

Sergio Gamarra

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EXPERIENCE

Assistant Professor

August 2019 – Present

Minnesota State University – Mankato, MN

Automotive Engineering Technology, Manufacturing Engineering Technology

- Teach in the areas of Automotive Engineering Technology and Manufacturing Engineering Technology including Automotive Systems, CAD and Material Processing (courses include AET 160, MET 142, AET 387 and MET 375)
- Outside of classroom/office hours, mentor undergrad students working in the Formula SAE program by helping with the composites development
- Supervise and maintain teaching laboratories
- Collaborate with department in curriculum design, instruction and evaluation and help brainstorm innovative strategies for student recruitment, retention, and completion
- Support and provide guidance to students of diverse backgrounds
- Mentor students in conducting research as well as planning for post-graduation opportunities
- Participate in departmental/college activities and advising of students, including the career fair
- Implemented D2L where previously not utilized to help students track their progress and have access to course materials
- Participated in 2019 ABET accreditation review of AMET department.

Instructor

September 2011 – June 2019

High Tech High School – North Bergen Secaucus, NJ

Automotive Technology and Engineering Technology Instruction

- Inherited the Automotive Technology program with only 11th and 12th grade classes of 7 students each; within two years I had doubled my class size and started offering 9th and 10th grade courses as well.
- Classes consisted of inner-city, low-income, under-represented minority students. These students fully learned the importance of health and safety in the shop when utilizing machines, chemicals and equipment.
- Identified the needs and interests of my students, therefore shifted the program's focus more towards Automotive Engineering Technology. I instruct four different levels of Automotive Engineering Technology weekly.
- Implemented Engineering Technology, sheet metal fabrication, hot metal work, welding, precision machining, and CAD/CAM CNC plasma
- Ensured students had access to high quality industry standard equipment, which required constantly advancing the program through updating lesson plans and curriculum.
- Instructed students in developing complex metal projects, utilizing various grades and shapes of metals.
- Instruct students on the many phases of engineering, design, prototyping, testing and redesigning of products.
- Developed and managed metal fabrication lab, ordered all supplies and materials, handled setup and maintenance for all machines and equipment. Connected and maintained relationships with major vendors.
- Developed state approved curriculum for the Engineering Technology program. Program was federally funded through the Carl D. Perkins Grant which allowed me to oversee the budget, lead the advisory committee, and prepare equipment purchase and implementation.
- Developed relevant lesson plans that followed the curriculum, which were differentiated for various learning styles.
- Over 20-hours of Professional Development completed yearly by attending various seminars and trainings.
- Participated in SkillsUSA as an advisor since 2012, each year mentoring students to produce innovative projects
- Co-founded the High Tech Robotics program which followed the FIRST robotics structure.
- Filled the Student Council role of class adviser since 2012 leading students from Freshman through Senior year in decision making to develop school policy, plan fundraising events, and organized major events.

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- Facilitated creative partnerships with leading industry organizations which included students touring their facilities and meeting with their employees. These SLE (Service Learning Experiences) ultimately lead to student apprenticeships. The most notable, the Holz Technik Academy from Eastern Millwork, and soon to be further developed partnership with Goya foods.
- Developed and implemented the Siemens SMSCP Mechatronics training program. First to be implemented in a NJ High School, complete with equipment purchase, lab setup, and curriculum training in Berlin, Germany
- Continuously worked with the state department of education and media to promote CTE education through partnerships with Monster Jam, MetLife Stadium, and local journalists.
- Worked with administration to develop the layout for my classroom and workshop in new construction building.
- Redesigned the floorplan to better utilize the space in the old shop; provided the layout for the new building floor plan to create an efficient, new classroom/workshop.
- Instructed adult night-class that covered two levels of AutoDesk CAD.

IRETI Graduate Assistant

August 2009 – June 2011

International Renewable Energy Technology Institute | Mankato, MN

Engineering Services

- Developed original off-campus lab and worked with the architects on the new IRETI lab in the CORE building
- Managed emissions research projects for various clients
- Achieved EPA emissions testing compliance, by selecting the appropriate equipment and testing techniques.
- Utilized fabrication skills to incorporate new sampling, testing, recording equipment to our testing facility - Developed and implemented EPA standard SOPs for gaseous and particulate testing.
- Solely ran various EPA Method 5G and Method 28 tests from start to completion and analyzed the data to be included in final report.
- Specified the purchase and received training on a California Analytical Instruments Integrated Emissions system.

Composite Structure Designer and Fabricator, Material Purchaser

July 2008 - May 2009

Formula SAE- 2009 MNSU Chassis Team | Mankato, MN

Automotive and Parts Manufacturing

- Out of the team of 13 people, I was in charge of material inventory and purchasing
- My sole project was to design, test, and apply composite technology to our team's competition vehicle
- Implemented the use of bonded stressed composite sandwich panels in the chassis tubular space frame. The panels served as impact protection, heat/fire protection, and satisfied the requirement of covering the cockpit.
- Proofread and finalized the final Engineering report.

Engineering Projects Lab Technician

September 2006 – May 2009

Minnesota State University, Mankato | Mankato, MN

Engineering Services

- In the three years working in the department's project lab I had developed new skills and an appreciation for fabrication and machining.
- My duties ranged from lab organization, project management, and working with students on the safe use of lathes, mills, and welders.
- Found my passion for teaching and inspiring others to discover their passion for fabrication.

Automotive Engineering Intern

May 2008 – August 2008

Porting Dynamics | Maple Grove, MN

Automotive and Parts Manufacturing

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- Summer internship where I gained experience in performance engine machining, assembly, dynamometer tuning, and testing.
- Tasked with cylinder head service and race car prep.
- Final project required taking the dragster for an 1/8th mile pass down the drag strip at BIR.

EDUCATION AND TRAINING

Minnesota State University – Mankato, Mankato, MN

Manufacturing Engineering Technology MS

December 2019

Automotive Engineering Technology BS

May 2009

Manufacturing Engineering Technology Minor

GPA 3.86

National Institute for Metalworking Skills – Bergen County Community College, Paramus, NJ

NIMS Drill Press 1

November 2015

NIMS Job Planning, Layout and Benchwork

NIMS Measurement, Materials, & Safety

Siemens Technik Akademie – Berlin, Germany

Siemens SMSCP Level 1 instructor certification

July 6, 2015 - July 17, 2015

Brookdale Community College – Lincroft, NJ

CTE Alternate Route program

October 2011 - May 2012

New Jersey Standard Teaching Certificate of Automotive Technology

June 2014

New Jersey Standard Teaching Certificate of Engineering Technology

July 2012

The College of New Jersey – Ewing, NJ

June 2004 - May 2006

High Tech High School – North Bergen, NJ

Class of 2004

SKILLS

Strong Technical and Interpersonal Communication Skills, Automotive Diagnosis and Repair, Engine Building, Welding (MIG, TIG), Composite Fabrication, Metal Fabrication, Computer Assisted Drafting- ProE, Torchmate and CREO, MTS Testing, Gaseous Emissions Testing, Powerschool, D2L, CNC Plasma Table operation with Accumove Controller, Proficient lathe and vertical mill machining operation, Moderate engine mapping and calibration, Microsoft Office, Google Productivity Software

LANGUAGES

Fluent in Spanish including technical vocabulary.

PROFESSIONAL MEMBERSHIP

SAE member since 2009