IBM Z Skills Initiatives

- Improved learning curve, easier to attract talent
  - Simplification
    Zowe, IBM Wazi
  - Open Standards and Tooling
    Jenkins, git, kubernetes, splunk, node, python, go, etc

- Skills Programs
  Academic partnerships, accessible training and systems, diverse pipeline

  ibm.biz/ztalent

Attract

With proven recruiting tactics, engagement, and messaging, companies have successfully created a sustainable pipeline.

- Employer Resource Center
- Programs for Students, New Collar, Returnships
- Talent Lounge, IT Career Connection Events

Train

Through training, entry level and experienced IBM Z talent will remain current with new technology and become more engaged in their work.

- Foundational, self-paced training with Coursera, Pluralsight, IBM Learning
- Digital Badging
- Industry conferences

Grow

Retain new talent by leveraging the IBM Z and LinuxONE digital community to engage talent from early professionals through seasoned mainframers.

- New to Z Community
- Advocacy Hub to build eminence
- Proven practices

Transition

Develop a plan to ensure the critical mainframe knowledge your employees possess is seamlessly transferred to your new to Z talent.

- Mentoring practices
- Knowledge Capture techniques
- Transition programs

Building a Sustainable Workforce

Determine Skill Needs
- What roles need to be filled? Sys Admin, Application Developer, Other?
- Level of expertise needed?
- How many resources for each role?
- Timing?

Determine Target Recruits
- Early professional/College grad
- Apprentices / New Collar
- Experienced Professional
- Internal Transfer

Early Professional
- Develop relationship with schools and students – career days, guest lectures, student clubs
- Target Academic Initiative Universities
- Participate in IT Career Connection Events
- Offer Job Shadowing & Internships
- Send New to Z hires to recruit

Apprentices / New Collar
- Non-traditional candidates – Community College, P-TECH, Re-entry programs, Veterans, etc
- Review and leverage existing registered Standards (Mainframe Sys Admin, Mainframe Application Developer)
- Contact Z Skills Rep to Join Employer Coalition

Experienced Professionals
- Search Talent Match and candidates with earned Digital Badges
- Implement recruiting tactics for a competitive market (referral programs, company promotion, social media, etc)
- Use IBM partner ecosystem specializing in talent recruitment and placement

Train
Leverage role-based learning paths on the IBM Skills Gateway and take advantage of the many learning assets from foundational to advanced as well as industry conferences to upskill.

- Master the Mainframe
- z/OS Mainframe Practitioner
- COBOL Programming
- z/OS Introduction and Refresher
- z/OS Academy
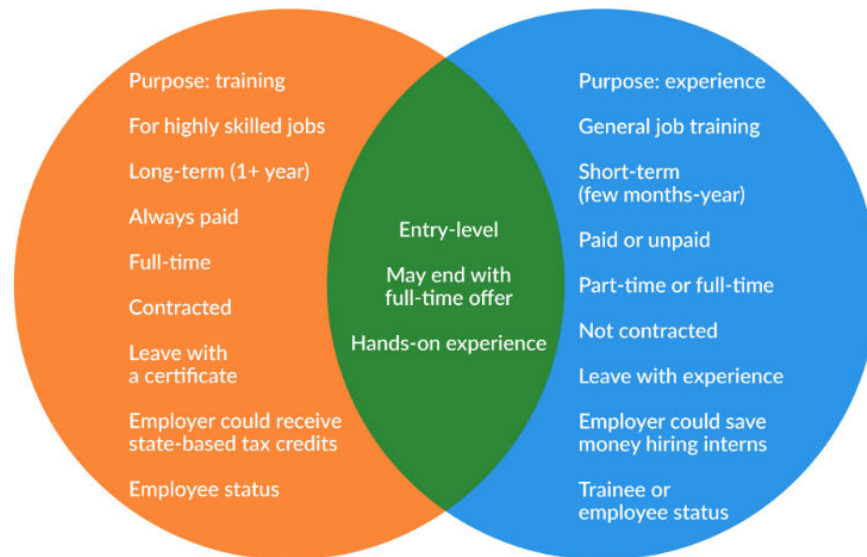- IMS Internship

Grow and Retain
- Offer career paths and leadership opportunities
- Assign career and technical mentors
- Enable the ability to build personal eminence and network
  - Join New to Z community
  - Attend and present at conferences & events

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What is an Apprenticeship?

New pathways to employment for candidates without an advanced degree

- Structured "earn as you learn" program combining formal training with on the job learning.

- Registered programs with the Department of Labor & State agencies provide a nationally recognized credential upon completion.

- The model includes progressive increase in an apprentice's skills and wages.
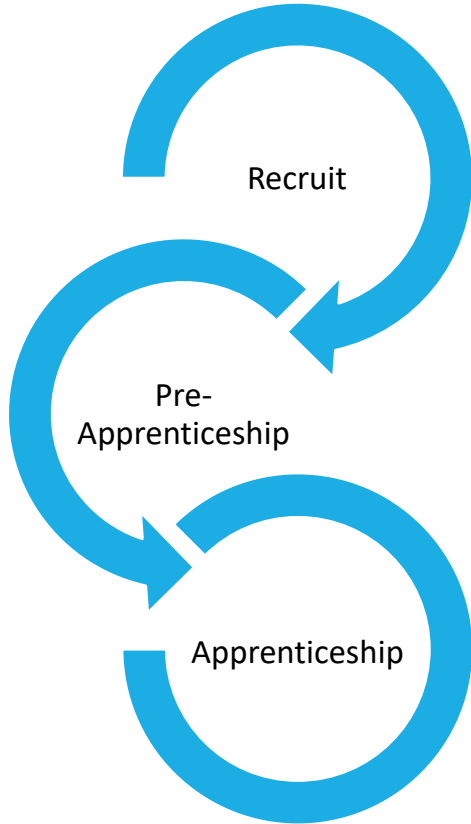
APPRENTICESHIPS + INTERNSHIPS

Purpose: training
For highly skilled jobs
Long-term (1+ year)
Always paid
Full-time
Contracted
Leave with a certificate
Employer could receive state-based tax credits
Employee status

Entry-level
May end with full-time offer
Hands-on experience

Purpose: experience
General job training
Short-term (few months-year)
Paid or unpaid
Part-time or full-time
Not contracted
Leave with experience
Employer could save money hiring interns
Trainee or employee status

*Source: patriotsoftware.com

US Mainframe Apprenticeship Employer Program Partners

US Mainframe Apprenticeship Employer Program

Bringing IBM Z employers together to build a sustainable workforce

Recruit

- Employers commit to number/location/role of resources to hire for 1 yr apprenticeship
- Franklin Apprenticeships to recruit candidates from diverse talent pool partnering with:
  - Local Workforce Boards
  - Dept of Labor Veteran Apprenticeship Placement Counselors
  - Franklin Apprenticeships network
- Employers provided opportunity to vet candidate pool for target locations

Pre-Apprenticeship

Candidates complete mainframe pre-apprenticeship virtual training program
- Introduction to Computer Science
- Master the Mainframe Part 1 and Part 2
- z/OS Practitioner
  - Introduction to IBM z/OS
  - Introduction to z/OS Commands and Panels
  - Systems Programming on IBM Z

Apprenticeship

- Employers hire pre-apprenticeship graduates into a Mainframe Sys Admin or Mainframe Application Developer role for 1 year providing incremental pay increase
- Employers provide mentorship and on the job training
- Franklin Apprenticeships administers Dept of Labor Apprenticeship standards, coordinates training, and assigns apprentice success managers throughout the 1-year apprenticeship
- Upon completion, apprentices earn Dept of Labor credential

Apprenticeship Standards: Mainframe Sys Admin   Mainframe Application Developer

Why Employers Should Participate

Employer Benefits

- Recruitment services with a focus on diversity, veterans, underrepresented populations

- Vetted candidates through pre-apprenticeship program

- Over 320 hours of training at no-charge

- Apprenticeship program administration

- Skilled IBM Z talent with option to hire for long term employment post apprenticeship

Employer Commitment

- Commit to hiring a specific number of pre-apprentice program graduates for a 1 yr apprenticeship

- Assign apprentices technical mentors and provide on the job training for a 1 yr period

- Enable apprentices to attend virtual training sessions

- Provide wage step increases based on competency achievements

Roles and Responsibilities

Franklin Apprenticeships (Intermediary)
- Pre-Apprentice Recruitment Services
  - Recruit for local talent or talent willing to relocate with a focus on diversity
    - Local Workforce Boards, Dept of Labor Veteran Apprenticeship Placement Counselors, ecosystem network
  - Engage employers as appropriate
- Administer Pre-Apprentice Cohort/Candidate Pool
  - Manage intake, communications and progression
  - Oversight/Mentoring of structured learning process
- Employer Apprentice Selection
  - Oversight of cohort hiring – engage employers, present candidates, coordinate cohort start dates, etc
- Administer Apprentice Cohort
  - Coordinate RTI (Related Technical Instruction) delivery in collaboration with IBM
  - Manage communications and progression
  - Manage DOL administrative requirements

Employer
- Commit to hiring a specific number of pre-apprentice program graduates for a 1 yr apprenticeship
- Sign a MoU with Franklin Apprenticeships
- Assign apprentices technical mentors and provide on the job training (OJT) for a one-year period
- Ensure apprentices attend virtual training sessions (RTI)
- Provide wage step increases based on competency achievements

IBM
- Recruit Employers for the program
- Curate coalition partners for program administrative and funding services
- Provide Standards (MSA and App Dev on Z) and coordinate delivery of RTI w/Franklin Apprenticeships
- Deliver Pre-Apprenticeship structured learning platform
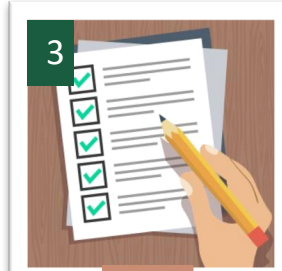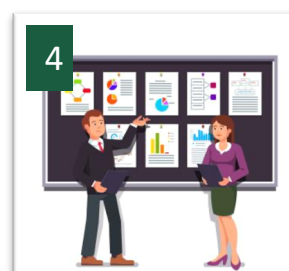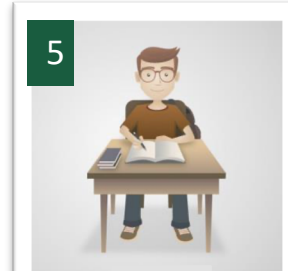- Oversee program communication and governance

APPRENTICE LEARNING JOURNEY

1 Recruitment
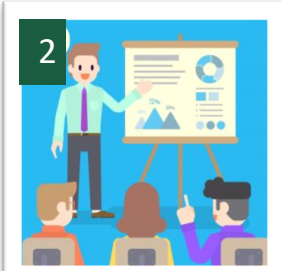
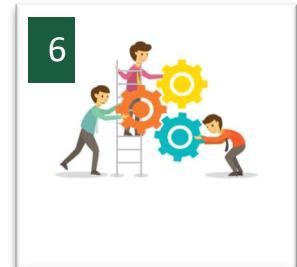**2** Pre-Apprenticeship
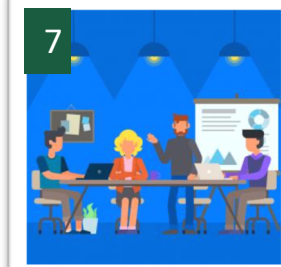
3 Hiring & Onboarding

4 Individual Learning Plan

5 Related Technical Instruction

6 Check Ins & Learning Support

7 Formal Progress Reviews
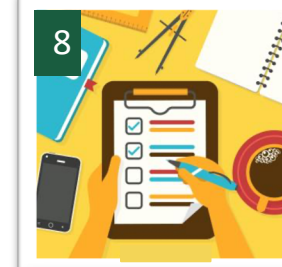
8 Work Assessment
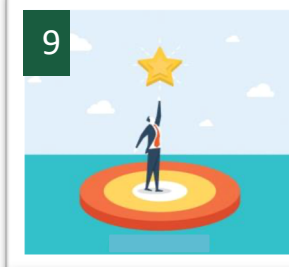
9 Achievement

10 Progression

Next Steps

Sept 2020
Client Commitments in place

Oct 2020
Pre-Apprenticeship Program Begins

Dec 2020
Successful candidates presented to clients for hiring

Jan 2022
Apprenticeship Program Complete (Cohort 1)

Cohort 1 Recruiting Begins
Sept 2020

Pre-Apprenticeship Program Complete
Nov 2020

Apprenticeship Program Begin
Jan 2021

Mainframe Apprenticeship Learning Content: Application Developer

Program	Topic	Courses	Duration (in hrs)
Pre-Apprenticeship Program	Introduction to Computer Science	AP Computer Science (Kahn Academy)	10
	Master the Mainframe	Part 1 and Part 2	25
	z/OS Practitioner Course	Introduction to IBM z/OS Introduction to z/OS Commands and Panels Systems Programming on IBM Z	50
Apprenticeship	Agile practices, including operations, program fundamentals, and project and change management	Agile Fundamentals Agile in the Real World	4
	Leadership skills	Leadership and Communication Skills for Software Engineers	5
	Big Data and Analytics	Data Analytics: Hands On Big Data 101 Hadoop 101 Spark Fundamentals I	15
	Web development fundamentals	Front-End Web Development Quick Start With HTML5, CSS, and JavaScript Intro to Web Development jQuery Fundamentals Angular: Getting Started Designing RESTful Web APIs A Practical Start with React Building Applications with React and Flux	30
	Clean coding and social coding behaviors and practices. Manage Technical Debt	Clean Code: Writing Code for Humans GitHub Fundamentals Understanding and Eliminating Technical Debt	10

Program	Topic	Courses	Duration (in Hrs)
Apprenticeship (cont)	Introductions to functional and imperative languages	Software Design Fundamentals Channel JavaScript Fundamentals Vol 1, 2, 3 & JavaScript Development Environment Node.js Python - Big Picture, Fundamentals & Getting Started Java Fundmentals, Core Platform & Fundamentals Collection Software Architecture Fundamentals	35
	COBOL programming	COBOL Programming with VSCode	15
	Test Driven Development	Test Driven Development – Big Picture	2
	Continuous integration and continuous delivery practices	Continuous Integration and Delivery: The Big Picture Getting Started with Jenkins 2	4
	Feature Decoupling	Feature toggles	1
	DevOps tools, including Chef, Travis, Ansible, and Jenkins	DevOps: The Big Picture Implementing DevOps in the Real World Travis CI Tutorial	6
	Cloud computing fundamentals	IBM Cloud Essentials IBM Cloud Application Development v3 Cloudant Introduction to Docker Container & Kubernetes Essentials Introduction to OpenStack Getting started with Microservices with Istio and IBM Cloud Kubernetes Service Beyond the Basics: Istio and IBM Cloud Kubernetes Service	55
	Enterprise solutions	DB2 Fundamentals Managing DB2 Operations IBM CICS Video Course, CICS Introduction, Explorer Fundamentals, Command Simulation, IMS Introduction	58

Review the detailed [Application Developer on Z Competency Framework](#)

Mainframe Apprenticeship Learning Content: System Administrator

Program	Competency	Course	Duration (in Hrs)
Pre Apprenticeship Program	Introduction to Computer Science	AP Computer Science Principles (Kahn Academy)	10
	Master the Mainframe	Part 1 and Part 2	25
	z/OS Practitioner Course	Introduction to IBM z/OS Introduction to z/OS Commands and Panels Systems Programming on IBM Z	50
Mainframe System Administrator	Introduction to Computer Science	AP Computer Science Principles (Kahn Academy)	10
	Master the Mainframe	Part 1 and Part 2	25
	z/OS Practitioner Course	Introduction to IBM z/OS Introduction to z/OS Commands and Panels Systems Programming on IBM Z	50
	Networking Principles	IBM z/OS Communications Server TCP/IP Implem	7
	z/OS Rexx Programming	z/OS Rexx Programming Workshop	36
	z/OS Systems Services Structure	z/OS Systems Services Structure	36
	SMP/E for z/OS Workshop	SMP/E for z/OS Workshop	36
	Db2	Db2 Fundamentals	10
	CICS & IMS	IBM CICS Video Course Series Controlling CICS Operations CICS Concepts and Operation Assessment 5.3 IMS 15 Introduction IMS Diagnostics	20
	Master the Mainframe	Part 3	40
Continuing Education	z/OS Introduction	z/OS Introduction - An IBM Redbooks video cours	Ongoing
	z/OS JCL	Introduction to z/OS JCL	Ongoing

Review the detailed Mainframe System Administrator Competency Framework