



# **Designing & Developing High-Quality Registered Apprenticeships in the U.S.**

The effort to accelerate the development of registered apprenticeship programs is challenged by our capacity to preserve the foundational principals that this system was built on. Lets discuss the foundational principals and best practices that need to be in place for high-quality registered apprenticeship programs.



# History of Apprenticeship

- Apprenticeship has produced highly skilled craftsmen for more than 4,000 years



medieval period



pre-industrial era



present day



# Guilds in the Middle Ages

## The Roots of Apprenticeship

There were a number of reasons behind the development of Guilds and subsequently, apprenticeship training by Guilds in the Middle Ages:

- Skilled craftsmen joined together to act as a collective, to control production, industry standards, product quality, marketing, etc.
- Guilds preserved the rights and privileges of its members.
- Guilds established and enforced established industry standards that protected consumers.
- Members of the Guilds were able to pull themselves out of the ranks of Serfs – and have a better life.
- The Guild could act to protect members' social and economic autonomy.
- Guilds were a positive force in their communities.
- Guilds identified those skilled craftsmen who had attained Master qualification as those who were eligible to train apprentices.



# Labor Hierarchy within Guilds

- Apprentice – A teenager who went to live with a master and his family. The employer agreed to undertake by contract to employ the young person and to systematically train him in a trade for a period the duration of which was fixed in advance, and while the apprentice was bound to work in the employer's service.
- Journeyman - A skilled worker who successfully completed apprenticeship qualifications in a building trade or craft. To become journeyman, an apprentice had to complete Guild requirements and submit work to the guild for evaluation.
- Master – A journeyman who had journeyed about the land, practicing his craft according to Guild requirements, and who had submitted the required *Masterpiece* for the Guild to review and approve. Only those who had completed Guild requirements were allowed to be designated as Masters, eligible to train apprentices.



# Apprenticeship in the U.S.

As settlers from Europe populated the colonies, they brought the Guild concept of apprenticeship with them. Many years later, these were formalized by the [Fitzgerald Act - National Apprenticeship Act. 50 Stat. 664; 29 U.S.C. 50.](#)



# Today's Apprenticeship

Registered Apprenticeship programs are regulated through rulemaking authority within the US Code of Federal Regulations.

[29 CFR Part 29](#) – covers Labor Standards for the Registration of Apprenticeship Programs; and

[29 CFR Part 30](#) – covers Equal Employment Opportunity in Apprenticeship and Training.



## 29 CFR Part 29 Regulation Sections

- Preamble
- § 29.1 Purpose and scope
- § 29.2 Definitions
- § 29.3 Eligibility and procedure for registration of an apprenticeship program
- § 29.4 Criteria for apprenticeable occupations
- § 29.5 Standards of apprenticeship
- § 29.6 Program performance standards
- § 29.7 Apprenticeship agreement
- § 29.8 Deregistration of a registered program
- § 29.9 Reinstatement of program registration
- § 29.10 Hearings for deregistration
- § 29.11 Limitations
- § 29.12 Complaints
- § 29.13 Recognition of State Apprenticeship Agencies
- § 29.14 Derecognition of State Apprenticeship Agencies





## 29 CFR Part 30 Regulation Sections

Note: this presentation will not cover in-depth discussion of 29 CFR Part 30

- 30.1 — Scope and purpose.
- 30.2 — Definitions.
- 30.3 — Equal opportunity standards.
- 30.4 — Affirmative action plans.
- 30.5 — Selection of apprentices.
- 30.6 — Existing lists of eligibles and public notice.
- 30.7 — [Reserved]
- 30.8 — Records.
- 30.9 — Compliance reviews.
- 30.10 — Noncompliance with Federal and state equal opportunity requirements.
- 30.11 — Complaint procedure.
- 30.12 — Adjustments in schedule for compliance review or complaint processing.
- 30.13 — Sanctions.
- 30.14 — Reinstatement of program registration.
- 30.15 — State Apprenticeship Councils.
- 30.16 — Hearings.
- 30.17 — Intimidatory or retaliatory acts.
- 30.18 — Nondiscrimination.
- 30.19 — Exemptions.





# Benefits to Apprentices

- Improved skills and competencies that meet the specific needs of the employer.
- Incremental wage increases as their skills improve.
- On-the-job training and occupation focused education
- Career advancement.
- Industry issued, nationally recognized credentials.
- Articulation agreements between certain apprenticeship training programs and 2- and 4-year colleges that create opportunities for college credit and future degrees.



# Benefits to Employers

- Customized training that results in highly skilled employees trained to industry/employer specifications.
- Increased productivity and knowledge transfer due to on-the-job learning from an assigned mentor combined with related technical instruction.
- Enhanced retention - - 87 percent of program completers in 2011 were still employed nine months after completing.
- Emphasis on safety training that may reduce workers' compensation costs.
- A stable and predictable pipeline for the development of qualified workers.



# Why Registered Apprenticeship?

50 Stat. 664; 29 U.S.C. 50

Goal: “Strengthening the National Apprenticeship System by providing consistency and continuity across the system;” and “Establishing a consistent framework to promote improved performance outcomes and quality.”

The regulations state: “The purpose of this part is to set forth labor standards to safeguard the welfare of apprentices, promote apprenticeship opportunity and to extend the application of such standards by prescribing policies and procedures concerning the registration, for certain Federal purposes, of acceptable apprenticeship programs with the U.S. Department of Labor; Employment and Training Administration; Office of Apprenticeship.”



## Core Elements of Registered Apprenticeship

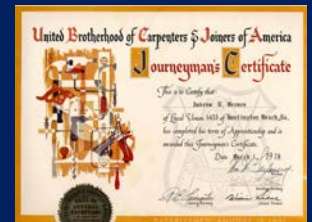
OA-Approved Apprenticeship Program  
**Defined and Approved Apprenticeship Standards for the  
Delivery of Related Technical Instruction and On-the-Job Training**

**Compliance with Federal Regulations  
29 CFR Parts 29/30**

Contractual Agreement with DOL,  
Sponsoring Entity, and Apprentice

# Foundational Components of Registered Apprenticeship

Portable  
Credentials



Progressive  
Wage  
Increases for  
Attainment  
of Skills &  
Knowledge



Related  
Training  
Instruction



Structured  
On-the-Job  
Training



Workforce-  
Education  
Partnership

Nationally  
Recognized  
Occupational  
Credentials



# Apprenticeship Training

Supervised, structured on-the-job training

- Provided by the sponsor.
- The job is primary component of apprenticeship.
- Much of the Skills, Knowledge, and Abilities (SKA's) are learned/practiced on the job.
- Written standards govern the on-the-job training.
- Work must be supervised by skilled journeyworker.





# Apprenticeship Training

## Related Technical Instruction (classroom)

- Theoretical and technical.
- Primarily through Community Colleges.
- Employer may pay tuition cost of related training.
- Apprentice may pay tuition, and usually pays for books.







## § 29.2 – Definitions

***Apprenticeship program*** means a plan containing all terms and conditions for the qualification, recruitment, selection, employment and training of apprentices, as required under 29 CFR parts 29 and 30, including such matters as the requirement for a written apprenticeship agreement.



## § 29.2 – Definitions

***Competency*** means the attainment of manual, mechanical or technical skills and knowledge, as specified by an occupational standard and demonstrated by an appropriate written and hands-on proficiency measurement.



## § 29.2 – Definitions

***Related (Technical) Instruction (RTI)*** means an organized and systematic form of instruction designed to provide the apprentice with the knowledge of the theoretical and technical subjects related to the apprentice's occupation. Such instruction may be given in a classroom, through occupational or industrial courses, or by correspondence courses of equivalent value, electronic media, or other forms of self-study approved by the Registration Agency.

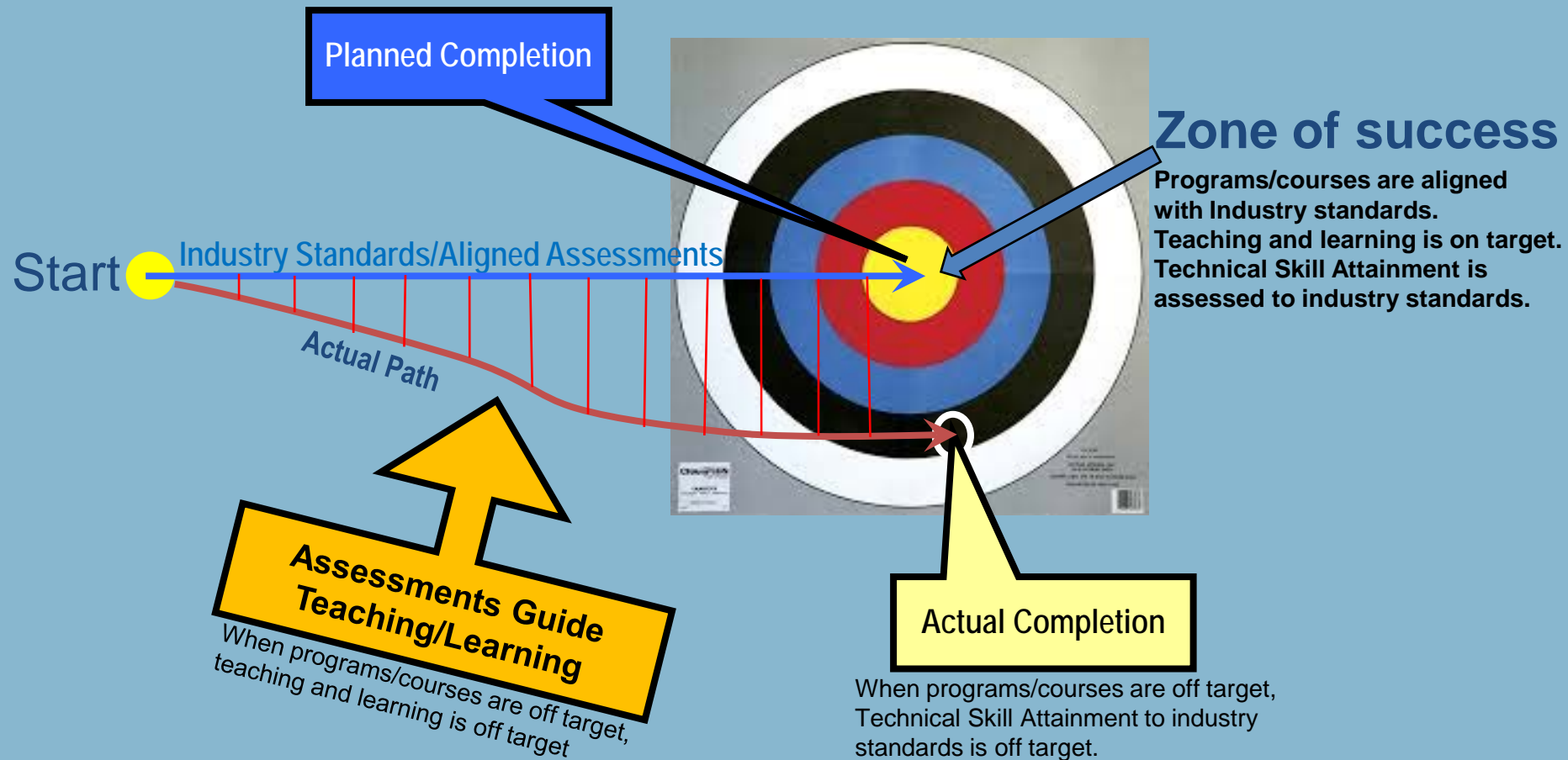


## § 29.4 – Criteria for Apprenticable Occupations

Specifies that the occupation must involve the **progressive attainment** of manual, mechanical or technical skills and knowledge which, **in accordance with the industry standard for the occupation**, would require the completion of **at least 2,000 hours** of on-the-job learning to attain.

# Program Alignment – Standards & Assessments

Training students to industry standards assures that their skills will be on target with what industry requires for workers to be successful.





## § 29.5 – Standards Of Apprenticeship

### Three Approaches for Completion of Apprenticeship

1. A competency-based approach, involving successful demonstration of acquired skills and knowledge by an apprentice, as verified by the program sponsor, with an on-the-job learning component and related technical instruction (RTI);
2. A traditional, time-based approach involving completion of at least 2,000 hours of on-the-job learning experience; and
3. A hybrid approach which requires the apprentice to complete a specified minimum number of on-the-job-learning hours and RTI hours to demonstrate competency in the defined subject areas.



## § 29.5 – Standards Of Apprenticeship

The Office of Apprenticeship has established criteria and procedures for recognizing an apprenticeable occupation that require industry verification and validation of the skills and knowledge necessary for the occupation. This process intentionally incorporates industry participation so that the credentials associated with progression through an apprenticeship program for an apprenticeable occupation will be portable and have meaning to employers nationwide.





## § 29.5 – Standards Of Apprenticeship

- (b) The program standards must contain provisions that address:
- (3) An outline of the work processes in which the apprentice will receive supervised work experience and training on the job, and the allocation of the approximate amount of time to be spent in each major process.
  - (4) Provision for organized, related instruction in technical subjects related to the occupation.

**NIMS CERTIFIED CNC SET-UP PROGRAMMER - MILLING AND TURNING  
CORE COMPETENCY ASSESSMENT FORM**

APPRENTICE: \_\_\_\_\_ EMPLOYEE NUMBER: \_\_\_\_\_  
SUPERVISOR: \_\_\_\_\_ DEPARTMENT: \_\_\_\_\_

**INSTRUCTIONS:** Check-off each Core Competency as the apprentice demonstrates a level of proficiency that is equivalent to a journeyworker level employee.

<b>NIMS CERTIFIED CNC SET-UP PROGRAMMER – MILLING AND TURNING CORE COMPETENCIES</b>		
1.	Identify and Demonstrate Usage of Machine Safety and Personal Protective Equipment	
2.	Demonstrate Compliance with Lock-out/Tag-out Procedures and OSHA Requirements and Guidelines	
3.	Machine Operations and Material Handling, Hazardous Materials Handling and Storage, including EPA, Hazmat, and OSHA	
4.	Part Inspection	
5.	Perform the Inspection of Parts	
6.	Process Control	
7.	Process Adjustment – Single Part Production	
8.	Participation in Processes Improvement	
9.	Manual Operations: Layout	
10.	Manual Operations: Benchwork	
11.	Sawing	
12.	Job Process Planning	
13.	Drilling Operations	
14.	Milling: Square Up a Block	
15.	Manual Milling: Vertical and Horizontal - Level I Machining Skills	
16.	CNC Programming - Milling - Level I Machining Skills	
17.	CNC: Write a Simple CNC Milling Program and Review Tool Path - Level I Machining Skills	
18.	CNC: Operate a CNC Milling Machine - Level I Machining Skills	
19.	CNC: Operate a CNC Milling Machine or Milling Center - Level II Machining Skills	
20.	CNC: Advanced Manual Programming - Level III Machining Skills	
21.	Use Manufacturing Modeling Software to Create Programs - Level III Machining Skills	
22.	Turning Operations: Turning Between Centers - Level I Machining Skills	
23.	Turning Operations: Chucking - Level I Machining Skills	
24.	CNC Programming - Turning - Level I Machining Skills	
25.	CNC: Write a Simple CNC Turning Program and Review Tool Path - Level I Machining Skills	
26.	CNC: Operate a CNC Lathe - Level I Machining Skills	
27.	CNC: Operate a CNC Lathe or Turning Center - Level II Machining Skills	
28.	CNC: Advanced Manual Programming - Level III Machining Skills	
29.	Use Manufacturing Modeling Software to Create CNC Turning Programs - Level III Machining Skills	
30.	General Housekeeping & Maintenance	
31.	Preventative Maintenance - Machine Tools	
32.	Tooling Maintenance	

**COMMENTS:**

APPRENTICE'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

SUPERVISOR'S SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_



# Assessment of Apprentices

Apprentices are required to learn and be tested competent (technically skills proficient) in the industry skills that are identified in [RAPIDS](#) listed occupations. 29 CFR 29.2 – Definitions, states: Competency means the attainment of manual, mechanical or technical skills and knowledge, as specified by an occupational standard and demonstrated by an appropriate written and hands-on proficiency measurement.



# Apprenticeable Occupations

The U.S. Department of Labor recognizes over 1000 occupations in many industries. Examples:

- Advanced Manufacturing
- Aerospace
- Automotive
- Biotechnical
- Construction
- Energy
- Health Care
- Hospitality
- Information Technology
- Transportation



# Apprenticeable Occupations

Registered Apprenticeship Partners Information Data System ([Rapids](#)) is the [listing of all apprenticeable occupations](#) approved by the U.S. Department of Labor; Employment & Training Administration; Office of Apprenticeship.



# The O\*Net Connection

Each approved apprenticeable occupation in the RAPIDS listing has a RAPIDS Code and a linked O\*NET to SOC Code. O\*NET maintains a Crosswalk Search where RAPIDS codes can be crosswalked to the Standard Occupational Classification Code (SOC) or Education's Classification of Instructional Programs (CIP) code. These crosswalks can be found [here](#). These resources are important because apprenticeship programs registered under a RAPIDS code should all have consistent corresponding SOC codes and CIP codes – this defines the occupational skillset.



# The O\*Net Connection

The O\*Net Academy is a valuable career development resource site for stakeholders . It offers a wealth of resources and training for Workforce Professionals, Employers, Educators, Job Seekers and Workforce Investment Boards.

Access to this site is at:

<http://www.onetacademy.org/>





# Challenges to Development Of Quality Registered Apprenticeship Programs

- Programs aligned with recognized Industry Standards.
- List of Work Processes/Hours apprentices will complete. Well-rounded training resulting from rotation of on-the-job work process hours.
- Progressive wage increases for attainment of skills/knowledge.
- Assuring portability of journeyworker certificate resulting from alignment of related training instruction and on-the-job training with recognized industry standards.
- Ensuring qualified teachers deliver related training instruction (RTI) aligned with recognized industry standards.
- Required periodic quality review of apprenticeship programs.
- Insuring that programs produce skilled competent workers.



# DOL Apprenticeship Resources

- DOL maintains a number of web-based resources available at <http://www.dol.gov/apprenticeship>. Here you can find the newest technical assistance products including a Quick Start Toolkit, which provides helpful steps and resources to start and register an apprenticeship program as well as the Federal Resources Playbook, which provides information on using other Federal funds and resources to support your registered apprenticeship program.
- Contact: Phone: [202-693-2796](tel:202-693-2796)  
E-mail at [oa.administrator@dol.gov](mailto:oa.administrator@dol.gov)

# Contact Your Office of Apprenticeship for Assistance

Click on the following hyperlink to navigate to your state's [Federal or State Office of Apprenticeship](#) for support in developing apprenticeship programs. These offices have apprenticeship directors and staff that will provide resources, and help you navigate the processes necessary to develop a Quality Registered Apprenticeship Program.



# DISCUSSION? QUESTIONS FOR ANDY?

## **Andrew N. Wermes**

State of Iowa  
Consultant, Skilled & Technical Sciences  
(515) 281-8353 Work  
(515) 314-8317 Mobile  
Andrew.Wermes@iowa.gov  
400 E. 14th St.  
Des Moines IA 50319  
<https://www.educateiowa.gov/>

