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Manufacturers' Resource Handbook

Available online at
http://www.cianj.org/roundtables/manufacturing-roundtable/

Bergen Community College

General Information: Vision: Bergen Community College will be a dynamic partner by bridging potential with opportunities for educational, professional and personal growth; Mission: To inspire our community to realize a better future; Values: To fulfill the vision and mission of Bergen Community College, these core values will guide our daily endeavors: learning, excellence, integrity, respect and creativity.

1. Certification Programs offered, relating to manufacturing at Bergen Community College:
    a. Metal Fabrication/CNC Machinist
    Description:
        - Training for high-tech jobs in Advanced Manufacturing
        - 288 hours of hands-on training
        - Graduates will be eligible to receive nationally recognized N.I.M.S. Certification
        - Job placement assistance provided
        - Training includes: Lathes, Milling, CNC, Grinding, Blueprint Reading and more

    b. Welding
    Description:
        - Training provides students with a thorough knowledge of basic welding skills leading to an entry level welding position
        - 150 hours of hands-on training
        - Graduates eligible to receive AWS S.E.N.S.E. Level I Entry Welder Certification
        - Job placement assistance provided
        - Training includes: Shielded and Gas Metal Arc Welding, Welding Fabrication, Rigging, Industrial Safety, Weld Symbol Identification, Blueprint Reading

    c. Certified Production Technician
    Description:
        - Training provides students with a detailed knowledge of all four areas required for CPT Certification:
        - Introduction to Manufacturing and Safety Students will also earn an OSHA 10 hour certification in General Industry upon completion of this course
        - Quality and Measurement
        - Manufacturing Processes
        - Introduction to Manufacturing Maintenance
        - 140 Hours of hands-on training
        - Graduates will be eligible to take the national recognized Manufacturing Skill Standards Council Certified Production Technician (MSSC-CPT) exams

    d. Six Sigma Green Belt
    Description:
        - Training provides students with a through overview of Six Sigma.
        - 40 hour training class
        - Graduates will be eligible to take the ASQ Green Belt Certification Exam

- Training Includes: Rules of Process Improvement, Lean Principles for Six Sigma, Process Management Basics, Team Dynamics and Performance, Process analysis and documentation, Collecting and Summarizing Data, Probability and Statistics, Hypothesis Testing, Improve and Control, Design of Experiments, Implement and Validate Solutions

e. Project Management

Description:

- Training provides students with the knowledge to initiate, plan, execute, monitor/control, and close projects.
- 48 hour training class
- Graduates will be eligible to take the Project Management Professionals (PMP) Certification Exam
- Training includes: Learn all aspects of managing a project, learn the inputs, tools/techniques, and outputs for the 47 project management processes in the 10 Knowledge Areas of the PMBOK Guide

2. Contacts: Cinzia D'Iorio, Manager of Business Development and Ellen Aramini, Director Job Placement Services work directly with employers and students to place students in positions that meet both the employers' and students' needs.

3. Apprenticeships: We are currently working on an apprenticeship program for Advance Manufacturing. Due to funding opportunities through our statewide collaborations, we can offer On the Job Training (OJT) for students and employers who qualify for the program.

4. Additional Information: Bergen Community College works closely with employers to train for the skills they require or anticipate needing in their workforce. On-site training is available in certain fields as well. By working together with employers, potential employees and statewide funding partners, in many instances we are able to secure funds to covers certain training programs.

Essex County College

General Information: The division of Engineering Technology & Computer Science is housed in the Center for Technology building. The CFT has 30,000 square feet of classrooms, laboratories, and office space on two levels. The division offers "A.S." and "A.A.S." Degrees and Certificates of Completion. The courses utilize cutting-edge equipment in spacious laboratories designed for the next generation of engineers, technicians and scientists. The faculty have diverse backgrounds in the applied sciences in both educational and industrial settings. Most have earned doctorates or professional engineering licenses in their field of specialty. The division has eight full time faculty and eighteen adjunct faculty and two administrative personnel.

1. Programs Offered:
    a. Mechanical Engineering Technology-A.A.S. Degree Program, designed to provide a combination of theory and hand-on training in mechanical engineering fields. Courses of study include Engineering Graphics, Mechanics, Mechanics of Materials, Manufacturing Processes and Materials, Modern Manufacturing systems and Robotics, Fluid Mechanics and a Mechanical Engineering Technology Capstone Project. (This program is fully accredited by ABET)
    b. Our division has two certificate programs that would be of interest to manufacturing students:
        i. *Mechatronics Certificate Program*, (30 credits total, of which 11 credits are general education requirements), courses cover topics such as Electric Circuits, Engineering Graphics, Advanced Manufacturing Systems and Robotics, Fluid mechanics, machines and controls and Programmable Logic Controllers. The Mechatronics certificate program was developed to prepare students for careers in automatic controls, which is prevalent in all aspects of Technology, such as Aerospace, Mechanical, Manufacturing, Electrical, and control of systems we use on a daily basis; elevators, traffic lights, heating and ventilation systems. Students will gain practical hands-on experience by training on PLCs and other mechanical processes which simulate real industrial systems. Students are required to complete practical and comprehensive projects that are required for employment as a Mechatronics specialist.
        ii. *Certificate of Completion in Computer-Aided Design Technology*. (24 Credits of which, 10 credits are General Education Requirements) The Computer-Aided Design Technology certificate of completion program is designed to provide students with the knowledge and skills needed to effectively use CAD in any professional environment. Fields in which CAD is used as a basic tool include civil engineering, mechanical engineering, manufacturing engineering, architecture, surveying, and construction.

2. Contacts: Manufacturing Career counseling is done by Academic Professors, Robert Leone 973-877-1861, rleone@essex.edu and Theophilus Acquaye 973-877-3406, acquaye@essex.edu and counseling is also done by the following administrative personnel:
    a. Pamela Maynard, Director of Student development, 973-877-3115, maynard@essex.edu
    b. Maureen Behr, Director of Corporate and Business Training, 973-877-3330, behr@essex.edu

3. Apprenticeships: At present we do not coordinate any apprenticeships.

HoHokus School of Trade and Technical Sciences

General Information: The HoHokus School of Trade and Technical Sciences has more than 10 years of experience in career trade education. Our programs range from 3 to 8 months of practical, intensive, job-oriented training, delivered with an emphasis on personal attention.

The mission of the HoHokus School of Trade and Technical Sciences is to prepare students with the knowledge and skills necessary to qualify for challenging positions in their chosen industry. Our curricula are constantly re-evaluated to ensure they meet the changing needs of employers. Courses keep pace with the technical progress in industry through the regular process of updating programs and equipment at recommendations of our advisory boards. Our objectives are…to offer relevant curricula that meet the demands of the workplace…to ensure that graduates demonstrate professional competency in their chosen fields…to establish and maintain relationships with communities of interest to further the mission of the school and seek additional opportunities for our students and alumni…and, to foster a stimulating educational climate with faculty and staff committed to student success and professional development.

1. Some of our efforts to help manufacturers find skilled workers and fill their positions would be the fact that we have a relationship with the NJMEP, and attend as many meetings as our schedule will allow, during the year, so that we have a grasp of what the current needs are of our manufacturer partners. We are also partners with the NJCCC, which is very involved in the manufacturing trade, offering many ways to get skilled workers trained and employed in the manufacturing field.
2. The certifications which are available to our Manufacturing Technology students are:
    a. OSHA 10 Safety
    b. NIMMS
    c. AWS D1.1
    d. Welding
3. The HoHoKus School of Trade has a Career Development Department where the director of career services works very closely with established employers and with prospective employers on a daily basis. One of the things we do is have many of our employers come visit our school and speak with our students regarding their expectations when hiring new employees.
4. Contact: Lori Markarian, is the Director of Career Services, and can be reached at 973-742-0009, ext. 8415, or by email – lmarkarian@hohokus.edu
5. Apprenticeships: At this time, we do not coordinate apprenticeships in the manufacturing field.
6. Additional Information: We are currently expanding our Manufacturing Technology program by an additional 300 hours. We are including more time for manual machine techniques and a basic entry level CNC training. Our students begin hands-on training from the very first day and are required to regard class as if it is their job. It is this preparedness that will assist our graduates to meet real world demands. In addition, every student upon completion of their program, will have attended a 14 hour Professional Development class, where resumes, cover letters and thank you letters are prepared. Furthermore, the students spend many hours discussing the “soft skills” or “work ethic” topics that employers across the board are looking for in their new employees.

Middlesex County College

General Information: Middlesex County College (MCC), located in Edison, NJ, offers a number of two-year degrees as well as credit and noncredit certificate programs that help prepare individuals for employment in the manufacturing field.

The **MCC Engineering Technologies Department** offers Associate in Applied Science degree programs that include *Mechanical Engineering Technology*, *Electrical Engineering Technology*, and *Civil Engineering Technology*. These programs are accredited by the Engineering Technology Accreditation Commission of ABET which ensures that graduates have met the educational requirements necessary to enter the profession and provides opportunities for the industry to guide the educational process to reflect current and future needs. Other MCC Engineering Technologies programs include *Engineering Science*, *Process Technology*, and *Computer Aided Drafting*.

Through its **Continuing Education Division**, Middlesex County College offers noncredit Certificate Programs in *Management* as well as *Human Resources*. In addition, the MCC *Project Management* Certificate Program offers coursework for individuals who are preparing for the Project Management Institute *Project Management Professional (PMP)®* or *Certified Associate in Project Management (CAPM)®* exams.

MCC **Continuing Education** also provides **customized training** for companies and organizations at employer locations or on our campus. Training initiatives include *Literacy Skills*; *Communication and Interpersonal Skills*; *Supervisory, Management and Leadership Skills, including Executive Coaching*; *Change Management*; *Team Building*; *Time Management and Personal Productivity*; *Total Quality Management*; *Project Management*; *Supply Chain Management*; *Computer and Information Technology*; *Workplace Safety: Pallet Safety and Pallet Jack Training*; and *CNC Metal Fabrication,* etc.

In addition, MCC **Continuing Education** works with employers to provide training to incumbent and dislocated workers through NJ Department of Labor and Workforce Development grant funded training initiatives such as *Skills Partnership* and *Opportunity Partnership* grants.

1. The **following certification programs** may be of interest to manufacturers. In addition, Middlesex County College continuously develops new certification programs to meet the needs of employers.
    a. CNC Metal Fabrication (282 hour course): Participants received training that qualifies them to sit for the *NIMS Machining Level 1 credential*. https://www.nims-skills.org/web/nims/6
    b. Project Management Certificate Program offers coursework for individuals who are preparing for the Project Management Institute *Project Management Professional (PMP)®* or *Certified Associate in Project Management (CAPM)®* exams. http://www.pmi.org/certification.aspx
2. **Career Counselors:** Middlesex County College Office of Career Services works with prospective employers for job placement. There are several options for employers to meet with students who may be prospective job candidates or to advertise available positions. These include scheduling on-campus recruiting, posting positions on the MCC Career Services Job Site, or participating in MCC Job and Career Fairs.
    a. Also, through our grant funded customized training efforts, MCC Continuing Education works with employers to provide training to incumbent and dislocated workers and provide employment opportunities to them.
3. **Contacts:**

a. For MCC Career Services, contact Charlotte Quigley, Manager, at (732) 906-2595 or career-services@middlesexcc.edu
b. For MCC Continuing Education customized training initiatives, contact Nick DeMatteo, Director, Corporate Education and Training, at (732) 906-4681 or NDematteo@middlesexcc.edu

4. **Apprenticeships:** Not offered at this time but may develop this initiative in the future.
5. **Additional information:**
    a. For information about Middlesex County College, visit http://www.middlesexcc.edu/
    b. For specific information about Middlesex County College Corporate Education and Training, visit http://www.middlesexcc.edu/continuing-education/corporate-education/
    c. For specific information about Middlesex County College, visit http://www.middlesexcc.edu/engineering-technologies/

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Manufacturing Related Programs at NJ's County Vocational-Technical Schools

New Jersey's 21 county vocational-technical schools offer a wide range of career programs that have direct application to manufacturing industries in New Jersey. These include:

- Engineering/STEM
- Computer assisted design (CAD)
- Machine technology and repair
- Logistics and supply chain management
- Welding
- Mechatronics
- Diesel and auto technology
- Computer programming and repair

Programs with specific focus on manufacturing:

Bergen County - Applied Technology High School

This new program opening in September 2015 will provide students with a unique educational experience through a blend of academic high school curriculum, college classes, and hands-on technical education. With a curriculum that is centered on "smart machines," students will learn to apply math, science, and technology to hands-on projects in the fields of automation, electronics, and advanced manufacturing. Through this program, students will learn essential skills needed to pursue a career in a wide variety of areas including engineering technology. This training will be coupled with the dual enrollment coursework needed to allow students to earn advanced standing into several, technical associates degree programs at Bergen Community College including an A.A.S. program in General Engineering Technology.

Graduates with a degree in engineering technology will help fill a critical workforce need as they work to install, maintain, and support the increasing number of automated manufacturing systems that are projected to return much of the production that has been outsourced over the past decade back into factories here in the U.S. Graduates from a two or four year program in engineering technology qualify as technicians and seek employment in a variety of sectors including manufacturing, construction, and production design.

Contact: Andrea Sheridan, assistant superintendent, 201-343-6000

Burlington County – Engineering Technology Academy

A new Electronic and Computer Engineering Academy to launch in September 2015 at Burlington County Institute of Technology's Medford Campus will include opportunities to explore many different elements of engineering with direct application to the manufacturing industry, digital logic, micro-controllers, circuit analysis, finite state machines, and object-oriented programming.

Contact: Dr. Todd Bonsall, assistant superintendent, 609-267-4226

Camden County – Pre-engineering – Industrial Track

The pre-engineering program enables students to experience applied practices in civil, mechanical, computer, environmental, industrial, and electrical engineering. Students use computers, engineering graphics, testing

devices and equipment, and math/science principles in a laboratory setting to solve the real-world problems that confront engineers. This program emphasizes problem solving, critical thinking, the development of strong communication skills, and the legal and professional ethics of engineering.

The pre-engineering curriculum focuses on the engineering practices of designing, analyzing and improving new and existing designs as well as teaching design and programming. Third year students have the option to specialize in: 1) Computer Integrated Manufacturing (CIM), how to design and program on Computer Numeric Control (CNC) devices, Rapid Prototyping, and 3D Rendering, or 2) Digital electronics, automation and Programmable Logic Controllers (PLC), or 3) Civil Engineering, Architecture and Computer-Aided Design (CAD).
Contact: Patricia Fitzgerald, superintendent, 856-767-7000

Cape May County

The Cape May County Technical School District addresses manufacturing industry needs through various CTE programs. Welding Technology trains students in the use of the oxy-acetylene process, metal cutting, welding, brazing and soldering, with various types of arc welding. Program completers have the opportunity to attain an American Welding Society (AWS) certification and college credit. We also offer a range of evening arc welding classes for adult skill development through our continuing education division. Growing from this success, we plan to open a new twilight evening post secondary program for adults to gain industry aligned CTE skills and attain additional industry manufacturing certification.

Manufacturing is also infused in our Project Lead The Way Curriculum with the addition of 3-D design and printing, utilizing STEM-based curriculum, along with next year's planned addition for laser engraving. From boat-building to bridge construction to computer design and development, manufacturing is alive and well in Cape May County.

Contact: Nancy Hudanich, superintendent, (609) 465-2161

Hudson County– Force 21: Design, Fabrication and Mechatronics

This new program focused on design, fabrication and mechatronics will grow the next generation of technology workers through skill development and flexible degree pathways. With multiple access points and degree/training options for learners from high school through college, the program is being planned and implemented in collaboration with employers such as Eastern Millwork and higher education partners including Hudson County Community College, NJ City University and NJIT. The program will utilize the dual training model employed in Germany, through which students will learn in school and on the job.

Contact: Alyson Krone, assistant principal201-662-6809

Middlesex County - Pre-Engineering and Manufacturing Technology

Middlesex County Vocational and Technical Schools recognizes the need for a secondary level advanced manufacturing program in Middlesex County and is committed to opening a Pre-Engineering and Manufacturing Technology career major in September 2015 at the East Brunswick campus. With consultation from business and industry across the county and state, this program will prepare students to apply basic technical skills and basic engineering principles to install, troubleshoot and support the production process for a wide array of automated manufacturing employers.

The Pre-Engineering and Manufacturing Technology program will include instruction on tools, materials, production process, machine operations, automated line operations, technical and quality control, engineering analysis, instrumentation, programmable logic controllers (PLCs), electronics, hydraulics and pneumatics, process control, computer aided design (CAD), computer-aided manufacturing (CAM), and robotics.

Contact: Sean McDonald, supervisor of career and technical education, 732-257-3300

Morris County – Engineering Design and Advanced Manufacturing

The Engineering Design and Advanced Manufacturing (EDAM) program offers high school juniors and seniors the opportunity to take classes in engineering, computer science, electronics and other technology applications to earn 32 college credits before high school graduation. Students enrolled in this program will also earn County College of Morris Certificates of Achievement in Mechanical Computer Aided Drafting and in Engineering Technology.

Located on the campus of the County College of Morris (CCM), this two-year high school program EDAM students to learn in CCM's newly remodeled engineering labs to obtain key skills to work in the rapidly expanding field. EDAM program partners include Manufacture NJ Talent Network, New Jersey Business and Industry Association, National Manufacturing Company, Siemens HealthCare and New Jersey Manufacturing Extension Program. These partnerships provide students with work-based learning experiences to gain hands-on training and an inside track to employment opportunities upon program completion.

EDAM program completers also have the option of continuing at CCM to earn an associate's degree in Mechanical Engineering Technology just one year post high school graduation. Students earning this associate's degree will be able to transfer to New Jersey Institute of Technology and earn a bachelor's degree in Engineering Technology or a related field.

Contact: Shari Castelli, supervisor of career and technical education, 973-627-4600 X206

Passaic County - Manufacturing Technology

The manufacturing technology program introduces young minds to the metal fabrications industry. The goal of the course work is to prepare students for entry-level employment in the machining industry or to continue on to post-secondary training. Students work in a state of the art manufacturing training facility. The shop is equipped with a computer lab offering training in MasterCam, and has a production floor equipped with manual lathes, mills, surface grinders, saws and surface grinders. The CNC lab is equipped with state of the art HAAS lathes and mills. Students are encouraged to explore various career opportunities through job shadowing opportunities offered through our School to Careers Department and with the assistance of strong industry partnerships. The program consistently has placed more that 50% of the senior class in cooperative education experiences for the last 4 years. Recently the program has adopted an articulation agreement with Bergen Community College offering 6 credits in Applied Metrology and Machine Tool Principles. Upon completion of this comprehensive program, students are afforded the opportunity to either enter the workforce, continue to post secondary training or a combination of both pathways.

The school also offers manufacturing related programs in welding and pre-engineering.

Contact: Mark Cacace, school to careers coordinator, 973-389-4152

Somerset County – Computer Assisted Design (CAD), Manufacturing & Engineering

The Somerset County Vocational and Technical School (SCVTS) is creating a new career and technical education program that addresses the need for a technically educated workforce for relevant industry sectors, while contributing to local, state and federal economies. The program will emphasize a diverse set of social, technical and academic skills, while exposing youth to current and relevant career options capable of challenging them beyond their initial employ. These will include career pathways in computer assisted design (CAD), manufacturing and engineering.

This career pathway capitalizes on existing collaborations of the Somerset County Business Partnership and partnerships with Raritan Valley Community College (RVCC), New Jersey Institute of Technology (NJIT), William Paterson University, key business and industry partners, the Greater Raritan Workforce Investment Board (GRWIB), and Somerset County Educational Services Commission (SCESC). Students will be able to earn dual and articulated credits leading to an industry credential and/or a college degree. Opportunities for internships and job shadowing will further augment career readiness skills.

Contact: Dr. Chrys Harttraft, superintendent, 908-526-8900

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NJ County Vocational-Technical School Contacts for Employers

Connecting with the county vocational-technical schools in your area can reap real short-term and long-term benefits for employers. This list of New Jersey county vocational-technical school contacts was created especially for employers to make a direction connection with their local county vocational-technical schools to access talent or help shape their future workforce.

Students at county vocational-technical schools take a full academic program and they learn both technical skills and the workplace skills that employers value – like responsibility, teamwork, communications and creative thinking. If the county vocational-technical schools in your area are providing high school students or adults with the technical skills you need now, you will have access to a pool of potential future employees. You could offer internships, apprenticeships and co-op programs to people who could be helpful to your company.

Most students at county vocational-technical schools are preparing for careers and further education in their chosen fields, so you can also be directly involved in making sure that what they are learning today meets the current and projected future standards in your industry. You or members of your staff can serve on specific program advisory boards or as student mentors, to help shape the workforce of the future.

To see the list of career and technical education opportunities offered in your county, click on the name of the school. Then call the person listed below to find out more about the programs and possible apprenticeships, interns or future employees, or to get involved with the school as an advisory board member, mentor or supporter.

Atlantic County Institute of Technology http://www.careertechnj.org/atlantic-county/ Dr. Philip Guenther, Superintendent, 609-625-2430

Bergen County Technical Schools http://www.careertechnj.org/bergen-county/ Andrea Sheridan, Assistant Superintendent, 201-343-6000 ext. 4012

Burlington County Institute of Technology http://www.careertechnj.org/burlington-county/ Dr. Chris Manno, Superintendent, 609-267-4226, ext. 200

Camden County Technical Schools http://www.careertechnj.org/camden-county/
Siobhan Kelly, Coordinator of Job Placement and Cooperative Education, 856-767-7000, ext. 5265

Cape May County Technical School District http://www.careertechnj.org/cape-may-county-2/ Nancy Wheeler-Driscoll, Director of Career and Technical Education, 609-425-2161, ext 694

Cumberland County Technical Education Center http://www.careertechnj.org/cumberland-county-technical-education-center/
Patrick Cruet, Principal, 856-451-9000, ext. 226

Essex County Vocational Technical Schools http://www.careertechnj.org/essex-county-vocational-technical-schools/
John Dolan, Director of Career and Technical Education, 973-412-2221

Gloucester County Institute of Technology http://www.careertechnj.org/gloucester-county-institute-of-technology/
Gina Mateka, Principal, 856-468-1455, ext. 2502

Hudson County Schools of Technology http://www.careertechnj.org/hudson-county/ Linda Quentzel, Director of Development, 201-662-6794

Hunterdon County Polytech http://www.careertechnj.org/hunterdon-county-polytech/ Dr. Kim Metz, Superintendent, 908-788-1119, ext. 2001

Mercer County Technical Schools http://www.careertechnj.org/mercer-county-technical-schools/ Sharon Nemeth, Principal, 609-587-7640, ext. 3011

Middlesex County Vocational & Technical Schools http://www.careertechnj.org/middlesex-county-vocational-and-technical-schools/
Brian Loughlin, Superintendent, 732-257-3300, ext. 1911

Monmouth County Vocational School District http://www.careertechnj.org/monmouth-county-vocational-school-district-2/
Tim McCorkell, Superintendent, 732-431-7946

Morris County School of Technology http://www.careertechnj.org/morris-county-school-of-technology/
Gina DiDomenico, 973-627-4600, ext. 270

Ocean County Vocational-Technical School http://www.careertechnj.org/ocean-county-vocational-technical-schools/
Nancy Weber-Loeffert, Assistant Superintendent, 732-240-6414, ext. 3332

Passaic County Institute of Technology http://www.careertechnj.org/passaic-county-technical-institute/
Robert Gray, Assistant Principal and School to Careers Supervisor, 973-389-4220

Salem County Vocational-Technical Schools http://www.careertechnj.org/salem-county-vocational-technical-schools/
Jason Helder, Principal, 856769-0101, ext. 5374

Somerset County Vocational & Technical Schools http://www.careertechnj.org/somerset/ Dr. Chrys Harttraft, Superintendent, 908-526-8900, ext. 7212

Sussex County Vocational Schools http://www.careertechnj.org/sussex-county-technical-schools/ Gus Modla, Superintendent, 973-383-6700, ext. 211

Union County Vocational-Technical Schools http://www.careertechnj.org/union-county-vocational-technical-schools/
Lisa Tauscher, Principal, 908-889-8288, ext. 313

Warren County Vocational-Technical School http://www.careertechnj.org/warren-county-technical-school-district/
Ray Gara, CIE/Apprenticeship/Perkins Coordinator, 908-835-2841