

INFORMATION PAPER

24 November 2014

SUBJECT: Introduction to Registered Apprenticeship Training Programs

1. **PURPOSE:** To provide an introduction to Registered Apprenticeship (RA) training programs, highlight key industry sectors, identify talent challenges, provide a historical overview, and expand understanding of the important role RA plays in training a highly skilled workforce.

2. **GENERAL INFORMATION:**

a. **Overview.** Registered Apprenticeship is a combination of on-the-job training and related classroom instruction provided under the supervision of a journey-level craft person or trade professional in which workers learn the practical and theoretical aspects of a highly skilled occupation. After completing an RA training program, the worker's journey-level status provides an additional benefit of nationwide mobility at journey-level scale. On a macro scale, RA is a partnership between the apprentice, business, employers, and the government that prepares American workers to compete in the global twenty-first century economy.

b. **Apprenticeable Occupations.**

(1) An apprenticeable occupation is defined as a skilled trade or craft, which has been recognized by the U.S. Department of Labor, Employment and Training Administration (ETA), Office of Apprenticeship (OA) and meets applicable local criteria.

(2) Apprenticeships can be found in all industries, from traditional sectors like construction and manufacturing to emerging sectors like energy and health care. A list of over 1,100 officially recognized apprenticeable occupations can be found at: <http://www.doleta.gov/OA/occupations.cfm>. The data provides the occupational title, length of training term (2,000 hours equals one year) and the type of training. Additionally, a Registered Apprenticeship Partners Information Data System (RAPIDS) Code and an Occupational Information Network (O*NET) Code are provided for each occupation. These codes can be used to obtain detailed occupational information using <http://www.onetonline.org/crosswalk/RAPIDS/> and <http://www.onetonline.org>, respectively.

c. **Training Requirements.**

(1) Occupations that are considered "apprenticeable" involve manual, mechanical, or technical skills and knowledge. Apprenticeship training programs for these occupations require a minimum of 2,000 hours of on-the-job training per year.

Related classroom instruction is also required as a supplement to on-the-job training. Such instruction may be given in a classroom, through correspondence courses, self-study, or other means of approved instruction. A minimum of 144 hours for each year of apprenticeship is recommended. Apprenticeship training programs generally last from two to five years, depending on the complexity of the trade.

(2) States may adopt slightly different apprenticeship program standards. For example, Massachusetts requires between 1,700 and 2,000 hours of on-the-job training and 150 hours of classroom instruction per year.

d. Eligibility Requirements.

(1) Registered apprenticeship in most apprenticeable occupations is open to anyone age 16 or older. However, individuals must usually be a minimum of 18 years of age to be an apprentice in hazardous occupations, such as those often found in the construction and manufacturing industries.

(2) Individuals must demonstrate to the program sponsor that they have the ability, aptitude and education to successfully complete their RA training program.

(3) Credentials or documentation may be required by the program sponsor upon application to the RA training program.

e. Certificates of Completion. Upon completion of an RA training program, participants receive an industry issued, nationally recognized credential that certifies occupational proficiency, is portable, and can provide a pathway to the middle class. In many cases, these programs provide apprentices with the opportunity to simultaneously obtain secondary and post-secondary degrees. In 2013, over 52,000 participants nationwide graduated from an RA training program.

f. Identifying Programs.

(1) Approximately 16,000 employers nationwide sponsor RA training programs. To identify these programs, visit <http://www.mynextmove.org/vets/>. Search for jobs and look for the RA logo.

(2) To identify RA training programs that are approved for the use of GI Bill benefits use the “Weams Institution Search” function on the U.S. Department of Veterans Affairs website, which can be found at: <http://inquiry.vba.va.gov/weamspub/buildSearchInstitutionCriteria.do>.

(a) Search Example # 1. To identify approved programs in the carpenter trade visit the Weams website and enter the word “carpenter” in the “Institution Name” field. Then click the “Program Type” drop down menu and choose “On-the-Job-Training/Apprenticeship.” Finally, on the map of the United States, choose the preferred state or territory; a list of employers sponsoring apprenticeship programs in that trade

will appear. Click on the employer's name to access the employer's contact number and mailing address. The employer's "Certifying Official for Programs" may also be listed. To view a complete list of job titles registered with the employer, click the "Programs" link, and then click "On-the-Job-Training/Apprenticeship."

(b) Search Example # 2. To identify a complete listing of approved apprenticeship training programs by state or territory visit the Weams website and leave the "Institution Name" field blank, then click the "Program Type" drop down menu and choose "On-the-Job-Training/Apprenticeship." Then click on the preferred state or territory.

(c) Detailed GI Bill payment rate information for participation in approved RA training programs can be found in the information paper titled, "Use of GI Bill Benefits for Registered Apprenticeship Training Programs" published on 01 October 2014.

g. **Definitions.**

(1) Apprentice. An individual who is employed to learn an apprenticeable occupation and is registered with a sponsor in an approved apprenticeship program.

(2) Apprenticeship agreement. A written agreement between an apprentice and either the apprentice's employer(s), or an apprenticeship committee acting as an agent for employer(s), containing the terms and conditions of the employment and training of the apprentice.

(3) Journey level. An individual who has sufficient skills and knowledge of a trade, craft, or occupation, either through formal apprenticeship training or through practical on-the-job work experience, to be recognized by a state or federal registration agency and/or an industry as being fully qualified to perform the work of the trade, craft, or occupation. Practical experience must be equal to or greater than the term of apprenticeship.

3. KEY INDUSTRY SECTORS: Although RA touches many sectors of the U.S. economy, the following key industries have lead the way with regard to the development, management, and implementation of RA training programs.

a. **Aerospace.** Washington State is the world leader in aerospace production and home to more than 1,350 aerospace-related companies employing more than 132,500 highly-skilled aerospace workers. The increase in impending retirements, new emerging technologies and a greater production demand have created challenges for building a skilled twenty-first century workforce and competing in a global economy. Over the next five years, the state will need more than 7,200 additional aerospace workers to fill the increasing demand. Washington State funded a the creation of the Aerospace Joint Apprenticeship Committee (AJAC) in 2008 to devise a means to capture the knowledge of retiring tradespeople and pass that knowledge on to the next generation through RA training programs.

b. **Biotechnology.** The biotechnology industry can be defined as the use of biological processes (particularly cellular and molecular) to solve problems and make useful products. The biotechnology industry includes firms that use cells and biological molecules for applications in medicine, agriculture, and environmental management. The industry is currently concentrated in a number of specific geographic areas around the country, although additional regions are building biotechnology infrastructures: New England, Raleigh-Durham, Washington-Baltimore, New York, Philadelphia, San Francisco, San Diego, Los Angeles, and Seattle.

c. **Construction.** The construction industry has a long history of utilizing RA training programs to build and maintain a skilled workforce. There are 22 apprenticeable occupations that comprise the primary construction trades. Both open shop and union construction firms offer RA training programs.

d. **Energy.** Many careers in the energy industry can be learned through RA training programs. Energy businesses partner with credentialing and licensing agencies to ensure apprenticeship programs include the training and instruction needed to meet industry requirements. The industry is diverse, so an apprentice may work for a utility company, a gas or oil company, a government research group, an energy education or environmental regulation agency, a non-profit energy awareness or conservation organization, or for many other energy-related employers. Occupational areas of opportunity include: Offshore technician, retrofitting, refinery equipment operators, and mechanical integrity staff.

e. **Geospatial.** The geospatial industry has been recognized as one of the nation's high growth labor force needs areas. Geospatial technology acquires, manages, interprets, integrates, displays, analyzes or otherwise uses data focusing on geographic, temporal, and spatial aspects of the world's environment. Geospatial technologies include remote sensing, geographic information systems, and global positioning systems technologies. The University of Southern Mississippi's Workforce Learning and Performance Center is pilot-testing the nation's first Geospatial Technology Apprenticeship Program (GTAP). The GTAP program employs a competency-based approach to geospatial workforce training and development.

f. **Healthcare.** Since 2003, the U.S. Department of Labor's OA has focused on the health-care industry to address both chronic workforce shortages and increasing skill demands for key occupations within the allied health and long-term care industries. Since then, apprenticeship programs have been developed in healthcare for 40 occupations. These programs offer competency-based and time-based models, portable credentials and wage increases, responding to the needs for a high-skilled healthcare workforce. Specific areas of occupational opportunity include: post-acute care, direct support workers, patient care technicians, health care management, nursing specialties.

g. Information and Communications Technology. Information Technology (IT) is the fastest growing sector in the economy and has become essential for conducting business. Rapid advances in computer technology have stimulated high growth in the demand for workers skilled in the development and use of IT. The U.S. Department of Labor's OA awarded a series of grants to the Computer Technology Industry Association (CompTIA), www.comptia.org, to establish a nationwide apprenticeship program for IT workers, which included the creation of the National Information Technology Apprenticeship System (NITAS). Occupational areas of opportunity include: IT security, network engineers, software engineers, and virtualization.

h. Advanced Manufacturing. The advanced manufacturing industry faces complex workforce challenges in an increasingly competitive global marketplace. Fortunately, RA training programs are helping to elevate the significant talent shortages and skill gaps that are slowing industry efforts to expand, innovate, and excel. Key RA occupations in the advanced manufacturing industry include: Computer Numerical Control (CNC) Machine Operator, Machinist, maintenance and Repair Worker, Mechatronics Technician, Tool and Die Maker, and Welder.

i. Transportation and Logistics. Thousands of employers in the transportation industry sector across the U.S. and among our global competitors use the RA training model to recruit, train, and retain workers with the right skills. Challenges faced by the industry include: an aging workforce of highly skilled and experienced workers, attracting young workers and more diverse talent pools to transportation careers, investing in talent that can keep pace with the latest technological advances in the industry, increasing worker retention, and implementing workforce training models that effectively develop talent. Occupational areas of opportunity include: commuter rail engineers, entry-level warehouse positions, feeder drivers, rail computer operators, signal switchers, and over-the-road drivers.

4. TALENT CHALLENGES: The U.S. Department of Labor's OA held industry roundtable discussions in June 2014. More than 250 employers, intermediaries, and workforce professionals attended the sessions. The group identified the following three talent challenges common to all RA industries, listed in order of importance.

a. Aging Workforce. Skilled Baby Boomers are retiring and the current pipeline of young workers to replace them in the next five to ten years is not large enough to meet industries' needs.

b. Lack of Industry Knowledge. In addition to the sheer number of staff replacements needed to overcome the challenge of an aging workforce, industry grapples with the lack of depth and breadth of industry knowledge possessed by new candidates, as well as their general deficits in soft skills.

c. **Worker retention.** While this is an ongoing challenge for many businesses, those employing RA as a workforce training strategy incur greater risk due to the level of investment a business must make in its apprentices.

5. HISTORICAL OVERVIEW:

a. **Early beginnings.** Since time immemorial, people have been transferring skills from one generation to another in some form of apprenticeship. Four thousand years ago, the Babylonian Code of Hammurabi provided that artisans teach their crafts to youth. The records of Egypt, Greece, and Rome from earliest times reveal that skills were still being passed on in this fashion. When youth in those times achieved the status of craft workers, they became important members of society.

b. **Concept of “indenture” imported from Europe.** When America was settled, craft workers coming to the New World from England and other European countries brought with them the practice of indenture and the system of master-apprentice relationships. Indenture derived its name from the English practice of tearing indentions or notches in duplicate copies of apprenticeship forms. This uneven edge identified the copy retained by the apprentice as a valid copy of the form retained by the master. In those days, the master and the parent or guardian of the apprentice signed both the original and the copy of the indenture. Most of the apprentices were 14 years of age or younger. By comparison, today most apprentices begin training between the ages of 18 and 24. The modern apprenticeship agreement is signed by the employer; by a representative of a joint management-labor apprenticeship committee, or both; and by the apprentice. If the apprentice is a minor, the parent or guardian also signs the agreement.

c. **Apprenticeship and the Industrial Revolution.**

(1) With the expansion of industry following the industrial revolution, the apprenticeship system was revolutionized to apply to the new machine age. The early system of “domestic apprenticeship,” in which the apprentice lived with a master and was dependent upon the master for food and clothing as well as shelter, disappeared. Employers changed compensation to the payment of wages that were, although insignificant compared with today’s wages, graduated in accordance with a predetermined scale. The term “master,” however, was continued in some trades, and “master machinist” and “master plumber” are still familiar terms.

(2) The effect of the modern system of division of function began to make itself felt in the first half of the 19th century. In many trades, craft workers who in the past had engaged their apprentices for five years to teach them all aspects of the trade began to teach them only one part of the job that could be learned in a few months. Apprenticeship systems, in keeping with the new era, were gradually developed in the growing industries, at first in the iron foundries and shipbuilding yards, and later in machinery and electrical equipment plants, government arsenals, navy yards, and printing shops. Not until the latter part of the nineteenth century were any

apprenticeship systems begun that were at all comparable with those of today. But the number of plants in which apprentices were trained was limited and the training was, for the most part, somewhat sketchy when measured by modern standards. The great majority of skilled workers still came from abroad. Most of the workers who acquired their skills in this country learned on their own by watching and getting the advice of experienced workers, by sheer persistence, and by trial and error.

d. First apprenticeship legislation.

(1) The first legislation in the United States to promote an organized system of apprenticeship was enacted in Wisconsin in 1911. The law placed apprenticeship under the jurisdiction of an industrial commission. This followed the enactment of state legislation requiring all apprentices to attend classroom instruction five hours a week.

(2) In the 1920s, national employer and labor organizations, educators, and government officials began a concerted effort to bring about a national, uniform apprenticeship system. In the forefront of this movement were representative groups of the construction industry. The need for comprehensive training of apprentices had become a vital necessity in the boom days following World War I. Immigration was curtailed after the war; so fewer skilled workers were entering from other countries.

(3) The combined effort of the various groups led in 1934 to the participation of the Federal Government in the national promotion of apprenticeship. The Federal Committee on Apprenticeship, composed of representatives of Government agencies, was appointed by the Secretary of Labor to serve as the national policy-recommending body on apprenticeship in the United States. It was to assume the responsibilities with respect to apprentices and their training under industrial codes formulated by the National Recovery Administration.

e. National apprenticeship law enacted. In 1937 Congress passed the National Apprenticeship Act (50 Stat. 664; 29 U.S.C. 50). This law, popularly known as the Fitzgerald Act, was enacted "to promote the furtherance of labor standards of apprenticeship ... to extend the application of such standards by encouraging the inclusion thereof in contracts of apprenticeship, to bring together employers and labor for the formulation of programs of apprenticeship, to cooperate with State agencies in the formulation of standards of apprenticeship." Amendments to the National Apprenticeship Act include: Sec. 50. Promotion of labor standards of apprenticeship; Sec. 50a. Publication of information; national advisory committees; and Sec. 50b. Appointment of employees.

f. Modern apprenticeship programs.

(1) The Fitzgerald Act of 1937 set the pattern for today's system of Federal Government assistance in apprenticeship programs. The Federal Committee on Apprenticeship was reorganized and enlarged to include equal representation of employers and labor, plus a representative of the U.S. Office of Education. The

Apprentice Training Service (now the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship) was established as the national administrative agency in the Department of Labor to carry out the objectives of the law, guided by the recommendations of the Federal Committee on Apprenticeship.

(2) Since 1937, the OA has worked closely with employer and labor groups, vocational schools, state apprenticeship agencies, and others concerned with apprenticeship programs in U.S. industry. It has field representatives in the 50 States. Its functions are advisory and promotional. It does not itself conduct training programs. A major means for promoting apprenticeship is through a wide exchange of information on the advantages and methods of well-organized and well-run apprenticeship programs. The Office of Apprenticeship disseminates this information widely through newspapers, industrial periodicals, discussions at annual conventions of employer associations and unions, and regional apprenticeship conferences.

6. APPRENTICESHIP TODAY:

a. In 2012, RA celebrated its 75th anniversary. At no time during RA's first 75 years has the role of talent been more critical to an employer, a community, a state or a nation's ability to compete economically. As the need for skilled workers increases and our economy faces greater global competition, RA continues to be a competitive advantage for all parties – individuals, businesses, labor management organizations, education, the workforce investment system and government. For these reasons, ETA issued revised regulations in 2008 that increase program flexibility to better serve the needs of today's apprentices and program sponsors.

b. There are now almost 24,000 RA training programs providing education and training for approximately 375,000 apprentices in emerging and high-growth sectors such as energy, health care and information technology, in addition to traditional industries such as construction and manufacturing. Nearly 164,000 new apprentices started programs in 2013.

c. The apprentices participating in these programs, and the knowledge and skills they are learning, are as diverse as the American population has become since our country was founded more than 200 years ago. New efforts and innovative program models are increasing RA's ability to serve a range of populations, including women, disadvantaged populations, veterans and even the formerly incarcerated.

7. 21ST CENTURY VISION FOR REGISTERED APPRENTICESHIP.

a. **Vision.** In the twenty-first century, America's RA system will be central to meeting the nation's workforce development challenges, providing sustainable and widely recognized career opportunities for all Americans, raising the productivity and increasing the international competitiveness of U.S. businesses, and contributing to the economic growth and sustainability of communities, regions, states, and the country.

b. **Goals.** In 2013, The U.S. Secretary of Labor's Advisory Committee on Apprenticeship (ACA) laid out long-term goals to propel the U.S. Department of Labor, lawmakers, and other government leaders to look at the national RA system from an entirely new perspective. As the country's economy continues to recover, there is a real opportunity to make RA a mainstream education and career pathway option, one that can help the country maintain its prominence in building the strongest, most adaptable, and most credentialed workforce in the world. The four specific goals established by the ACA are as follows:

(1) An increasing number of businesses and additional industries will use and reap the advantages of quality RA programs.

(2) Americans will seek and find RA as a valuable post-secondary pathway to rewarding careers.

(3) Diverse populations in the U.S. workforce will have access to growing opportunities in RA.

(4) Public policy will increasingly reflect the power and value of RA to address economic and workforce development challenges.

8. **CLOSING:** Learning in a traditional college setting will remain an important component of success for many Army National Guard Soldiers, but we must ensure that our Soldiers understand the many benefits of RA. Not only do they possess attributes that position them well for success in these hands-on, on-the-job training programs, but the use of GI Bill benefits for participation in such programs serves as a significant incentive to seek out and complete RA training programs that lead to industry issued, nationally-recognized credentials. By working together, we can raise the quality of life of our Soldiers and their families, promote the Army National Guard as a key labor pool for industry, and help America maintain its prominence in building the strongest, most adaptable, and most credentialed workforce in the world.

9. **CONTACT INFORMATION:** For more information concerning Registered Apprenticeship Training Programs or GI Bill Programs contact the following;

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