The Apprentice School at Newport News Shipbuilding
A One-of-a-Kind Trade School for Shipbuilders

MODEL SUMMARY
The Apprentice School, located in Newport News, VA, is an industry-driven, hands-on apprenticeship college for individuals interested in pursuing a career in shipbuilding. The school offers four- to eight-year programs in more than 19 shipbuilding skill areas, as well as advanced programs to develop the next generation of world-class journeymen and company leaders.

BACKGROUND
The Apprentice School, founded in 1919, is part of Newport News Shipbuilding, a division of Huntington Ingalls Industries. Huntington Ingalls Industries designs, builds and maintains ships for the U.S. Navy and Coast Guard. The company also provides after-market services for military ships around the globe. The skills needed to build nuclear-powered aircraft carriers and submarines — and other Huntington Ingalls Industries vessels — are not included in programs of study offered by other colleges. The Apprentice School provides Huntington Ingalls Industries a pipeline of talented, skilled leaders to support the business and drive the future of the company.

With more than 10,000 active alumni, it is the premier apprenticeship program for the shipbuilding industry, offering 19 areas of study and seven advanced programs. Areas of study include coatings specialist, electrician, machinist, millwright, pipefitter and shipfitter. Last year, more than 4,000 applications were received for 230 spots, placing the acceptance rate at 6 percent — on par with the acceptance rate of Ivy League colleges.

PARTNERSHIP
The Apprentice School has partnerships with a host of higher education institutions, including Christopher Newport University, Hampton University, Old Dominion University, Paul D. Camp Community College, Rappahannock Community College, Saint Leo University, Strayer University, Thomas Nelson Community College, and more.

KEY ELEMENTS OF MODEL
- Industry-recognized credentials
- Paid on-the-job training
- No school debt
- Common employability skills
- Opportunities to earn an associate degree with partner colleges
- Technical skills needed in advanced shipbuilding
- Leadership skills
- Relationship building with Huntington Ingalls Industries employees

Newport News Shipbuilding Foundry Apprentice Daniel Gular sands the surface of a mold for a gate valve. The gate valve was used in the refueling and complex overhaul of the aircraft carrier USS Theodore Roosevelt (CVN 71). Photo courtesy of Huntington Ingalls Industries.
Tidewater Community College and Virginia Wesleyan College. It is accredited by the Commission of the Council on Occupational Education.

**NUTS AND BOLTS**

The three main pillars of The Apprentice School are craftsmanship, scholarship and leadership. Apprentices spend two days a week learning concepts in the classroom and three days a week applying those concepts to real-world projects in the Newport News shipyard. All apprentices complete the World Class Shipbuilding Curriculum, in addition to the Trade Related Education Curriculum. The World Class Shipbuilding classroom subject areas include technical mathematics, drafting, engineering, design, marine engineering and naval architecture, technical communications, and business processes.

The hands-on work at the shipyard is provided in six-month rotations through the various jobs within an apprentice’s selected craft. Over the course of the program, apprentices complete 1,000 hours of coursework and 7,000 hours of on-the-job training guided by Newport News employees who serve as mentors. More than 40 percent of current shipbuilders’ production managers are Apprentice School graduates, signaling the importance of the leadership pillar of the program. In addition to coursework and on-the-job training, apprentices also receive:

- **Student Services To Foster Leadership and a Sense of Community:** Apprentices receive housing assistance, orientation services and pre-employment support.

**PROGRAM BENEFITS, RESULTS AND OUTCOMES**

Apprentice School benefits for the apprentice include:

- **Articulation Agreements with Postsecondary Schools:** The Apprentice School has articulation agreements with premier postsecondary institutions in Virginia to further students’ learning. In 2015, Huntington Ingalls Industries partnered with Old Dominion University to offer a new six-year marine engineer degree program.

- **No School Debt or Long-Term Employment Contract:** Accepted students are paid $35,000 for the first year with pay increases throughout the program, and there is no employment contract that requires students to work for Huntington Ingalls Industries after graduation.

- **Well-Paying Job Opportunities:** After graduation, Apprentice School students are guaranteed a job with Huntington Ingalls Industries at an average annual salary of $54,000. The majority of graduates accept a job with Huntington Ingalls Industries.

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“Huntington Ingalls Industries’ apprentice schools provide training and education to develop the skilled talent needed in our shipyards, but more importantly, they develop our future company leaders.”

— Bill Ermatinger, Corporate Vice President and Chief Human Resources Officer, Huntington Ingalls Industries
For Huntington Ingalls Industries, the benefits include:

- **Attracting a Diverse Talent Pool:** The student population includes military veterans, current shipbuilders, college and high school graduates, and those from nonshipbuilding career fields. Such a diverse group allows Huntington Ingalls Industries to gain creative and innovative perspectives to support the growth and expansion of its business.

- **Reducing Turnover Costs and Increasing Employee Retention:** Huntington Ingalls Industries is able to recruit apprentices who are familiar with the company and have the skills and competencies required.

- **Building Huntington Ingalls Industries’ Future Leaders:** 80 percent of Apprentice School graduates build long-term careers at Huntington Ingalls Industries and serve in a management role at some point in their careers. The company values the apprenticeship program for the leadership development as much as for the trade skills.

- **Aligning the Development of a Highly Skilled Workforce with Company Demand:** The number of applicants who are accepted per trade program fluctuates based on the company’s needs.

### SUSTAINABILITY AND OVERCOMING IMPLEMENTATION CHALLENGES

To run a program of this size, Huntington Ingalls Industries spends more than $250,000 per apprentice on training. Huntington Ingalls Industries recognizes that to continue making great military ships, it needs a dedicated pipeline of skilled and talented workers. The Apprentice School provides the company the talent needed to sustain its business. The school also allows the company to maximize the potential of every employee and build a sense of community through classroom learning, hands-on work experience, and extracurricular sports and associations.

In addition to the Newport News Shipbuilding Apprentice School, Huntington Ingalls Industries also offers apprenticeship training at the Haley Reeves Barbour Maritime Training Academy at Ingalls Shipbuilding in Pascagoula, MS. These two programs are the cornerstone and capstone of Huntington Ingalls Industries’ workforce development efforts.

### WORDS OF WISDOM

Advice to companies considering developing their own school or apprenticeship program includes:

- **Think Big, but Start Small:** The Apprentice School was established more than 90 years ago and over time has expanded into 20-plus trade programs. Strategizing on what the future of the program might look like is great, but starting the program with a few students in one region and rolling it out to a larger student body and geography over time is best.

- **Seek Support from Available Resources and Funding Streams:** Investigate available public and private resources and funding streams that might support the development of these programs. For apprenticeships, contact the U.S. Department of Labor Office of Apprenticeship and state apprenticeship agencies for support. Another great resource is local community colleges, which often have the training equipment needed to support a program. Other resources might include the state workforce development board or chamber of commerce.

### INFORMATION, TOOLS AND RESOURCES

- **The Apprentice School** [www.as.edu](http://www.as.edu)
- **Apprentice Schools at Huntington Ingalls Industries** [www.huntingtingalls.com/careers/apprentice](http://www.huntingtingalls.com/careers/apprentice)
- **Huntington Ingalls Industries** [www.huntingtingalls.com](http://www.huntingtingalls.com)
- **U.S. Department of Labor Office of Apprenticeship** [www.dol.gov/apprenticeship](http://www.dol.gov/apprenticeship)
- **White House Apprenticeship Summit Fact Sheet** [http://1.usa.gov/1NifXdH](http://1.usa.gov/1NifXdH)

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Descriptions of Common Work-and-Learn Models
A Glossary of Key Terms

Following are descriptions of the most common and effective work-and-learn models that are a part of business and industry programs nationwide.

**Apprenticeship**
An apprenticeship is a unique, flexible training system that combines job-related technical instruction with structured on-the-job learning experiences. It provides a unique combination of structured learning with on-the-job training from an assigned mentor. Related instruction, technical training or other certified training is provided by apprenticeship training centers, technical schools, community colleges, and/or institutions employing distance and computer-based learning approaches. The goal is to provide workers with advanced skill sets that meet the specific needs of employers. In many cases, these programs provide apprentices the opportunity to simultaneously obtain secondary and postsecondary degrees, as well as credentials issued by third-party industry organizations. (Source: U.S. Department of Labor)

**Clinical Training/Practicum**
Clinical training combines classroom learning with supervised hands-on immersion experiences in specific fields, mostly in industries that involve human services. In health fields, clinical training is founded on actual observation and lab instruction and/or treatment of patients, as distinguished from theoretical or experimental training. The training is usually highly specialized and includes coursework specific to performing functions and tasks in an actual workplace. (Sources: Siemens Clinical Training & Continuing Education; Clinical Training Institute)

**Cooperative Education/Co-Op**
Cooperative education is the integration of classroom theory with practical work experience, through which students alternate attendance at school with periods of professional employment. At the high school level, the periods of classroom and work-based experience are usually half-days. In higher education, the alternation is most often on a longer time scale. Cooperative education programs enable students to apply technical skills already acquired through the education institution in a real-world workplace setting. Traditionally, cooperative education has been used to aid a student's transition from school to work, while providing participating employers an opportunity to attract, evaluate, train and ultimately employ a ready source of educated and skilled employees. (Sources: Center for Manufacturing Excellence, University of Mississippi; University of Cincinnati)


**Externship**
An externship is typically a training program offered by educational institutions and private businesses that gives students brief practical experiences in their field of study and insight and knowledge in a particular career field. Often shorter term than internships, externships are intensive career learning experiences that typically range from two days to two weeks. Although more immersive and structured than job shadowing, these experiences provide the opportunity for students to see firsthand the work activities and responsibilities in various professions and industries. The experience should provide the learner a greater sense of the knowledge, skills and attributes of people who thrive within that given career pathway and industry sector and a complete experience of day-to-day work life.

**Hands-On Training**
Hands-on training provides student learners an opportunity to use their hands to perform tasks. This training aims to simulate conditions that are as close as possible to real work conditions while avoiding the risks commonly associated with a new employee. In hands-on training, participants typically have the opportunity for repeated practice.

**Industry Tour**
Companies offer guided tours of their facilities to let students, parents and the general public witness firsthand the day-to-day operations of the business. Typically lasting up to two hours, tours are led by knowledgeable staff members who show and describe the companies’ processes, products and protocols, as well as point out the skills and training needed for different jobs. Quality industry tours typically result in greater awareness of the company and the industry and increased engagement with the local community, schools and future employees.

**Internship**
An internship is a formal program that provides practical experience for learners in an occupation or profession, during which the learner is immersed in a work situation for a limited period of time. Internships can be paid or unpaid and usually accompany or relate to academic coursework or training. A quality internship provides the learner an increasingly thorough grasp of the career field, extensive experience in specific job functions, application of education and training to specific duties, and a feel for what it is like to work on a daily basis in the industry. While not always intended to result in employment at the sponsoring company, internships help employers expose potential workers to their workplace and industry and recruit, screen and test-fit future job candidates before they are hired full time.

**Job Shadowing**
Job shadowing is a work experience option through which students learn about a job by walking through the working day as a shadow to a competent worker. The job shadowing work experience is a temporary, unpaid exposure to the workplace in an occupational area of interest to the student. Students witness firsthand the work environment, employability and occupational skills in practice, the value of professional training, and potential career options. Job shadowing is designed to increase career awareness, help model student behavior through examples, and reinforce for the student the link between classroom learning and work requirements. Almost any workplace is a potential job-shadowing site. (Source: Paris, K., and Mason, S. (1995). Planning and Implementing Youth Apprenticeship and Work-Based Learning. Madison, WI: University of Wisconsin, Center on Education and Work)

**Mentorship**
Mentorship is the coupling of a novice with an older, more experienced professional wherein the expert shares knowledge and experience with the novice over the course of time. Mentorship can be either formal or informal and can happen face to face; online; or in conjunction with other work-and-learn opportunities, such as internships and job shadowing. Mentorships help mentored youth improve their overall academic achievement and develop the necessary skills to enter or continue on a career path. They also provide guidance for decision making. Quality mentorships usually involve mentee training and alignment to the company’s culture and goals.
On-the-Job Training (OJT)
OJT is training by an employer that is provided to a paid participant (either an incoming or incumbent employee) while engaged in productive work in a job that provides knowledge or skills essential to the adequate performance of the job. OJT is usually limited in duration, as appropriate to the occupation for which the participant is being trained, taking into account the content of the training, the prior work experience of the participant and the service strategy of the participant, as appropriate. (Source: Workforce Investment Act)

Pre-Apprenticeship
Pre-apprenticeship is defined by the Employment and Training Administration as “a program or set of strategies [that is] designed to prepare individuals to enter and succeed in a Registered Apprenticeship program and has a documented partnership with at least one, if not more, Registered Apprenticeship program(s).” Since the pre-apprenticeship model is meant to prepare learners to enter a registered apprenticeship, a quality model provides sufficient applied academic training, as well as industry-based technical skills training and practice, to ensure that students transition successfully into an apprenticeship.

Registered Apprenticeship
A registered apprenticeship encompasses the details and benefits listed in the “Apprenticeship” definition. Additionally, it meets national apprenticeship standards outlined by the registration process with the U.S. Department of Labor (DOL) Office of Apprenticeship or through a state apprenticeship agency. Upon completion of a registered apprenticeship program, participants receive a portable credential (provided by DOL or the state apprenticeship agency) that certifies occupational proficiency as a journey worker for the selected occupation. For more information on the DOL registered apprenticeship program, please visit: www.dol.gov/apprenticeship. (Source: U.S. Department of Labor)

Returnship
A returnship is an internship specifically designed for older professionals who have been out of the workforce for an extended period of time to re-enter a career. In many cases, they are designed to help these individuals refresh their skill sets and learn new technologies before returning as full-time employees. Often lasting around 10 weeks, a returnship provides individuals with an opportunity to sharpen their skills in a given career path or pursue new areas of expertise in a work environment that may have changed significantly since their last experience as an employee. Returnships also give employers the opportunity to screen returning experienced applicants before hiring them full time. (Sources: Goldman Sachs; CareerBuilder)

RESOURCES
• 21st Century Competency-Based Apprenticeship Resources http://bit.ly/1RcO4Uh
• National Network of Business and Industry Associations: Grads of Life ROI Calculator http://bit.ly/1X6yKMP
• U.S. Department of Labor Office of Apprenticeship www.dol.gov/apprenticeship
The National Network acknowledges the contributions of the following companies, associations and educational institutions whose time, ideas and feedback made this guidebook possible.