates complete senior design industry sponsored capstone projects and apply their knowledge of industrial engineering to understand and solve real-world industry problems. Students learn how to structure and implement a design process that considers manufacturing constraints, ethics and customer needs.

ISE also offers a degree option in data science to prepare students for careers in machine learning, data visualization and data analytics.

What problems are industrial and systems engineers trying to solve?

Industrial and systems engineers embrace a systems approach, considering both technical solutions and societal impacts to make every product, process and service more efficient, valuable and sustainable for all. Areas that have benefitted from industrial engineering include:

- Advanced manufacturing and digital twins
- Internet of Things
- Algorithm and model development
- Cyber security
- Power system reliability and resilience
- Climate change readiness
- Digital health transformation
- Disaster preparedness
- Human performance modeling
- Supply chain and logistics

Career paths

ISE will equip you to manage multifaceted projects in industries including manufacturing, robotics, cyber-infrastructure, transportation and logistics, healthcare and energy, and consulting and finance.

Application areas

Air and Space – Prototyping, airline and airline operations

Health and Medicine – Digital transformation, vaccine and testing optimization, modeling and decision-making, ergonomics, continuous improvement

Infrastructure, Transportation and Logistics – Accessible transportation, and ride share optimization, autonomous and semi-autonomous systems, supply chain

Robotics and Manufacturing – Advanced manufacturing, internet of things, assembly design and control, digital twins

Computing, Data, Digital Technologies – Data analytics and visualization, e-commerce, product design, cybersecurity, simulation, virtual and augmented reality

Environment, Sustainability, Energy - Climate change readiness, smart and connected cities, reliability of electrical grids and power systems

Companies

Accenture, Alaska Airlines, Amazon, Apple, Astronics, AT&T, Blue Origin, Boeing, Disney, Expedia, Ford, Genie, Google, Honeywell, L3 Harris, Meta, Microsoft, PACCAR, Philips, Port of Seattle, Puget Sound Naval Shipyard, Starbucks, Tesla, Uber, UPS

How can you learn more?

If ISE might be for you, consider joining one of the ISE-affiliated registered student organizations. You can also start doing research in a lab as an undergraduate.

STUDENT DESIGN PROJECTS

All ISE undergraduates participate in industry-sponsored capstone senior design projects:

+ Designing wheelchair-accessible airplane cabins

+ Monitoring blood usage for emergency response

+ Optimizing supply chain systems for global e-commerce

+ Streamlining the flow of patients in hospitals and improving the quality of treatments

+ Reducing rework, waste and defects in manufacturing processes and products

+ Improving prediction and arrival times for King Co. Metro

+ Ensuring security of voting ballot boxes

+ Designing workspaces where robots, materials and people interact

+ Optimizing City of Bellevue snow and ice response efforts in transportation

QUICK FACTS

85% of BSIE students gain employment after graduation, with 5-10% entering grad school.

—

The average salary for industrial & systems engineers in Seattle is $117,800.

—

Over 30% of recent UW ISE grads landed their first job in air and space.

—

One of the fastest growing engineering fields.

—

100% of our students participate in industry designed capstone projects.

—

Industrial Engineering is one of the top-10 occupations for happiness and job satisfaction.