

Curriculum Vitae for Scott Kiefer

Contact information

Work:

NC State University - MAE
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Education

Ph.D. Mechanical Engineering, North Carolina State University, August 1997 - May 2000

Dissertation: Heat Transfer and Electromechanical Analysis of Electrostatically Actuated Window Blinds Inside Insulated Glass

Emphasis: Mechatronics, Controls, Manufacturing, Mechanics, Vibrations, CAD, FEA

MS Mechanical Engineering, North Carolina State University, August 1995 - May 1997

BS Mechanical Engineering, University of Wisconsin at Platteville, August 1990 - May 1995

Professional Employment

Associate Teaching Professor, NC State University; Raleigh, NC; Aug 2025 – Present

Associate Professor, York College of Pennsylvania; York, PA; Aug 2016 – May 2025

Assistant Professor, York College of Pennsylvania; York, PA; May 2011 – Aug 2016

Teaching Specialist, Michigan State University; East Lansing, MI; Jan 2009 – May 2011

Associate Professor, Tri-State University (now Trine); Angola, IN; Aug 2005 – Dec 2008

Assistant Professor, Tri-State University; Angola, IN; Aug 2002 – Aug 2005

Assistant Professor, University of Puerto Rico at Mayaguez; Jan 2000 – June 2002

Summer Visiting Faculty, Naval Air Research Station; Patuxent River, MD; Summer 2001

Teaching/Research Assistant, North Carolina State University; Aug 1995 – Dec 1999

Design Engineer/Marketing Department, Caterpillar Inc, Clayton, NC; Summer 1996

Process Engineer, Hutchinson Technology Inc, Hutchinson, MN; Jan 1993 – Aug 1993

Teaching Experience

Courses Taught at NC State University:

Principles of Automatic Control (MAE 435), Mechanical Vibrations (MAE315), Mechatronics (MAE495), Introduction to Mechanical Engineering Design (MAE200)

Courses Taught at York College of Pennsylvania

Introduction to Mechanical Engineering (ME100), Statics (EGR250), Dynamics (EGR252), Engineering Physics – Mechanics (PHY160), System Modeling (EGR342), Automatic Controls (EGR392), Instrumentation and Microprocessor Lab (ME531), Machine Design (ME380), Capstone Design I (ME400), Capstone Design II (ME402)

Courses Taught at Michigan State University:

Independent Study Design Project (ME 491), Mechanical Vibrations (ME 461), Automatic Controls (ME 451), Mechanical Design II (ME 471), Dynamics (ME 361), Mechanics of Deformable Solids (ME 222)

Courses Taught at Tri-State University (now Trine University):

System Dynamics and Control (MAE 573), Senior Design (MAE 4053), Independent Study Project (MAE 493), Introduction to Mechatronics (MAE 363), Computer Aided Machine Design (MAE 373), Machine Component Design (MAE 353), Mechanics of Machinery (MAE 303), Dynamics (ES 223), Engineering Graphics (EGR 143)

Courses Taught at University of Puerto Rico at Mayaguez:

Mechatronics (INME 5015), Mechatronics Independent Study Projects (INME 5995), Automatic Control Theory (INME 4009), Computer Aided Design (INME 4058), Mechanics of Materials II (INGE 4012), Engineering Graphics I (INGE 3011)

Courses Taught at North Carolina State University:

Welding Advisor for Senior Design (MAE 416), Mechanical Engineering Lab III (MAE 405), Engineering Mechanics-Statics (MAE 205)

Other Teaching and Service:

Pack Motorsports Advisor (NC State)
Workshop Presenter for Faculty using Matlab with Arduinos in class (ASEE Conference)
Technical Consultant and Workshop Presenter for ENGAGE Project (NSF sponsored project)
Mentor for new faculty (York College)
Presented Seminars at Camp Teach and Learn (York College)
Served as Connector Faculty Representative (Michigan State)
Served as a Technical Judge for Lego Robotics Competition (Michigan State)
National Effective Teaching Institute (NETI) Workshop
Paintball Club Advisor (York College)
Habitat for Humanity Faculty Advisor (Tri-State University)
Pi Tau Sigma Faculty Advisor (University of Puerto Rico – Mayaguez)
BEST Camp Instructor (Tri-State University)
Middle and High School Science Fair Judge (York College)
Hewlett Grant for Teaching Excellence (University of Puerto Rico- Mayaguez)
BSA Assistant Scoutmaster/Patrol Advisor
BSA Merit Badge Councilor

Laboratory and Curriculum Development

Chair of Curriculum Assessment Committee, York College, Fall 2019-Spring 2021

This committee was formed to study the current engineering curriculums and determine if there were options that would better serve the students, faculty, and college if the engineering programs were changed to 5-year programs.

Building Shop Capabilities and an Advanced CAD Curriculum, York College, Fall 2013-present

With input from local constituents, created a first-class machine shop to rival that of any university. This project involved building shop capabilities and instructional materials so that all students could complete advanced CAD and machining projects as part of the curriculum.

Creation of a Minor in Robotics, Tri-State University, Spring 2007

This project included the creation and implementation of a Minor in Robotics that is accessible to Mechanical or Electrical Engineering students without adding any extra time to their degree program.

*Creation of a Mechatronics Course and Laboratory, **Tri-State University**, Fall 2003*

This work included securing funding and developing a new course and laboratory for undergraduate students in mechatronics.

*Creation of a Mechatronics Teaching Laboratory, **University of Puerto Rico**, Spring 2002*

This work included securing funding and developing a new course and laboratory for undergraduate and graduate students in mechatronics.

Design/Consulting Experience

*Automation and PLC Instruction, **Multi-Dimensional Integration (MDI)***

MDI designs and installs automated material handling systems for manufacturing and distribution. This is a consulting position that involves instruction in how to implement sensors, actuators, and PLC programming for MDI's end users. It also involves installing simple program updates.

*Mechanical Engineering Capstone Projects, **York College***

The capstone class has involved the design and build of vehicles for the SAE Formula and SAE Baja international competitions, an autonomous robot for the International Ground Vehicle Competition, assistive devices for individuals with disabilities, an automated bike rental system, and the design and build of a smart greenhouse.

*Laser Alignment System, **Service on Site (SOS) Incorporated***

SOS's main business is cutting and repairing rolls of paper (up to 15,000 pounds) that will be used in large printing applications. This project involved the design of a device to automate the alignment of the paper roll before cutting.

*Design and Build of Automated Cable Cutter, **E.J. Brooks Incorporated***

As part of the manufacture of disposable security seals, E.J. Brooks cuts stranded cable while maintaining close tolerances on diameter. This project included the design and build of an automated device to cut, measure, and record production rates for the stranded cable.

*Design of Electronic Security Seal, **E.J. Brooks Incorporated***

E.J. Brooks manufactures disposable security seals to be used primarily for shipping containers. This project included the design and prototype build for a new electronic, reusable seal that would be able to store shipping information.

*Autonomous Vehicle Study for Remote Sensing, **University of Puerto Rico***

This work was carried out by honors students in the NASA sponsored PASCOR program at UPRM. It involved the design and construction of an autonomous vehicle.

*Autonomous Vehicles for Non-destructive Evaluation, **Naval Air Research Lab***

This work involved the construction of a conceptual prototype to be used to identify the development of cracks around the fasteners on aircraft using eddy current analysis. The vehicle

was the beginning of development of a program to use robotics in the non-destructive evaluation of aircraft at the Navy Aircraft Research Lab in Patuxent River, Maryland.

University Service

Member of Hiring Committees (Shop Manager and Teaching Faculty) (NC State)
Middle States Accreditation Committee (York College)
Student Welfare Committee (York College)
Managed Engineering Machine Shop (York College)
Chair of Engineering Curriculum Assessment Committee (York College)
Long Range Planning Committee (York College)
Faculty Development Committee (York College)
ABET Accreditation Committee (Michigan State)
Mechanical Engineering Curriculum Revision Committee (Tri-State University)
Mechanics Curriculum Assessment Committee Chair (University of Puerto Rico)

Honors and Awards

Student Senate Academic Advisor Award (York College)
Withrow Award for Teaching Excellence (Michigan State)
Frank and Julie Gelet McKetta Award for Outstanding Teaching (Tri-State University)
Outstanding Faculty Award (Tri-State University Class of 2007)
Outstanding Faculty Award (Tri-State University Class of 2005)
Eli Lilly Faculty Development Grant (Tri-State University)
Proctor and Gamble Education Grant (University of Puerto Rico - Mayaguez)
United Technologies Educational Grant (University of Puerto Rico - Mayaguez)
Boeing Educational Grant (University of Puerto Rico - Mayaguez)

Patents

Bravo R., Kiefer S., Warner J., Hamilton C., (2004). *Reusable hasp-locking mechanism* (U.S. Patent No. US20050144991A1). U.S. Patent and Trademark Office.

Publications and Presentations

- Wilkerson S., Kiefer S., Tiexeira Gomes de Melo Y., “Reflections on Artificial Intelligence use in Engineering Courses”; American Society for Engineering Education Annual Conference, June 2025.
- Lorenzen M., Meah K., Kiefer S., “Capstone Design Experience for a Self-Designed Major Engineering Student”; International Journal of Learning and Teaching, Vol. 10, No. 6, 2024.
- Kiefer S., Earle A., Wilkerson S., “Using Arduino Microprocessors in a Mechanical Engineering Curriculum”; American Society for Engineering Education Annual Conference, June 2024.
- Wilkerson S., Kiefer S., Sasaki, G., Gadsden A., Roberts N., Nguyen B., “2023 ASEE Workshop Combining Arduino and Matlab for Controls Experiments”; American Society for Engineering Education Annual Conference, June 2024.

- Kiefer S., Earle A., “Specifications Grading in a System Modeling Course”; American Society for Engineering Education Annual Conference, June 2023.
- Earle A., Kuchnicki S., Kiefer S., Wilkerson S., “Modifying a Junior Year Machine Design Project to Break Down Knowledge Silos in the Mechanical Engineering Curriculum”; American Society for Engineering Education Annual Conference, June 2023.
- Kiefer S., “Machining Experience in a Freshman Mechanical Engineering Class”; American Society for Engineering Education Annual Conference, June 2022.
- Ruzybayev I., Zile B., Kiefer S., Schmid T., “Implementation of a Design Project in a Freshman Engineering Physics Course”; American Society for Engineering Education Annual Conference, June 2019.
- Kuchnicki S., Kiefer S., “Frequency of Exams and Student Performance in Solid Mechanics Courses”; American Society for Engineering Education Annual Conference, June 2017.
- Kiefer S., Ericson T., Meah K., Moscola J., “Design, Build, and Installation of an Automated Bike Rental System as a Part of Capstone Design”; American Society for Engineering Education Annual Conference, June 2016.
- Kiefer S., Meah K., Moscola J., Ericson T., “Building Community Relationships with a Senior Design Experience”; Business and Applied Sciences Academy of North America Annual Conference, August 2015.
- Kiefer S., Ericson T., “Capstone Design Assessment and Student Motivation”; American Society for Engineering Education Annual Conference, June 2015.
- Kiefer S., Ericson T., “Capstone Design Assessment and Student Motivation”; Mid-Atlantic Section of the American Society of Engineering Education Regional Conference, September 2014.
- Garrison T., Celic E., Kiefer S., “A Project-Based, Industry-Driven Freshman Design Sequence for Mechanical Engineers”; First Year Engineering Experience Conference, August 2014.
- Kiefer S., “Machining Experience in a Mechanical Engineering Curriculum”; American Society for Engineering Education Annual Conference, June 2014.
- Kiefer S., Kuchnicki S., “Teaching Mechanical Engineering Design Not Tinkering”; American Society for Engineering Education Annual Conference, June 2013.
- Cappello N., et al., “Design, Simulation, and Fabrication of an Intelligent Ground Vehicle as a part of the Capstone Project”; American Society for Engineering Education Annual Conference, June 2012.
- Meah K., Martin P., Kuchnicki S., Kiefer S., “IGVC Paper”; American Society for Engineering Education Annual Conference, June 2012.
- Kiefer S., Somerton C., “Benefits of Mentoring Students in Design Competitions”; American Society for Engineering Education Annual Conference, June 2011.
- Kiefer S., Zemanek O., Geib N., Tauzer E., Movsesian J., “Autonomous Recyclable Material Sorter”, American Society for Engineering Education North Central Sectional Conference, April 2011.
- Kiefer S., “Real Life Examples in a Solid Mechanics Course”; American Society for Engineering Education Annual Conference, June 2010.

- Kiefer S., “Preparing Mechanical Engineering Students for Senior Design Projects with Electronics Components”; American Society for Engineering Education Annual Conference, June 2007.
- Kiefer S., “Project Oriented Course in Mechatronics”, 10th Biennial Mechatronics Forum International Conference, Malvern, PA, June 2006.
- Kiefer S., “Multi-Disciplinary Course in Mechatronics”; International Conference on Engineering Education, San Juan, Puerto Rico, July 2006.
- Kiefer S., “Benefits of Undergraduate Research and Independent Study”; American Society for Engineering Education Annual Conference, June 2005.
- Kiefer S., Dukhan N., “Building a Research Program with Undergraduate Students”, International Symposium IGIP / IEEE / ASEE, Fribourg, Switzerland, September 2004.
- Kiefer S., “Project Oriented Course in Mechatronics”; American Society for Engineering Education Annual Conference, June 2004.
- Suárez O.M., Kiefer S., Calderón H., Quispitupa A., "Interlacing Engineering Graphics in an Introductory Engineering Materials Course as a Visualization Aid"; American Society for Engineering Education Annual Conference, June 2003.
- Kiefer S., Silverberg L., Gonzalez M., “Thermal Effects of Blinds Inside Insulated Glass Windows”; AHSRAE Transactions, Vol. 108 part 2, 2002.
- Kiefer S., Silverberg L., “The Design and Manufacture of Electrostatic Window Blinds”; Journal of Engineering Design, Vol. 13, No. 4, 2002.
- Kiefer S., “Using a Mechatronics Independent Study Course to Develop New Course Materials and Train Students for Research”; American Society for Engineering Education Annual Conference, 2002.
- Kiefer S., Silverberg L., Gonzalez M., “Electrostatically Actuated Window Blinds”; Journal of Electrostatics, No. 50, March 2001, pp229-248.
- Kiefer S., Thrower J.P., Silverberg L., “Teaching Undergraduate Controls to Non-electrical Engineering Students”, American Society for Engineering Education Annual Conference, 2001.

Other Activities

Member of Aircraft owners and Pilots Association (AOPA)

Licensed Private Pilot

Member of Society of Automotive Engineering (SAE)

Member of American Society for Engineering Education (ASEE)

Assistant Scoutmaster/Patrol Advisor BSA Troop 54

BSA Merit Badge Councilor for: Robotics, Engineering, Electronics, Aviation, Woodworking, and Citizenship in Society