



Industrial & Systems Engineering

Bridge the gap between management goals and performance.

We Can Help.

Bridge the gap between management goals and performance

Our industrial engineering team works with organizations to improve productivity, quality and operations. We'll work with you to enhance organizational performance and identify potential process improvement steps to minimize variation, increase customer satisfaction, decrease operating costs and establish a consistent level of quality.



How NC State University Industry Expansion Solutions Can Help

We offer on-site or classroom training, depending on your organization's needs. Specific tools, analysis and activities that IES' industrial engineering team provides include:

Work Measurement Time and Motion Study

Using video analysis software, important data such as the motions of the work or task performed are recorded. They can be analyzed for quality and productivity improvement in the manufacturing environment.

Facilities Layout

Facility layout is the physical organization of available space to ensure a productive workflow and minimum cost. It considers the final product, safety and convenience when arranging production material, equipment and manpower.

Simulation

Simulation is the imitation of a process or system, which involves creating a model to represent its characteristics. Simul8 and Flexi software can be used for this purpose by NC State University Industry Expansion Solutions (IES).

Quality

Design Failure Mode and Effect Analysis

Design Failure Mode and Effect Analysis (DFMEA) is a risk assessment tool which looks for potential design failures in new or changed products. It assigns a likelihood and impact to each failure mode, with the goal of eliminating or reducing them through controls. This analysis is recommended as part of advanced product quality planning (APQP) to ensure product quality.

Process Failure Mode Effect Analysis

Process Failure Mode Effect Analysis (PFMEA) is a tool used to identify potential risks from a new or changed design in a process. It draws on the collective knowledge and experience of employees. Training is needed to discover how the process flows and using the PFMEA alongside control plans and shop floor documentation can help standardize and improve processes in order to reduce their risk of failure.

Measurement System Analysis

Measurement System Analysis (MSA) is a statistical method used to check the quality of a measurement system. It covers aspects such as stability, accuracy, and calibration. Minitab can be used for instruction and it is required by ISO. Its ultimate purpose is to make sure that the gauge is fit for its intended use.

Statistical Process Control

Statistical Process Control (SPC) is a process monitoring and reaction tool used in quality improvement initiatives that help distinguish assignable causes of variation in the process. The Process Capability Index can be used to compare process performance to expectations. SPC is one of the Quality Core Tools.

Operations

Supervised Customized Student Projects

Through supervised customized student projects with organizations, IES provides students with competitive wages and an opportunity to gain experience working in the engineering field. Clients seek out student employees due to their fresh perspectives, while IES oversees the projects and provides a lead engineer as the primary point of contact.

Work Instruction and Training Modules (Video, Pictorial)

A work instruction describes how to perform a task within a process, which is a more detailed portion of the procedure such as procedures and Work Instructions. With the use of Timer Pro software, IES can help you rapidly develop pictorial and video work instructions that may be used for reference and operator training.

Ergonomic Assessment

This approach allows you to identify areas of susceptibility in the workers' environment. The goal is to fit the task to the worker. Video analysis in PFMEA (Potential Failure Mode and Effect Analysis) format will allow for a thorough assessment of the working environment.

Manufacturing Cost Estimation (Labor, Overhead and Materials)

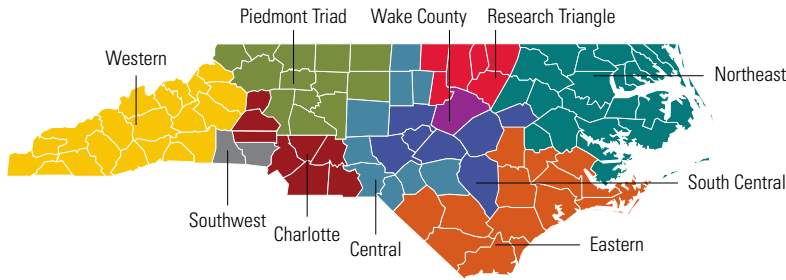
Applying data-driven strategies to development and production allows you to use your resources in the most effective way possible to meet your financial goals. When presented with multiple plans for production, we can teach you to apply cost estimation tools, allowing you to objectively choose the option that adds the most value to your company.

Sources:

Nembhard, H. B., Cudney, E. A., & Coperich, K. M. (2019). Emerging Frontiers in Industrial and Systems Engineering: Success Through Collaboration. CRC Press.



NC State University Industry Expansion Solutions (IES) Regional Managers Serve All 100 Counties in North Carolina.



Western

Chris McGraw
828.329.3119
chris_mcgraw@ncsu.edu



Piedmont Triad

Kami Baggett
919.830.7292
kami_baggett@ncsu.edu



Charlotte

Jeff Woolard
980.395.2023
jeff_woolard@ncsu.edu



Southwest

Jennifer Fielder
704.380.0063
jennifer_fielder@ncsu.edu



Central

Mary Tillery
910.622.5849
mary_tillery@ncsu.edu



Wake County

Robert Crew
919.830.2941
robert_crew@ncsu.edu



South Central

Anna Mangum
919.210.6050
anna_mangum@ncsu.edu



Research Triangle

Mitch Poteat
919.607.0684
mitch_poteat@ncsu.edu



Northeast

Lori Benn
919.988.7475
lori_benn@ncsu.edu



Eastern

Alex Easley
910.617.5650
alex_easley@ncsu.edu



Defense *Statewide*

Michael Mullins
919.515.8812
michael_r_mullins@ncsu.edu



Contact the IES Regional
Manager in your area.
ncstateies.com/RM

Solutions



**Advanced Manufacturing
& Technology Deployment**



**Business Growth,
Innovation & Marketing**



**Business & Operational
Assessments**



**Cybersecurity
Strategies**



**Defense Industry
Initiatives**



**Environment, Energy &
Sustainability Services**



**Evaluation Services &
Resource Development**



**Industrial & Systems
Engineering**



Instructional Design



**Leadership & Organizational
Development**



**Process Optimization
Services**



**Management Systems
& Quality**



**Southeastern OSHA
Training Institute
Education Center**



**Supply Chain &
Supplier Scouting**



**Workplace Health
& Safety**

NC STATE UNIVERSITY Industry Expansion Solutions

We Can Help. 919.515.2358 | iesservices@ncsu.edu



NC State University Industry Expansion Solutions (IES) is the extension and outreach team for the College of Engineering and provides connections, networking with industry experts, and can help identify the resources, tools and customized programs needed to increase an organization's productivity, efficiency, quality and profit.

ies.ncsu.edu **f** **i** **n** **@NCStateIES**

IES administers the National Institute of Standards and Technology Manufacturing Extension Partnership (NIST MEP) for North Carolina (NCMEP).

