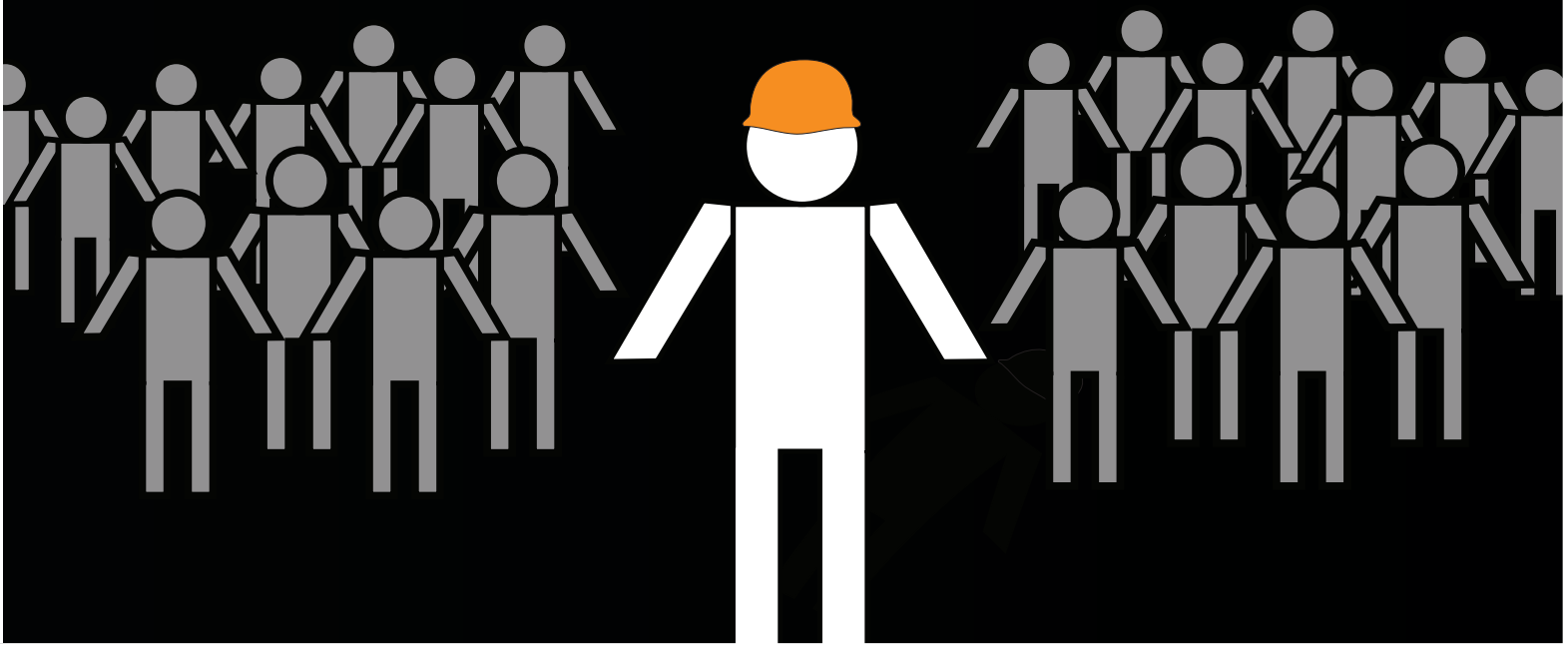
2021 ENGINEERING

Special Virtual Edition

"No profession unleashes the spirit of innovation like engineering. From research to real-world applications, engineers constantly discover how to improve lives by creating bold new solutions that connect science to life in unexpected, forward-thinking ways. Few professions turn so many ideas into so many realities. Few have such a direct and positive effect on people's everyday lives. We are counting on engineers and their imaginations to help us meet the needs of the 21st century."

-National Academy of Engineering



Accreditation Board for Engineering and Technology, Inc. (ABET) (www.abet.org)

Accredited Programs Leading to Degrees in Engineering in New Jersey

New Jersey Institute of Technology
Newark, New Jersey (www.njit.edu)
- Chemical Engineering (BS)
- Civil Engineering (BS)
- Computer Engineering (BS)
- Electrical Engineering (BS)
- Industrial Engineering (BS)
- Mechanical Engineering (BS)

Rowan University
Glassboro, New Jersey (www.rowan.edu)
- Chemical Engineering (BS)
- Civil Engineering (BS)
- Electrical and Computer Engineering (BS)
- Mechanical Engineering (BS)

Stevens Institute of Technology
Hoboken, New Jersey (www.stevens-tech.edu)
- Chemical Engineering (BE)
- Civil Engineering (BE)
- Computer Engineering (BE)
- Electrical Engineering (BE)
- Engineering (BE)
- Engineering Management (BE)
- Environmental Engineering (BE)
- Mechanical Engineering (BE)

Farleigh Dickinson University
Teaneck, New Jersey (www.fdu.edu)
- Electrical Engineering (BS)

The College of New Jersey
Ewing, New Jersey (www.tcnj.edu)
- Computer Engineering (BSCoE)
- Electrical Engineering (BSEE)
- Engineering Sciences (BS)
- Mechanical Engineering (BSME)

Rutgers University
New Brunswick, New Jersey (www.rutgers.edu)
- Bioresource Engineering (BS)
- Ceramic Engineering (BS)
- Chemical Engineering (BS)
- Civil Engineering (BS)
- Electrical and Computer Engineering (BS)
- Industrial Engineering (BS)
- Mechanical Engineering (BS)

Monmouth University
West Long Branch, New Jersey
- Software Engineering (BSEE)

Princeton University
Princeton, New Jersey
- Aerospace Engineering (BS)
- Chemical Engineering (BS)
- Civil Engineering (BS)
- Electrical Engineering (BS)
- Mechanical Engineering (BS)

Accredited Programs Leading to Degrees in Engineering Technology in New Jersey

Burlington County College
Pemberton, New Jersey (www.bcc.edu)
- Electronic Engineering Technology (AS)

DeVry University
North Brunswick, New Jersey (www.devry.edu)
- Electronic Engineering Technology (BSEET)
- Electronic Engineering Technology (AS)

Essex County College
Newark, New Jersey (www.essex.edu)
- Civil Construction Engineering Technology (AAS)
- Manufacturing Engineering Technology (AAS)
- Manufacturing/ Mechanical Engineering Technology (AAS)

Farleigh Dickinson University
Teaneck, New Jersey (www.fdu.edu)
- Civil Engineering Technology (BS CivET)
- Construction Engineering Technology (BS ConET)
- Electrical Engineering Technology (BSEET)
- Mechanical Engineering Technology (BSMET)

Morris County College
Randolph, New Jersey (www.ccn.edu)
- Electronic Engineering Technology (AAS)
- Mechanical Engineering Technology (AS)

New Jersey Institute of Technology
Newark, New Jersey (www.njit.edu)
- Construction Option in Engineering Technology (BS)
- Electrical & Computer Option in Engineering Technology (BS)
- Manufacturing Option in Engineering Technology (BS)
- Mechanical Option in Engineering Technology (BS)
- Surveying Option in Engineering Technology (BS)

Passaic County Community College
Passaic, New Jersey (www.pccc.edu)
- Electronic Engineering Technology

WSP is one of the world's leading professional services consulting firms with over 48,000 talented individuals in more than 500 offices across the globe. We are a team of technical experts and strategic advisors comprised of engineers, technicians, scientists, architects, planners, surveyors, environmental specialists, program and construction management and advisory professionals relied on by our clients in the Transportation & Infrastructure, Property & Buildings, Environment, Industry, Resources (including Mining and Oil & Gas) and Energy sectors, to design lasting solutions that will address their unique and critical needs. WSP staff is dedicated to improving the communities in which we live and work, and help societies grow for lifetimes to come. In New Jersey, we have over 270 professional, technical and administrative staff that work together to deliver innovative products to our clients, predominantly in the field of transportation, from planning studies to concept development, design, through to construction completion.

Dewberry has been a leader in the planning, design, and program management professions for the last half-century. We work in partnership with public and private sector clients locally, regionally, and nationally. Our multi-disciplinary staff includes engineers, architects, planners, surveyors, environmental scientists, and many specialized experts. Dewberry offers clients an integrated service approach with a commitment to value and performance. Matt Alboum will offer his experience and guidance as it pertains to Highway Engineering, his college experience, and valuable information on careers in engineering.

Ethicon is a global leader in suture products and suture technology, and is one of the most recognizable and well respected brand names in the hospital environment. Also, within the ETHICON portfolio, are the wound closure technologies designed to improve lives by advancing the standard of care in tissue repair. Howard will discuss his experience as a Biomedical Engineer for the last 30 years, including working in the Orthopedic and Wound Closure areas where he has invented and developed innovative products to improve patients' lives. Presenter: Howard Scalzo - Presentation: Biomedical Engineering - Research and Industry Trends

Public Service Electric and Gas Company (PSE&G) is one of the largest combined electric and gas companies in the United States and is also New Jersey's oldest and largest publicly owned utility. The Public Service Corporation was formed in 1903 by amalgamating more than 400 gas, electric and transportation companies in New Jersey. It was renamed Public Service Electric and Gas Company in 1948. PSE&G is the largest subsidiary of PSEG. PSE&G has a proud tradition of delivering safe, `reliable gas and electricity to New Jersey customers. PSE&G serves 2 million electric customers and 1.6 million gas customers in New Jersey. This is nearly three-quarters of New Jersey's population in a service area consisting of a 2,600 square-mile diagonal corridor across the state from Bergen to Gloucester Counties, including New Jersey's six largest cities. Olumide Talabi is a Staff Engineer in Gas Delivery; Igol Spence is a Service Supervisor in Service Operations within PSE&G. They will present what it takes to "Get Into Energy" and a present a sample of engineering careers at PSEG. Presenters: Olumide Talabi and Igol Spence - Presentation: Power, Electricity, & Natural Gas: Generating & Delivering Today's Energy in NJ

The Port Authority of New York and New Jersey manages and maintains the bridges, tunnels, bus terminals, airports, PATH and seaports that are critical to the bi-state region's trade and transportation capabilities. Through our facilities and services, people are able to make vital connections and businesses are able to grow. Providing safe and efficient travel is our highest priority, and enhancing the well being of everyone who lives, works and travels here is our strongest commitment. Presentation: Overview of the PANYNJ & the Engineering Department Current Construction Projects Presenters: Matthew Paugh, Soufyane KhechaThe Brick Township Municipal Utilities Authority.

New Jersey Natural Gas is the principle subsidiary of New Jersey Resources which provides reliable energy and natural gas services including transportation, distribution, and asset management in states from the Gulf Coast to the New England regions, including the Mid-Continent region, the West Coast and Canada, while investing in and maintaining an extensive infrastructure to support future growth. With over $2.5 billion in annual revenues, NJR safely and reliably operates and maintains 6,700 miles of natural gas transportation and distribution infrastructure to serve over a half a million customers. NJR develops and manages a diverse portfolio of transportation capacity and 52 billion cubic feet of storage capacity to approximately 150,000 homes and businesses. Through Conserve to Preserve®, NJR is helping customers save energy and money by promoting conservation and encouraging efficiency. Dave and Jeff will provide background on the natural gas industry, discuss engineering careers at NJNG, while demonstrating some of the technology used and the scope of projects undertaken. They will show how studying a broad cross section of engineering provides more opportunities for employment. Presenters: David Menaker, P.E. & Jeff Holman - Presentation: Civil & Mechanical Engineering For Gas Distribution.

FUNCTIONS OF ENGINEERING

RESEARCH AND DEVELOPMENT: R&D Engineers usually work with fundamental scientific principles to design practical solutions for real-life situations. Creativity is fundamental to their work. They often work on teams with scientists and handle some of the more practical aspects of the invention process. Their focus is to improve upon what has already been invented and to apply new technologies to new or different applications. Individuals performing this function enjoy working alone or in small teams. They usually acquire degrees above the Baccalaureate level.

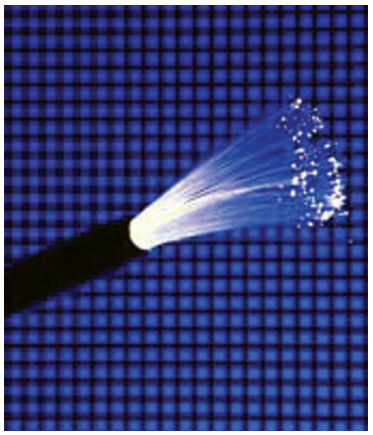
DESIGN: Design Engineers apply fundamental research, using math, science and knowledge of engineering principles. The end result achieved by design engineer is a blueprint for a safe, functional and cost effective solution. They may work in teams with other design professionals including engineers, architects and technicians. Although not a requirement, many earn at least one graduate degree in a chosen field of specialization.

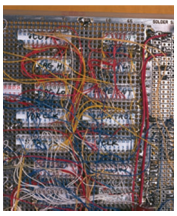
SYSTEMS ENGINEERING: These are engineers who look at the "big picture" of engineering projects. Their role is to integrate into a complete system the individual sub-systems of the Design Engineer. For example, in a major aeronautical project, the Systems Engineer would ensure the appropriate integration of the structure, propulsion, controls, aerodynamics, and related design sub-systems. They may obtain an advanced degree in engineering or in another area.

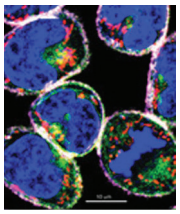
APPLICATIONS: These engineers work in manufacturing and field operations to apply the work products of the two preceding functions. They may be the people in charge of factories, specifying what equipment and materials will be used in products and processes. They usually have responsibility for the safety of the workers in the factory or field as well as the safety of the products being made or systems being implemented. Advanced degrees are optional.

SALES: Engineers that like to meet people and solve their technical problems make the best sales engineers. Their customers are usually other engineers that need specialized help with complicated equipment for their factories or for their difficult projects. These engineers travel a lot and are constantly meeting people because of the demand for their special products or services. In many cases, these engineers opt to earn an advanced degree in business.

SPECIALTY ENGINEERS: These include Consulting Engineers who are retained to provide technical expertise with a difficult problem or for a solution that the hiring entity does not possess internally. Patent attorneys are almost always engineers who pursue legal education. Marketing professionals frequently build on an undergraduate engineering degree.







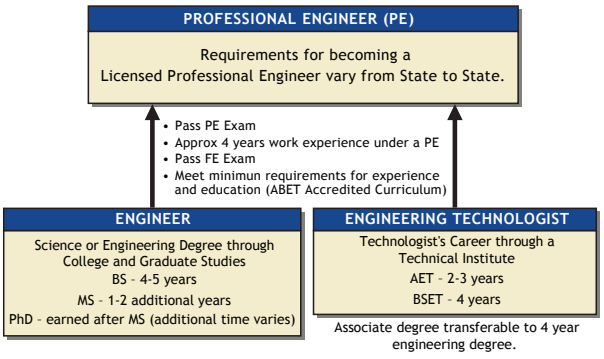
FIELDS OF ENGINEERING

TRADITIONAL: Bachelor Degrees in Chemical, Civil, Electrical, Industrial, and Mechanical Engineering have been the norm.

SPECIALTY: More recently, students are pursuing undergraduate engineering degrees in fields like Acoustics, Aeronautics, Bio-Medicine, Construction, Energy, the Environment, Heating and Cooling, Pharmacy, Structures, and many others.

Alternatively, depending on the function pursued by an engineer with a Bachelor's degree, one may obtain specialized, academic training by earning graduate degree(s) in one or more of these or other fields.

PROFESSIONAL ENGINEER: Engineers performing certain types of work -especially DESIGN and APPLICATIONS- are required, by state laws protecting the public's health and welfare, to be licensed by passing two exams and acquiring a requisite amount of experience.

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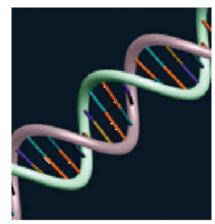

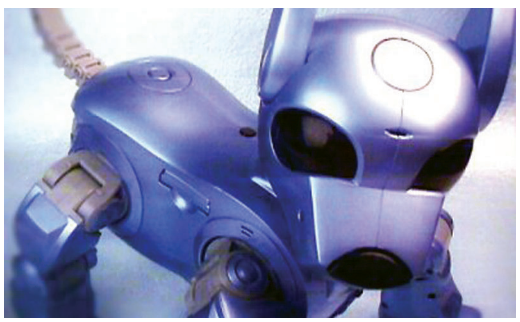

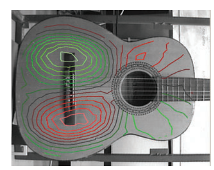

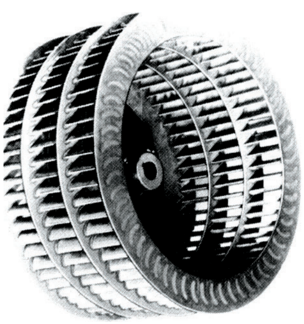



The ***New Jersey Society of Professional Engineers***, a State Society affiliate of the National Society of Professional Engineers, is an association that is...

- *...committed to safeguard the public's health and safety by ensuring that the practice of engineering is performed by properly qualified individuals in accordance with New Jersey statutes and regulations.*
- *...organized to serve the needs of Professional Engineers, Engineers-in-Training, and other engineering graduates of an ABET-accredited curriculum on the licensure track.*
- *...dedicated to establishing, observing, and enforcing the highest ethical standards.*
- *...devoted to the non-technical issues of all Professional Engineers - regardless of employment or engineering discipline.*
- *...engaged in focusing public attention on the functions and accomplishments of Professional Engineers.*

For more information about NJSPE go to www.njspe.org.
For more information about the National Society go to www.nspe.org.

The ***NJSPE Educational Foundation*** is a tax-exempt organization dedicated to enhancing career opportunities in the engineering profession for pre-college students and college graduates. The Foundation conducts activities such as the following in pursuit of its goals:

- MATHCOUNTS competition for middle grade students
- Career guidance by working engineers for high school students, including the annual Career Day event
- Scholarships for students pursuing engineering college curricula
- Ongoing continuing education courses to maintain competencies, providing Professional Development Hours for licensure renewal
- Extended leadership development training to augment technical skills through the Institute for Professional Leadership
- Provides volunteers for other student programs, including Future City and *FIRST* Robotics Competition

For more information about the NJSPE Educational Foundation go to www.njpse.org

NSPE-NJ™ NEW JERSEY SOCIETY OF PROFESSIONAL ENGINEERS

2019 Engineering Career Day

www.njspe-careerday.org

A Program of the NJSPE Educational Foundation

Career Day Committee

Chairman – Michael Testa, PE
Treasurer – Richard Adelsohn, PE
Facilities - James DeTata, PE
High Schools – Mark Rohmeyer, PE
Enterprises – Joseph Michiels, PE. Matthew Alboum, PE
Colleges & Universities – Diano Tarabocchia
Logistics – Diano Tarabocchia
General Sessions – Elissa Commins, PE, Gene O'Brien, PE, F.NSPE

A Special Thanks to:

Frank H. Lehr Associates
The Office of the Ocean County Engineer
Brick Township Engineering Department
Middlesex County College
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