Benjamin T. Manning

If one seeks to listen, one will learn to lead. If one seeks to lead, one will become a leader.

EDUCATION

Doctor of Philosophy: Engineering Education Purdue University: West Lafayette, IN, purdue.edu 2023-Present
Current research focused on self-motivated learning and developing a tinkering mindset.

Master of Arts in Teaching: Broad-field Science Piedmont College: Demorest, GA, piedmont.edu 2017-2018
Funded through the National Woodrow Wilson Teaching Fellowship
Certified in Broadfield Science, Engineering/Technology Education

Bachelor of Arts: Physics Michigan Technological University: Houghton, MI, mtu.edu/physics 2013-2017
Minor in Computer Science

Google IT Automation with Python by Google on Coursera April 2021
Certificate Credential ID: VE8FAX5RFCQ2

WORK EXPERIENCE

Continuing Lecturer- EPICS Purdue University COE: West Lafayette, IN 2024-Present

- Work in a team to instruct students in Engineering fundamentals
- Mentor Purdue student EPICS teams in a variety of community-centered projects

Senior Instructional Lab Coordinator,
Associate Director of Undergraduate Labs- Curriculum Purdue University ECE: West Lafayette, IN 2021-2024

- Work with faculty and staff to develop, refine, and support innovative instructional methods in instructional labs
- Supervise and train other lab coordinators and students to lead the instruction of instructional labs
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STEM Teacher Barrow Arts and Sciences Academy (BASA)/ Sims Academy: Winder, GA 2018-2021

- Teaching fundamentals of electronics, computer science and engineering in an applied classroom setting
- Leader in developing and piloting the new STEM magnet program at BASA
- Taught entire Mechatronics pathway including developing dual enrollment course for third level course

Adjunct Mechatronics Instructor Lanier Technical College: Winder, GA 2019-2021

- Teaching Mechatronics Courses to wide range of students and abilities
- Developed dual enrollment course for high school students with partnership between Lanier Tech and Sims Academy
- Courses taught: Industrial Instrumentation, Industrial Motor Controls, AC Theory I, Fundamental Power: AC

Teaching Lab Manager Michigan Technological University: Physics Department: Houghton, MI 2015-2017

- Led a group of students in setting up and maintaining the physics teaching labs
- Repair lab equipment used in the physics teaching labs

ACHIEVEMENTS

Outstanding instructor recognition Purdue COE: January 2025
Recognized by the college for having outstanding instructor reviews from students for the previous semester

Bravo Award Purdue ECE: March 2022, February 2023
Awarded for extraordinary work in innovation, creativity, and operational excellence

Barrow County 2019-2020 Teacher of the Year: Special Programs

COVID-19 Humanitarian Relief sites.google.com/site/btmanninteach/covid-19
3-D Printed over 3000 pieces of Personal Protective Equipment to help public service workers, medical facilities, and the general public during the COVID-19 Pandemic.

Woodrow Wilson Teaching Fellow Woodrow Wilson National Fellowship Foundation
Dedicated to developing skilled STEM teachers and providing quality education in Georgia Title I schools

Ian Shepard Award Michigan Technological University
Deemed most promising graduating physics undergraduate student by physics faculty and staff

Senior Spotlight of Physics Department Michigan Technological University
Selected by physics faculty members to be highlighted in the department's 2016 yearly newsletter

Eagle Scout Boy Scouts of America
Leadership project completed at First United Church of Christ: Green Bay- April, 2012

ACADEMIC INVOLVEMENT

Woodrow Wilson Teaching Fellow Woodrow Wilson National Fellowship Foundation

2019 Piedmont Educator Renewal Conference Speaker: Piedmont college
Technology Expectations Becoming Reality for Teachers in the Classroom
Discussed automation of lesson plan development and course standards searching, matching, and scheduling

2023,2024,2025 ARAS Community Event Railside Robotics Advisor: Orlando, FL
Building a Digital Thread Discipline at Purdue
Railside Robotics Executive team discussed using Product Life Management as a strategy to manage multiple teams' robotics designs.
ARAS Tech Summit
Students talked with industry professionals about thier work with PLM and incorporating industry best-practcices into their team

Electronics Reverse Engineering Instructional Lab development 2023-Present
IRB approved for studying a "tinkering mindset" in engineering students

Electronics Fundamentals Instructional Lab development 2021-2024

Purdue ECE Undergraduate Curriculum Committee 2024

Purdue ECE ABET Committee 2024

Purdue ENE Seminar speaker January 2025
Applications of ECE Through Reverse Engineering
Discussed experimental lab course that revolves around students refining their fundamental ECE skill by reverse engineering commercial products

SKILLS

Software:

- MATLAB: Programmed many complex physics and mathematical simulations and various data analysis programs
- SPICE: Proficient in and have taught SPICE simulation methods in a variety of SPICE platforms
- LaTeX: Written over 100 professional documents, including research reports, letters of recommendation, and assessments
- Arduino and Raspberry Pi application development
- Proficient in: C/C++, Java, JavaScript, Python, HTML, Visual Basic, Mathematica
- CAD: experienced in designing and teaching CAD fundamentals in Autodesk Inventor, and Onshape

Hardware:

- CNC: Constructed and maintained over 20 different multi-axis CNC machines, including printers, plotters, mills, and arms
- Resourceful: Have made a variety of scientific instruments out of scrap materials.
- Troubleshooting and Repair: Experienced in fabricating, fixing and rebuilding experimental equipment and setups
- Microscopes: Trained in the operation of Atomic Force, Electron, and Scanning Tunneling Microscopes
- Material Analysis: Trained in the methods and operation of X-Ray Diffraction, Heat Processing, and Pulse Laser Deposition

ACTIVITIES/ COMMUNITY SERVICE

Railside Robotics-Combat Robotics Team Purdue University
Founding/Lead Advisor: 2023-Present

FIRST Robotics Team 5132 (FRC) and Team 18597 (FTC)
Lead mentor: 2018-2021

Boy Scouts of America Troop 1043, Crew 9001, Crew 9443: `bsa.org`
Outdoor Skills Director at Bear Paw Scout Camp: 2012-2014

Superior Search and Rescue
Training Coordinator: 2016-2017