NOVA | Northern Virginia Community College
Business Engagement and Career Services

Opportunities in STEM (Science, Technology, Engineering, and Mathematics)



Career Resources Guide

Introduction

As students navigate their academic journey, understanding career pathways is essential for making informed decisions about their future. Career planning involves recognizing industry trends, identifying potential employers, and equipping oneself with the necessary skills and qualifications to succeed in their selected field. This guide aims to provide an in-depth exploration of NOVA's six key career fields—Business and Finance, Construction & Skilled Trades, Healthcare, Information Technology, Public Administration, and STEM (Science, Technology, Engineering, and Mathematics)—highlighting top employers, in-demand job titles, resume, cover letter, and interview strategies, as well as programs of study (majors) at Northern Virginia Community College (NOVA) that lead to careers in each field. Beyond this guide, students can learn more information and opportunities in these key fields here .



Top Employers (by Number of Positions)

The following table lists the top employers in the STEM (Science, Technology, Engineering, and Mathematics) industry based on number of positions. These organizations are known for contributing to their industries and offering competitive employment opportunities. The data reflects the organizations identified through the analysis of labor market information provided by the Fairfax County Economic Development Authority (FCEDA) and Arlington Economic Development (AED).

1. Airbus	6. Booz Allen Hamilton
2. Peraton	7. General Dynamics
3. Rolls-Royce	8. Boeing
4. Northrop Grumman	9. SAIC
5. Leidos	10. Trellix

Note. This table is illustrative and not exhaustive. For comprehensive and up-to-date information, please refer to the respective organizations' publications.

Sources:
https://fairfaxcountyeda.org/key-industries/
https://www.arlingtoneconomicdevelopment.com/Key-Industries

Top Job Titles



Understanding the most sought-after job titles in the STEM (Science, Technology, Engineering, and Mathematics) industry can help students tailor their career preparation. Below are some key job titles in the Washington-Arlington-Alexandria, DC-VA-MD-WV area, based on the latest data from the U.S. Bureau of Labor Statistics .

1. Engineers
   (Electrical Engineers, Mechanical Engineers, Electronics Engineers, Computer Hardware Engineers, Aerospace Engineers, etc.)
2. Biological Scientists
3. Natural Sciences Managers
4. Medical Scientists
5. Economists
6. Statisticians
7. Environmental Scientists and Specialists
8. Physical Scientists
9. Chemists
10. Physicist

Note. This table is illustrative and not exhaustive. For comprehensive and up-to-date information, please refer to the respective organizations' publications.

Source: https://www.bls.gov/oes/2023/may/oes_47900.htm

Resume and Cover Letter Tips

Resume and cover letter templates are widely available online, offering various options for different professional levels, including college students entering the workforce. Websites are available to provide resume and cover letter templates. When selecting a template, consider the following tips to ensure it highlights your strengths and aligns with your career goals:

Pick the Right Format:

- **Chronological:** Ideal for those with relevant work experience, as it highlights your job history. This format is popular among employers who value experience.
- **Functional:** Best for those with limited work experience or gaps in their employment history, as it focuses on skills rather than past positions.
- **Combination:** A balanced format that showcases both skills and experience. This is a good choice if you have some experience but also want to emphasize skills.

Know Your Audience: Different industries have different expectations. For example, a creative resume template may be suitable for graphic design roles, while a more professional template is better for law or banking. When in doubt, choose a simple, clean design.

Play to Your Strengths: Choose a template that reflects your professional personality. The template should showcase your skills, interests, and experience in a way that feels authentic to you.

Ask for Feedback: Before finalizing your resume, consider seeking input from trusted friends, family, or mentors. They can offer valuable perspectives on what works best.

Source: https://www.hloom.com/resume/templates

Tailoring Your Resume and Cover Letter



Resume Tips

A STEM resume should start with a concise and targeted summary or objective statement. Education should be highlighted, and relevant experience should be outlined. Technical skills should be listed, and specific courses completed that are relevant to the position should be identified. Any honors, awards, or scholarships related to STEM should be highlighted.

Cover Letter Tips

The cover letter should demonstrate technical skills, and experience with specific examples. The knowledge of safety practices and regulations should be emphasized, and problem-solving abilities should be showcased. The cover letter needs to be professional and concise.

Sample Resume

Your Full Name

Your City, State, ZIP
Your Email Address | Your Phone Number | LinkedIn Profile

Objective

Motivated and detail-oriented Engineering Technology student at Northern Virginia Community College seeking an entry-level role in a technical or engineering environment. Eager to apply academic knowledge and experience in electrical systems, CAD design, and safety practices to contribute to innovative projects and further develop skills.

Concise and targeted summary

Education

Northern Virginia Community College – Annandale, VA
Associate of Applied Science in Engineering Technology *(Expected: [Month, Year])*

- Relevant Coursework: Electrical Circuits, Mechanical Systems, Computer-Aided Drafting (AutoCAD & SolidWorks), Engineering Materials, Technical Writing
- GPA: [Your GPA, if 3.0 or above]
- Honors: [Dean's List/Honors Program/Any STEM Scholarship if applicable]

Technical Skills

Includes technical skills

- **Software:** AutoCAD, SolidWorks, MATLAB, Microsoft Excel
- **Hardware & Tools:** Multimeters, Oscilloscopes, PLCs
- **Technical Areas:** Electrical systems, Mechanical design, Blueprint reading, Troubleshooting
- **Safety & Compliance:** OSHA knowledge, lab safety procedures

Projects & Experience

Outline of relevant experience

Circuit Troubleshooting Project – NOVA Engineering Lab

- Diagnosed and repaired faulty circuit boards using multimeters and oscilloscopes
- Applied knowledge of Ohm's Law and circuit analysis to improve system efficiency

Mechanical Assembly Design – Class Project

- Designed a gear-driven mechanical system using SolidWorks
- Collaborated in a team to simulate and test the assembly for stress and motion

Computer-Aided Drafting Coursework

- Created and interpreted 2D and 3D engineering drawings in AutoCAD
- Followed ANSI standards and engineering documentation best practices

Work Experience

[Job Title or Part-Time Role] – [Company Name]
[City, State] – [Month, Year] to [Month, Year]

- Briefly describe transferable skills: teamwork, communication, time management, etc.

Leadership & Involvement

STEM Club Member – Northern Virginia Community College

- Participated in engineering workshops and peer mentoring activities

Certifications

- OSHA 10-Hour Safety Certification
- [Any relevant technical certificate, e.g., AutoCAD certification]

Sample Cover Letter

Your Full Name
Your City, State, ZIP
Your Email Address | Your Phone Number

Date: [Insert Date]

[Recipient's Name]
[Recipient's Title]
[Agency/Organization Name]
[Address]
City, State, ZIP

Dear [Recipient's Name],

I am writing to express my interest in an entry-level position in the [Job Title] position with [Organization Name]. I am currently pursuing an Associate of Applied Science in Engineering Technology at Northern Virginia Community College and am eager to apply my technical knowledge and hands-on training in a professional setting.

States why applicant is interested in the position.

Through my coursework in electrical systems, mechanical design, and computer-aided drafting (CAD), I have developed a strong foundation in engineering principles and problem-solving. I have completed projects that involved troubleshooting electronic circuits and utilizing industry-standard software such as AutoCAD and SolidWorks. These experiences have strengthened my attention to detail and ability to work collaboratively to find effective solutions.

Demonstration and example of experience and technical skills

Safety is a top priority in all my work. I am well-versed in OSHA regulations and lab safety protocols, and I consistently apply them during lab work and technical projects. I also take pride in my ability to think critically under pressure and adapt to new tools and technologies quickly.

Demonstrates problem-solving ability

I am enthusiastic about the opportunity to contribute to your team and gain valuable industry experience. I am confident that my technical skills, safety awareness, and dedication to continuous learning make me a strong candidate for this position.

Thank you for considering my application. I welcome the opportunity to discuss how I can support your team and would be grateful for the chance to interview. Please feel free to contact me at [Phone Number] or [Email Address].

Sincerely,

Your Full Name

Interview Tips

When preparing for a STEM interview, it's important to familiarize yourself with the company's mission, values, and recent projects. Candidates should demonstrate enthusiasm for the STEM field by discussing relevant projects, internships, or extracurricular activities. It's helpful to focus on key, broad issues first, then get more specific with your answer. If possible, suggest specific steps rather than just theory.

Sample questions for STEM Interviews:

1. Describe the steps you take when developing plans for a project.
2. What is the biggest challenge you have ever faced as an engineer?
3. Do you have any security clearance to work on classified projects?
4. Describe the most challenging written technical report or presentation that you've had to complete.
5. What checks and balances do you use to make sure that you don't make mistakes?

Source:
40 Engineering Interview Questions (Plus Sample Answers) - Indeed

NOVA Programs of Study

Northern Virginia Community College (NOVA) offers specialized programs that align with workforce needs. These programs prepare students for entry-level positions and further academic advancement. The following information highlights the NOVA's programs of study that lead to the six career fields (NOVA, n.d.):

Business and Finance:

- n/a

Construction & Skilled Trades:

- Automotive Technology, A.A.S.
- Automotive Technology: Electric, Hybrid, and Autonomous Vehicles, C.S.C.
- Architecture Technology, A.A.S.
- Architecture Technology: Computer Aided Drafting and Design, C.S.C.
- Construction Management Technology, A.A.S.

Healthcare:

- Diagnostic Medical Sonography: Abdominal Sonography-Extended and Obstetrics and Gynecology Sonography Specialization, A.A.S.
- Diagnostic Medical Sonography: Echocardiography Specialization, A.A.S.
- Diagnostic Medical Sonography: Vascular Sonography Specialization, A.A.S.
- Health Information Management, A.A.S.
- Health Information Management: Clinical Data Coding, C.S.C.
- Health Information Technology, C.S.C. (Discontinued Fall 2024)
- Health Sciences, A.S.
- Medical Laboratory Technology, A.A.S.
- Medical Laboratory Technology: Medical Laboratory Assistant (MLA), C.S.C.
- Medical Laboratory Technology: Phlebotomy, C.S.C.
- Veterinary Technology, A.A.S.

Public Administration:

- Criminology and Criminal Justice, A.S.
- Education: Teaching Professional, C.S.C.

Information Technology:

- Computer Science, A.S.
- Cybersecurity, A.A.S.
- Cybersecurity, C.S.C.
- Engineering Technology: Data Center Operations Specialization, A.A.S.
- Engineering Technology: Data Center Operations, C.S.C.
- Engineering Technology: Engineering Technology Technician, C.S.C.
- Information Systems Technology, A.A.S.
- Information Systems Technology: Application Programming, C.S.C.
- Information Systems Technology: Artificial Intelligence and Data Analytics, C.S.C.
- Information Systems Technology: Mobile Application Development, C.S.C.
- Information Systems Technology: Network Engineering (Specialist), C.S.C.
- Information Technology, A.S.

STEM (Science, Technology, Engineering, Mathematics):

- Biology, A.S.
- Biotechnology Lab Technician, C.S.C.
- Biotechnology, A.A.S.
- Computer Science, A.S.
- Engineering, A.S.
- Engineering Technology, A.A.S.
- Geographic Information Systems (GIS), C.S.C.
- Horticulture Technology, A.A.S.
- Horticulture Technology: Landscape Design Specialization, A.A.S.
- Science, A.S.
- Science: Mathematics Specialization, A.S.

Source: Programs of Study, Northern Virginia Community College

NOVA Programs of Study Leading to Specific Careers in the STEM Field

Opportunities	Non-Transfer Tracks	Transfer Tracks
Programs of study to support entry into these employment opportunities are currently offered at NOVA	*These career paths allow you to enter the workforce immediately after graduation from NOVA.*	*These career paths require transfer for additional education beyond NOVA.*
Engineers	Engineering Technology, A.A.S.	Engineering, A.S. | Computer Science, A.S.
Biological Scientists	Biotechnology, A.A.S. | Biotechnology Lab Technician, C.S.C.	Biology, A.S
Natural Sciences Managers	Health Information Management, A.A.S. | Health Information Management: Clinical Data Coding, C.S.C.	N/A
Medical Scientists	N/A	Biology, A.S. | Science, A.S.
Economists	N/A	Science, A.S. | Science: Mathematics Specialization, A.S.
Statisticians	N/A	Science, A.S. | Science: Mathematics Specialization, A.S.
Environmental Scientists and Specialists	Geographic Information Systems (GIS), C.S.C.	Science, A.S.
Physical Scientists	N/A	Biology, A.S. | Science, A.S.
Chemists	N/A	Science, A.S. | Biology, A.S.
Physicists	N/A	Science, A.S. | Science: Mathematics Specialization, A.S.

Conclusion

Navigating career pathways requires careful planning, industry awareness, and continuous skill development. As community college students explore potential careers, leveraging available resources—such as NOVA's career services and industry connections—can significantly enhance employability. By understanding industry trends, aligning academic pursuits with workforce demands, and crafting effective job application materials, students can position themselves for long-term career success.



NOVA Career Resources



Career Development:

https://www.nvcc.edu/student-resources/career-services/career-development.html

Understand four key stages: understanding self, exploring careers & majors, decide & plan, and employment preparation. Students can use tools such as free career aptitude and assessment tests, Career Coach, Occupational Outlook Handbook, and Workforce - Labor Market Research to explore career options, set goals, and prepare for employment.

Career Planning System- Focus 2:

https://www.nvcc.edu/student-resources/career-services/focus2.html

FOCUS 2 is an online, interactive, self-guided career and education planning system that can help you select a program/major based on your interests and aspirations, discover occupations matching your personal preferences and attributes, map out your career plans, and make informed career decisions.

Handshake:

https://nvcc.joinhandshake.com/login

Sign in to Career Connection to search and apply to jobs and Internship, view and participate in career development workshops, career fairs, employer information sessions, and access resources such as the Resume Builder and Mock Interview practice tool.

Career Counseling:

https://www.nvcc.edu/student-resources/career-services/contact.html

Students can request an appointment with a Career Counselor by logging into Handshake, navigating to the Career Center page, and selecting “Appointments.”

NOVA Career Resources

Career Opportunities:

https://www.nvcc.edu/student-resources/career-services/career-opportunities.html

The Employer and Career Services Team is pleased to offer Career Opportunities for NOVA students and alumni! Review these opportunities and don't forget to log into Handshake to view more.

Coordinated Internships & Cooperative Education (Co-op):

https://www.nvcc.edu/student-resources/career-services/co-op/index.html

Coordinated Internships are an extension of Academic Services that provides work-based experiential learning opportunities through collaboration between academic departments and community employers. Students may enroll in Coordinated Internship course.

Career Events:

https://www.nvcc.edu/student-resources/career-services/career-events.html

View the Handshake Events Calendar for career development workshops, career fairs, employer information sessions, community hiring events (external) and more!

Additional Career Resources:

https://www.nvcc.edu/student-resources/career-services/career-resources.html

Contact Information

Questions? Feel free to contact novacareerservices@nvcc.edu.

