
CURRICULUM VITAE
KILPATRICK FORENSICS

GARY E. KILPATRICK, P.E., DFE
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Since 2003, providing forensic engineering consulting services in motor vehicle crash reconstruction to law firms, public defenders and insurance companies. Extensive investigation experience in motor vehicle crash reconstruction of cars, light trucks, commercial heavy trucks, motorcycles, all-terrain vehicles (ATVs) and recreational off-highway vehicles (ROVs). Extensive knowledge, training and experience in analyzing complex vehicle crashes while incorporating state-of-the-art computer video simulation software technology to demonstrate and animate how a motor vehicle crash takes place. Extensive training and experience in imaging and analyzing the crash data reports stored in a vehicle's event data recorder (EDR) and airbag control module (ACM). Create CAD drawings for trial exhibits and computer animation. Expert reports have been written and submitted in state and federal courts. Deposition and courtroom trial testimony has been provided many times throughout the United States. Attend and participate in various seminars regarding research in imaging and analyzing a vehicle's crash data reports. Attend and participate in staged motor vehicle collisions and associated analyses for research involving cars, light trucks, commercial heavy trucks and motorcycles. Board certified crash reconstruction engineer through the National Academy of Forensic Engineers (NAFE). Northwestern University instructor of motor vehicle crash reconstruction sciences.

EDUCATION

North Carolina State University 1990: Bachelor of Science Degree in Mechanical Engineering with a minor in Speech Communications.
Mitchell Community College 1985: Associate in Science Degree - College Transfer Curriculum.

HONORS

North Carolina State University MAE Hall of Fame: Inducted 2013.

PROFESSIONAL TRAINING AND DEVELOPMENT

Public Speaking and Communications:

Dale Carnegie Course: Public Speaking and Public Relations. Certificate (1980).
Mitchell Community College and North Carolina State University Public Speaking Courses. Degrees (1985-1990).
Midlands Technical Community College: Train The Trainer. Certificate (1996).

Traffic Accident Reconstruction:

North Carolina State University: Machine Design, Dynamics and Mechanics of Machines and Vehicles, Motor Vehicle Traffic Accident Reconstruction Sciences. BSME (1990).
University of North Carolina: Introduction To Forensic Engineering. Certificate (2002).
Northwestern University Research in Traffic Accident Reconstruction (2003).
Institute For Police Technology and Management Research in Traffic Accident Reconstruction (2010).
National Academy of Forensic Engineers: Forensic Engineering Seminars (2005, 2006, 2012, 2014).
Collision Safety Institute: Automotive Crash Research Testing & Training. Certification (2006).
Collision Safety Institute: Bosch Diagnostics Crash Data Retrieval System Download and Analyses Training and Certification (2006).

iWitness Close Range Photogrammetry. Certificate (2008).
 Insurance Institute for Highway Safety and Highway Loss Data Institute: Vehicle Crashing Test Comparisons and Ratings. Seminar (2011).
 Chief Automotive Technologies: Vehicle Construction Technology and Trends. Seminar (2011).
 SAE Tractor-Trailer Event data Recorder Symposium (2011).
 ARC-CSI Vehicle Crash Conference Crash Data Retrieval Systems Summit Houston Texas. Certificate. Vehicle were crash tested at these summits. (2011, 2013).
 Aras 360 HD/Reality 4 day Crash Simulation training Course. Certificate (2014).
 Engineering Dynamics Corporation: Advanced Vehicle Dynamics and Crash Simulation 5 Day Course. Certification (2015).
 ARC-CSI Boot Camp and Crash Conference; Crash Testing of Motor Vehilces. Certificate (2015).
 ACTAR Examination Preparation Course (2015).
 Northwestern University – Traffic Crash Investigation/At-Scene Investigation/Evidence Mapping (15)
 Northwestern University – Commerical Truck Crash Reconstructiion (2016)
 Northwestern University – Pedestrian Vehicle Crash Reconstruction (2016)

Motorcycle Riding and Training:

Avid motorcyclist for over 30 years riding both trail, motocross and street motorcycles.
 Dirt Bike Motocross Racing/Trail Riding: 1969 – 1974.
 Motorcycle Safety Foundation: Advanced Rider’s Training. Certification (2002).
 Harley Owners Group: Chapter 3446 Group Riding Class. Certificate (2004).
 Big Bear Choppers: How To Build a Custom Motorcycle (2009).
 Bike Safe North Carolina – Instructed by the Cary Poilce Department in cooperation with the North Carolina Highway Patrol. Certificate (2013).
 Currently own and ride two street motorcycles: 2015 Harley-Davidson VROD Muscle;
 2012 Harley-Davidson Screamin Eagle CVO Road
 Glide Custom.

ATV Riders Training:

ATV Safety Institute - ATV Rider Course: ATV Rider Certification (2007).
 Currently own and ride a 2007Honda FourTrax TRX 420 TE/FE Rancher.

PROFESSIONAL LICENSURE

- North Carolina Board of Examiners for Engineers and Surveyors
 Professional Engineer License Number (027030).
 Professional Corporation License Number (C-2279).
- Florida Board of Professional Engineers
 Professional Engineer License Number (66186).
- South Carolina Board of Registration for Professional Engineers and Land Surveyors
 Professional Engineer License Number (25937).
- Georgia State Board of Registration for Engineers and Surveyors
 Professional Engineer License Number (PE032652).
- Louisiana Professional Engineering and Land Surveying Board
 Professional Engineer License Number (33528).
- Tennessee Architect and Engineering Board
 Professional Engineer License Number (00111899).
- Virginia Board For Architechs, Professional Engineers and Land Surveyors
 Professional Engineer License Number (0402046851).
- New Jersey Board of Examiners for Engineers and Surveyors
 Professional Engineer License Number (24GE04845900).
- Washington, DC Board of Professional Engineers
 Professional Engineer License Number (PE905690).
- West Virginia State Board of Professional Engineers
 Professional Engineer License Number (18874).
- Mississippi Board of Licensure for Professional Engineers and Surveyors
 Professional Engineer License Number (20194LTD).
- Michigan Department of Licensing and Regulatory Affairs.
 Professional Engineer License Number (6201058174).
- Maryland State Board of Professional Engineers.
 Professional Engineer License Number (43433).

PROFESSIONAL ASSOCIATIONS MEMBERSHIPS

- National Society of Professional Engineers (1999).
- American Society of Mechanical Engineers (2002).
- National Academy of Forensic Engineers (2002).
- National Association of Professional Accident Reconstruction Specialists (2003).
- Society of Automotive Engineers (2008).
- American Motorcyclist Association (2006).
- American All-Terrain Vehicle Association (2006).
- The Accident Reconstruction Network (ARC-CSI) (2010).

OFFICES HELD

- PENC Chapter President – North Piedmont Chapter (2002-2003).
- PENC Chapter Treasurer and Secretary (2003-2004).
- PENC Chapter Vice President, President Elect and Chapter Governor (2007-2008).
- PENC Chapter President, Chapter Governor, Programs Chairman (2008-2009).
- PENC National Engineer’s Week Chairman (2009-2011).
- PENC Programs Chairman (2009-2010).
- PENC Chapter Governor (2011-2012).
- PENC Director (2012 – Present)

PUBLIC SPEAKING EXPERIENCE

- Dale Carnegie Course Public Speaking.
- College Public Speaking Classes.
- Industrial Classroom Teaching.
- Court Trial Testimony.
- National Engineer’s Week – Various Local Middle Schools.
- National Society of Professional Engineers Presentations.
- Society of Manufacturing Engineers Presentations.
- National Academy of Forensic Engineers Presentations.

PRESENTATIONS/TEACHING

- Mathematics Teacher For Koyo Corporation (1996-1997)
Taught basic math to potential hourly employees for the purposes of screening for future employment. Created math text and testing materials for classroom use.
- Society of Manufacturing Engineers – Subject Forensic Engineering (2004).
- Professional Engineers of North Carolina – Subject Forensic Engineering (2007, 2008, 2014).
- Raleigh-Wake County Paralegal Association – Subject Forensic Engineering (2007).
- Guilford County Paralegal Association – Subject Forensic Engineering (2007).
- Casualty Insurance Adjusters Various Chapters – Subject Forensic Engineering (2007).
- North Carolina Paralegal Association – Subject Forensic Engineering (2008).
- Local Middle Schools – National Engineer’s Week – Subject Engineering Profession (05-09).
- North Carolina State University ASME Student Section. Subject Forensic Engineering (2009).
- Piedmont Community College – Subject Forensic Engineering (2009).
- National Engineer’s Week – Subject Careers in Engineering and What Engineers Do (04-09).
- Professional Engineers of North Carolina – Subject NASA’s Saturn V Moon Rocket (2010).
- IADA Conference – Vehicle Crash Data Retrieval and Traffic Accident Reconstruction (2011).
- National Academy of Forensic Engineers – ATV Accidents (2012, 2014).

WRITING EXPERIENCE

- Presentations.
 - Forensic Engineering Reports.
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TECHNICAL PAPERS AND PUBLICATIONS

- The Physics of a Collision (2006).
- Product Design, Product Manufacturing and Product Quality Control (2012)
- Forensic Engineering Analysis of Hazards Associated with Operating an ATV by a Paraplegic (2012).
- Forensic Engineering Analysis of an ATV Accident Involving Two Riders on a Type 1 ATV Designed for One Driver and No Passengers (2013).

MOTOR VEHICLE CRASH RECONSTRUCTION CASE WORK LITIGATION EXPERIENCE TO DATE

- Traffic Crash Reconstruction involving cars, light trucks, heavy commercial trucks, buses, motorcycles, bicycles and pedestrians.
- Vehicle Crash Data Report Imaging, Report Review and Analyses.
- Motor Vehicle Inspections.
- Motor Vehicle: Product Defect and Failure Analyses.
- All Terrain Vehicles (ATVs): Accident Reconstructions/Safety/Product Defect and Failure Analyses.
- Recreational Off-Highway Vehicles (ROVs): Accident Reconstructions/Safety/Product Defect and Failure Analyses.
- Motorcycles: Accident Reconstructions/Safety/Product Defect and Failure Analyses.
- Criminal Defense Case Work: Traffic Accident Reconstructions.
- Insurance Claim Investigations Work

WORK EXPERIENCE

06/02 to
Present

KILPATRICK FORENSICS, JAMESTOWN, NC

Motor Vehicle Crash Reconstruction

At-Scene Investigation and Evidence Mapping.
Slow and High Velocity Collisions, Drag Factor, Skid Analyses, PDOF, ΔV , Closing Velocity, Conservation Linear and Angular Momentum, Conservation of Mechanical Energy, Crush Damage Analyses, Crush Energy, Critical Velocity and Circular Motion, Dynamic Weight. Shift, Falls, Flips and Vaults.
Lamp Filament Analyses.
Road Tractor and Semi-Trailer Crash Reconstruction.
School Bus Accidents.
Motorcycle Crash Reconstruction.
All Terrain Vehicles (ATVs) Crash Reconstruction.
Recreational Off-Highway Vehicles (ROVs) Crash Reconstruction.
Motor Vehicle Product Defect and Failure Analyses.
Motor Vehicle Inspections.
Vehicle Standards of Care.
Product Defect and Failure Analyses.
Vehicle Crash Testing.
Vehicle Skid Testing.
Vehicle Suspension and Handling Testing

2/05 to
7/06

K&S TOOL AND MANUFACTURING COMPANY HIGH POINT, NC

Quality Control, Process Engineering, Maintenance and Safety Manager

ISO 9001:2000 registered contract manufacturer of machined, formed, punched, fabricated, welded and assembled parts and subassemblies. Machined, formed and fabricated, welded and assembled component parts and subassemblies for client companies.
Managed the quality control department and had supervisory responsibilities. Responsible for the ISO quality system, quality manual and other similar documentation and files. Involved in APQP and PPAP for special customers. Made changes and updates to the quality system as needed. Acted as ISO management representative for the company. Organized and scheduled training sessions for company employees on matters of ISO 9001:2000 standards, OSHA safety, human factors and newly hired employees. Managed and performed monthly internal

quality audits on quality system elements. Lead and motivated employees to quality check their product. Performed first article inspections with report documentation for both customers and employees utilizing company measuring equipment. Created, followed up, closed and filed quality action plans, corrective action reports, preventive action reports, continuous improvement reports and other similar documentation. Also managed the maintenance program.

Assisted in the design of a bearing press machine for functionality, safety and human factors. Managed and documented all maintenance activities and schedules. Hands-on from time to time.

Managed the installation of all purchased and incoming machinery.

Managed all facility related matters concerning building maintenance, HVAC and electric utilities.

Acted as resident company engineer in all engineering matters including plant engineering, machine and tool design and OSHA 29CFR1910 safety audits and OSHA regulations.

Was company Safety Manager. Created and distributed plant facility evacuation charts.

Performed safety audits on all plant facilities and equipment including kinetic energy punch presses, hydraulic presses, automatic laser cutting machines, vibratory media deburring and cleaning equipment; press brakes, automatic robotic welding machines, CNC machining centers and hazardous chemicals including water based metal cutting coolants and petroleum based oils. Managed the distribution of MSDS and audited all MSDS books. When a safety issue was discovered, the safety issue was corrected.

Worked with the shipping/receiving department regarding the inspection and management of damaged containers and product that were received from domestic and over seas companies.

(Worked for K&S Tool temporarily to earn capital funds for The Kilpatrick Group, PA.)

7/01 to
6/02

SPHERION GREENSBORO, NORTH CAROLINA

Process Verification-Validation(Contract Engineering)

Provided engineering services to Bristol Myers Squibb, a manufacturer of ostomy, wound care products and pharmaceuticals.

Assisted in the modification and retrofit of production machinery for ostomy pouch manufacturing. Created and implemented process validation protocols IQP, PQP, OQP and DOE and statistical methods with reports per FDA GHTF and cGMP guide lines for approval to launch MK4 ostomy pouch process into production.

Provided engineering support to a new prototype Digital Label Printing Line. Benchmarked the process, gathered downtime data, trouble-shooting of equipment designs, and made recommendations to engineering manager on how to improve uptime. Decreased downtime by 40%. Created written PM schedules and trouble-shooting guides.

Designed and installed a protective cover for a 15 watt class 4 marking laser to meet OSHA, ANSI and ISO safety requirements of a class 1 laser. (Contract assignment was completed)

10/99 to
04/01

ERICO INCORPORATED ABERDEEN, NORTH CAROLINA

Mechanical/Manufacturing Engineer

ISO-9002 and UL Listed manufacturer of grounding, electrical and structural support systems for the residential and commercial construction industry. Utilized Microsoft computer software and AutoCad 14 extensively.

Expedited and managed capital and expense projects, cost reduction, continuous improvements integration of OSHA 29CFR1910 safety requirements for ergonomic and lean manufacturing which included spot welding, wire drawing, copper plating, rod straightening, kinetic energy punch presses and cut-to-length operations. Used Six Sigma, SPC, problem solving, root cause analysis techniques, lean manufacturing, PFMEA, DFMEA, APQP, QIP, CIW and Kaizen extensively.

Established and led cross-functional teams for Centers of Excellence throughout the corporation. Established and led Six Sigma, QIP, CIW and Kaisen teams to reduce downtime, increase productivity, train personnel in lean manufacturing techniques, equipment operation theory and preventive maintenance. Developed and implemented a Six Sigma based statistical process and quality control system (SPC) for all departmental processes. Documented and tracked all project time lines, cost, cost savings, downtime reduction and process improvements. Monitored production schedules, inventories, production issues, product scheduling, and scrap levels. Communicated with production scheduler and production manager concerning production runs and production concerns. Created and controlled line

documentation such as process flow mapping, work instructions, quality standards instructions, tooling specifications, tooling layouts and control plans.

Coordinated and relocated a complete automated roll forming line from Ohio to the North Carolina facility.

Redesigned blanking press die tooling for 75 ton Minster OBI strut pre-notch punch presses. Implemented SMED. Installed safety blocks required by OSHA 29CFR1910. Installed a coolant spray system to add lubricity to a formally dry punching operation. Human factors studies were performed during the design process. These changes increased tool life three times and reduced replacement tooling cost achieving a total yearly cost savings of \$100,000. As a result of these continuous improvement projects, reversed a negative \$110,000 per month variance to a positive \$40,000 per month variance and reduced setup time by 75%.

Designed and installed an enclosed in-process automated spraying system to apply a rust preventative to strut products to eliminate oxidation problems creating a superior product compared to the competition and met all OSHA 29CFR1910 safety requirements.

Redesigned Flexibar assembly tooling to eliminate scrap and customer claims and achieved a yearly cost savings of \$20,000.

Designed and supervised the installation of a hazardous chemical containment area for the storage of acids, bases and oxidizers per OSHA 29CFR1910 hazardous material regulations.

Designed a 30 foot belt conveyor for strut operations with an ergonomic and easy-to-use automatic ejection mechanism to replace an existing manual conveyor and saved \$8000 by designing and building it in-house. The conveyor was guarded to meet OSHA 29CFR1910 regulations. Human factors studies were performed during the design process.

Performed a complete design load and stress analysis on an existing in-house fabricated below-the-hook lifting device per ASME B30.20 standard. This lifting device was used for transferring 6500 pound sheet metal rolls from pallet to process equipment. It was determined that the lifting device design had not been tested by a second party testing lab and did not have the ASME B30.20 required data plate. The lifting device was permanently removed from service and replaced with a commercially available below-the-hook lifting device.

Trained operators on how to setup and use a spot welder to increase quality and production.

Managed projects and key hourly personnel to expedite and facilitate project work phases to closure. Involved in hands-on maintenance of process and material handling equipment.

Managed spare parts and tooling inventories for two separate facilities.

Member of the Safety Committee. Performed safety audits to enforce OSHA 29CFR1910 regulations of the facility, process, warehouse and material handling machinery and to assure ergonomic working conditions and the use of personal protective equipment. Reported findings to committee members with recommendations. Worked with the safety committee, created and implemented an OSHA 29CFR1910.147 compliant Lock-Out/Tag-Out system for the facility.

Redesigned floor layout for Flexibar process relocation. Redesigned floor layout of maintenance and tool room areas. Redesigned warehouse layout for relocation and steel coil storage and FIFO.

(Due to a 90 mile commute to work one way and rising fuel prices, resigned position to accept a contract engineering position with Spherion)

2/98 to
7/99

GKN AUTOMOTIVE ROXBORO, NORTH CAROLINA

Mechanical/Manufacturing Engineer

Manufacturer of automotive constant velocity half shaft assemblies. Responsibilities included expediting and managing capital projects, cost reduction, continuous improvement, ergonomic integration of OSHA 29CFR1910 safety requirements for the assembly of automotive constant velocity half shafts in a Tier 1, ISO9001 and QS9000 facility.

Utilized Japanese philosophies of Kaizen, Poka Yokes, Zero Defects, Brainstorming, Waste Elimination, 5-S, FMEA, lean manufacturing and Kan Ban material control systems. Used Six Sigma, problem solving and root cause analysis techniques extensively.

Extensively utilized a Six Sigma based statistical process and quality control system (SPC) for all assembly cells. Documented and tracked all project time lines, cost, cost savings, downtime reduction and process improvements.

Created and controlled line documentation such as process flow mapping, work instructions, quality standards instructions, tooling specifications, tooling layouts, control plans and SPC documents.

Designed and built special ergonomic assembly tooling and fixturing that met OSHA 29CFR1910 regulations for continuous improvement and new program launches. Human

factors studies were performed in the design process. Monitored production schedules, inventories, production issues, product scheduling, scrap levels and communicated with production coordinators concerning production runs and production concerns. Processed ECN's in department.

Was directly responsible for the hands-on repair and maintenance of assembly equipment, machine downtime tracking and improvement flashes across three shifts 24 hours per day. Coordinated maintenance activities with maintenance manager. Was directly responsible for ordering and inventories of all machine component maintenance items, new program, improvement design and replacement tooling. Facilitated and managed quality improvement processes and continuous improvement workshops with respect to each cell, it's operators and equipment.

Managed the installation of new assembly cells for new program launches. Inspected and assessed equipment to meet safety requirements of OSHA 29CFR1910 regulations. Performed machine capability studies, PSW, product master samples, tooling plans, control plans and documented changes for PPAP submission to customers. Created all line documentation for process production launches.

Heavily involved in hands-on maintenance of process and material handling equipment.
(Resigned position to seek other employment)

5/97 to
1/98

COPELAND CORPORATION HARTSELLE, ALABAMA

Mechanical/Manufacturing Engineer

Manufacturer of residential HVAC refrigeration compressors. Responsibilities included expediting and managing capital projects; cost reduction; continuous improvement; ergonomic integration of OSHA 29CFR1910 safety requirements for machining aluminum pistons and rods, cast iron cylinders blocks and heads.

Utilized Japanese philosophies of Kaizen, Poka Yokes, Zero Defects, Brainstorming, Waste Elimination, 5-S, FMEA, ergonomic lean manufacturing. Used Microsoft computer software extensively and AutoCAD for design purposes.

Redesigned a two machine 4-axis CNC work cell eliminating 3 operators saving \$94,000 in direct labor cost. Human factors studies were performed in the design process. Assisted in the redesign of all compressor bodies for more efficient work holding. Redesigned machining center work holding clamps to match the body redesign for scrap reduction. Processed ECN's in department for product design changes.

Heavily involved in hands-on maintenance of process equipment.

Created work instructions, machinery setup instructions and machinery operation parameters. Created bid packages for capital equipment quotation, cost justifications, appropriations requests. Coordinated maintenance activities with maintenance manager.

(Due to future marriage and relocation, resigned position to accept new position with GKN Automotive)

2/95 to
5/97

KOYO BEARINGS ORANGEBURG, SOUTH CAROLINA

Mechanical/Manufacturing Engineer

Manufacturer of high performance automotive wheel bearings. Responsibilities included expediting and managing cost reduction, and continuous improvement projects, integration of OSHA 29CFR1910 safety requirements for CNC turning, grinding and automatic assembly of SAE1055 and SAE 52100 steel bearing inner and outer rings.

Utilized Japanese philosophies of Kaizen, Poka Yoke, Zero Defects, Brainstorming, Waste Elimination, 5-S, FMEA, ergonomic lean manufacturing and Kan Ban material control systems. ISO9002 certification was awarded to Koyo during May of 1996. Was heavily involved with documentation development for certification.

Extensively utilized automated statistical process and quality control system (SPC) which was built into all manufacturing processes.

Traveled to Osaka, Japan to prove off \$6,500,000 of capital equipment including completely automatic CNC Murata MW series and LE type Miyano two axis turning centers, Koyo and Toyo shoe type centerless grinders and plunge type forming grinders and automated assembly machines. Personally performed floor lay out and supervised equipment installation upon arrival. Assisted in the creation of work instructions, quality standards instructions, tooling specifications and tooling layouts for processes.

Performed continuous improvements of bearing manufacturing process through extensive carbide insert and grinding wheel testing. Saved Koyo \$157,000 per year in tooling cost by changing metal cutting fluids and through carbide insert testing.

Heavily involved in hands-on maintenance of all automated process and material handling equipment.

Modified automatic CNC programs to reduce cycle time and increase tool life.

Redesigned the loading mechanism of an automatic ABS pulser ring assembly press for changing from an INA to FAG pulser ring meeting safety requirements of OSHA 29CFR1910 regulations.

Authored company math textbook and taught mathematics in classroom setting for testing and screening potential full-time hourly employees.

(Resigned position to accept new position with Copeland Corporation)

8/94 to
1/95

DML INDUSTRIAL PRODUCTS HICKORY, NORTH CAROLINA

Mechanical/Manufacturing Engineer

Manufacturer of high speed steel tooling for the wood and metal working industry.

Responsibilities included expediting and managing cost reduction, and continuous improvement projects, integration of OSHA 29CFR1910 safety requirements for CNC and NC turning and grinding operations. Responsibilities included expediting and managing capital projects, cost reduction, continuous improvements and ergonomic integration of OSHA 29CFR1910 safety requirements for manufacturing high speed steel tooling.

Designed, built and installed an ergonomic manufacturing process to support a Lindberg homo steam tempering furnace for applying a high temperature dark blue ferric oxide surface treatment for high speed steel drill bits. Designed, built and installed a 60 foot structural steel overhead monorail crane for lifting furnace payloads in excess of 2,000 pounds per ASME B30.11 standard. Crane and equipment met the requirements of OSHA 29CFR1910 crane regulations. Human factors studies were performed in the design process. Created written operation and setup manuals for this operation.

Assisted in the design of an ergonomic manufacturing cell to produce high speed steel S&D drill bits. Equipment included a Hertlein spiral flute grinder, two centerless grinders, a relief grinder, a Winslow drill pointer, tables and gravity conveyors. Human factors studies were performed during the design process. Created written operation and setup manuals for this cell. This cell eliminated three operators and saved DML \$112,320 per year in direct labor cost. Also processed ECN's in department.

Performed grinding wheel tests on Hertlein spiral flute grinders to improve grinding wheel performance and life. Grinding wheels used and tested were made by Norton and Carborundum.

Installed a coolant recycling system to recycle used coolant. Created written operation and setup manuals for this system. This system saved DML \$6,000 per year.

Created bid packages for capital equipment quotation, cost justifications, and appropriations requests.

Coordinated maintenance activities for process and material handling equipment with maintenance manager.

(Accepted new position with Koyo Corporation due to imminent layoff and plant closure)

1/94 to
5/94

CONTROLS SOUTHEAST INCORPORATED CHARLOTTE, NC

Mechanical Engineer (Temporary Contract Position)

Was under temporary assignment to assist the design engineering department in the planning, design, manufacture and assembly of a testing apparatus to run experiments and gather transient heat transfer data in the form of Temperature vs. Time in order to generate temperature tables and graphs for the analysis of data to determine the overall heat transfer coefficients and time transients of various heat transfer cements during startup heat flow. Was responsible for all testing and data collection.

After testing and data collection was completed, created a detailed scientific report and submitted it to the company management for their future use. (Contract assignment completed)

10/93 to
12/93

FISHBURNE INTERNATIONAL HENDERSONVILLE, NC

Draftsman (Temporary Contract Position)

Modified engineering drawings for existing products.

(Contract assignment was completed)

12/92 to
4/93

FOXCROFT TEMPORARIES STATESVILLE, NORTH CAROLINA
Draftsman (Temporary Contract Position)

Created detailed instrument drawings for existing products for a client company.
(Contract assignment was completed)

4/92 to
10/92

B&W NUCLEAR TECHNOLOGIES LYNCHBURG, VIRGINIA
Tool Design Engineer

Manufacturer of nuclear fueled electric power generation facilities. Responsibilities included the design of manufacturing tooling for Uranium 235 commercial nuclear reactor fuel assemblies. Managed cost reduction and continuous improvement projects and integration of OSHA 29CFR1910 and NRC safety regulations for manufacturing Uranium 235 commercial nuclear reactor fuel assemblies.

Developed tig spot welding jig and a spring compression leaf jig for assembling rod cluster control assemblies (RCCA). Reduced assembly time 30 minutes per unit, a 99% reduction in assembly time. Human factors studies were performed during the design process.

Performed detailed design load analysis for all fuel assembly lifting fixtures. It was determined through the analysis that fixtures met OSHA 29CFR1910 and NRC regulations.

Performed safety audits. Tested personal protective equipment human body harness and lanyard equipment used on personnel lifts. Determined that the lanyard design was dangerous and had it removed from service permanently. All tooling design was performed using Personal Designer 3-D modeling CAD software. (Layoff. Further layoffs and downsizing continued)

4/91 to
6/91

MORRIS AND ASSOCIATES GARNER, NORTH CAROLINA
Assistant Engineer

Responsibilities included modifying engineering hand drawings for existing products.
(Resigned to seek other employment)

9/81 to
12/90

Enrolled in college classes for bachelor of science degree program in Mechanical Engineering curriculum. Worked part-time and full-time to pay for all college expenses.

11/78 to
4/83

CLARK EQUIPMENT STATESVILLE NORTH CAROLINA

Machinist and Assembly Technician (Per-College Automotive Work Experience)

Manufacturer of heavy off-road earth moving machines, cranes and forklifts. Clark Equipment invented the forklift and the Bobcat and was the main competitor to Caterpillar.

Assembled drive steer, road grader and telescoping crane axle assemblies on both a moving assembly line and fixed assembly bench. Also assembled and tested transmissions and differential units. Ergonomically modified assembly bench cell layout and increased assembly production from 5 Gallion axles per shift to 10 Gallion axles per shift. Was commended by plant manager for production increase. Human factors were taken into consideration during the design process.

Setup and operated high production high precision automatic CNC and NC metal cutting machining centers including vertical and horizontal multiaxis turret lathes, broaches, multispindle drill presses and tapping machines, milling machines, transfer lines, shaft spline rollers, gear shapers and shavers and boring machines.

Set up and operated OD, ID and surface grinders using resinoid and vitrified bonded grinding wheels.

Assisted heat treatment department in heat treating spur and spiral bevel ring and pinon gears, shafts and spindles using methods of oil quenching and induction hardening.

Was a licensed forklift operator for the duration of employment. When required, performed plant wide material handling responsibilities by driving forklifts to load machine cells with pallets of component parts and also distribute materials throughout the facility.

Enrolled at Mitchell Community College evenings part-time for college transfer courses.

(Resigned position to pursue college studies in Mechanical Engineering at NC State)

7/78 to
11/78

BERNHARDT FURNITURE COMPANY STATESVILLE, NC

Machine Operator (Pre-College Work Experience)

Manufacturer of home wood furniture.

Set up and operated various wood working machines and machined wood furniture components to print specifications. Machine types included turning and knife lathes, routers, shapers, sanders, boring machines and dove tail machines.
(Resign position to accept new position with Clark Equipment Company)

1/78 to
6/78

BEAUTYMAID MILLS, STATESVILLE NORTH CAROLINA

Machine Operator (Pre-College Work Experience)

Manufacturer of feminine textile products.

Setup and operated cloth handling machines to unfold and transfer cloth from one spool to another.

Unfolded rolls of cloth to be used for product manufacturing.

Operated electric knives to shear and cut several layers of cloth to the shapes of a paper patterns. (Resigned position to accept new position with Bernhardt Furniture Company)

6/75 to
1/78

KEWAUNEE SCIENTIFIC FURNITURE CORPORATION

STATESVILLE, NORTH CAROLINA

Shipping Clerk (Pre-College Work Experience)

Manufacturer of scientific laboratory furniture.

Shipping clerk. Loaded and unloaded tractor trailer trucks using hand trucks and pallet jacks.

Operated dock levelers to allow trucks access to shipping and receiving. Also operated various wood working machines to machine wood furniture components to print specifications.

(Resigned position to accept new position with Beautymaid Mills)