



Career Pathways: Engineering and Technology, Science and Math

Overview: Planning, managing, and providing scientific research and professional and technical services (e.g., physical science, engineering) including laboratory and testing services, and research and development services.

PROGRAM OF STUDY

CAREER RELATED EXPERIENCES

Secondary (*Dual Enrollment)

6 th – 8 th	Career-Related Electives:	Art World Languages Band	Chorus Living Skills Drama	Orchestra Computers Technology
	Career Assessment (Kuder®)			
9 th	Core Courses:	English 9 Algebra I or Geometry	Earth Science or Biology World Geography	World Language Health & PE
	Career-Related Electives:	Intro to Computer Programming, Basic	Technical Drawing Computer Applications	Information Technology Fundamentals
10 th	Core Courses:	English 10 Geometry or Algebra-Trig	Biology or Chemistry World History	World Language Health & PE
	Career-Related Electives:	Electricity/Electronics I/II	Probability and Statistics	Intro to Computer Programming
11 th	Core Courses:	English 11 Algebra II or Math Analysis	Chemistry or Physics US & Virginia History	World Language
	Career-Related Electives:	Architectural Drawing, Engineering Drawing, Engineering Technology (NHRC),	Electricity/Electronics I & II, Electronics I & II (NHRC), Machining Technology (NHRC),	Zoology, Ecology, Marine Biology, Probability and Statistics, Intro to Computer Programming
12 th	Core Courses:	English 12 Trig/Elementary Functions or AP Math	AP Science or Science Elective US & Virginia Government	World Language
	Career-Related Electives:	Electricity/Electronics I & II, Engineering Drawing, Electronics I & II (NHRC), Machining Technology (NHRC)	AP Science, Zoology, Ecology, Marine Biology, Genetics, Probability and Statistics, AP Statistics	Intro to Computer Programming, Computer Programming in C++, AP Computer Science and JAVA

Post Secondary Placement Assessments (SAT, ACT, ASVAB, etc.)

Postsecondary

On-the-Job Training	NOTE: These experiences may be completed as part of the High School experience		
Credentials	A+ Certification CISCO, Net+ Certification Microsoft Certified Systems Administrator Certification Microsoft Certified Engineering, AutoCAD NOTE: Students may earn all or part of these certificates as part of the High School experience.		
Associate's Degree	Electronic Technician Control Technician Mechanical Engineering	Office Machine Repairer	College Connections Thomas Nelson Community College Tidewater Community College
Bachelor's Degrees	Aerospace and Ocean Engineering, Architecture, Biological Systems Engineering, Building Construction, Chemical Engineering, Civil Engineering, Computer Engineering	Electrical Engineering, Engineering Science and Mechanics, Industrial and Systems Engineering, Materials Science and Engineering, Mechanical Engineering, Mining Engineering	College Connections ODU, VCU, VA Tech, etc. Public Colleges and Universities Private Colleges and Universities For a list, visit: www.schev.edu
Graduate Degree	Aerospace Engineering, Architecture, Architecture and Design Research, Biological Systems Engineering, Biomedical Engineering, Building Construction Science and Management, Chemical Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Engineering Mechanics	Environmental Engineering, Environmental Science and Engineering, Industrial and Systems Engineering, Macromolecular Science and Engineering, Materials Science and Engineering, Mechanical Engineering, Mining and Minerals Engineering, Ocean Engineering	College Connections ODU, VCU, VA Tech, etc. Public Colleges and Universities Private Colleges and Universities For a list, visit: www.schev.edu

Curricular:
Technology Students Association (TSA)
Summer Pre-Engineering Enrichment Programs

Work-Based Learning:
Internships
Job Shadowing
Mentorships
Apprenticeships
Cooperative Education

Extracurricular:
ODU Engineering Design Competition
Computer Challenge Competition
ROV Competition at the US Coast Guard Station
National Engineers Week Activities
Math Club
Career Café
Mega Genesis Career Expo

Service Learning:
City of Newport News Archeology Program
Volunteering at Newport News Parks
Hampton Environmental Programs
Community Service
Examples:
The Food Bank of the Virginia Peninsula
The Boys & Girls Club
Community Center Training
Faith-based tutoring programs
Mariners' Museum Volunteers
Riverside Regional Medical Center Volunteers

Professional Associations:
National Society of Professional Engineers
American Academy for Environmental Engineers
American Institute of Chemical Engineers
American Society of Agricultural Engineers
American Society for Engineering Education
American Society of Mechanical Engineers
Institute of Industrial Engineers
Institute of Electrical and Electronic Engineers
National Society of Black Engineers
Society of Automotive Engineers
Society of Hispanic Professional Engineers
Society of Women Engineers

Students should take four years of mathematics and science during high school. There are opportunities for dual enrollment courses with TNCC and career and technical options at New Horizons Regional Center.

Students should take Advanced Placement (AP), International Baccalaureate (IB), dual credit, or Career and Technical (CTE) courses, as applicable.

This plan of study serves as a guide, along with other career planning materials, for pursuing a career path and is based on the most recent information available. Individual student plans should be reviewed frequently with school counselor to ensure high school graduation and post-secondary requirements are satisfied, as applicable.