OhioTechNet

Partners in Training Ohio's Manufacturing Workforce

Ohio TechNet Monthly Meeting

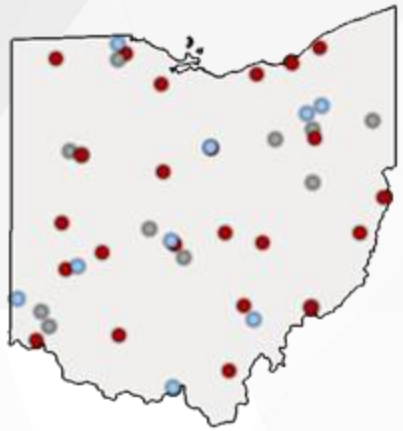
April 21, 2026

Thank you for joining us today!

Enter your name and organization in the chat

OhioTechNet

Partners in Training Ohio's Manufacturing Workforce



OTN Members:

- Community College
- Technical Center
- University

Vision

The members of the Ohio Technical Skills Innovation Network, or Ohio TechNet, are nationally recognized for partnering with industry to implement collaborative, innovative solutions that meet manufacturing and tech workforce needs.

Mission

Ohio TechNet supports workforce development and academic professionals to incubate, develop and sustain programming that accelerates the growth of Ohio's manufacturing & technical workforce.

Purpose

Ohio TechNet partners benefit from peer-to-peer collaboration, technical assistance and access to resources, making program expansion and innovation at their institution more efficient, faster to implement and easier to sustain.

Strategic Focus Areas

Ohio TechNet's strategic focus areas provide partners with best practices, models, and technical assistance to address the critical workforce needs in the state.

- **Guided Pathways for Youth**
- **Reaching New Audiences**
- **Innovative Earn and Learn**
- **Faculty and Educator Development**
- **Partnering with Industry**

1 CONNECT

MONTHLY NEWSLETTER

Subscribe to our monthly newsletter to stay informed about peer-to-peer collaboration opportunities, technical assistance, innovative solutions, and upcoming trainings.

2 COLLABORATE

CONSORTIUM MEETINGS

Join our virtual meetings every 3rd Tuesday at 8:30 AM (EST) to explore collaborative, innovative solutions that support workforce and academic professionals across Ohio's educational institutions in addressing manufacturing and tech talent needs.

3 CONTRIBUTE

OTN RESOURCES

From industry-aligned partnerships and earn-and-learn programs to faculty development and K–12 outreach, Ohio TechNet offers innovative tools and resources to help institutions and individuals thrive. Visit our website to learn more.

440-366-4215 ohiotechnet.org info@ohiotechnet.org

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OTN's April Newsletter

- Recent Meeting Updates
- Success at Tri-C with the Northshore Manufacturing Workforce Partnership project (DOL SCC5)
- Upcoming meetings, webinars, and conferences
- Funding opportunities
- Other Resources

OhioTechNet

Partners in Training
Ohio's Manufacturing Workforce

The Ohio Technical Skills Innovation Network, or Ohio TechNet (OTN), is a statewide consortium of over 40 community colleges, universities, and technical centers that accelerate innovation to meet manufacturing and tech workforce needs. OTN's strategic areas of focus include reaching new audiences, expanding innovative earn and learn opportunities, engaging industry partners, supporting faculty development, and strengthening K-12 talent pathways.

The Ohio TechNet Team at LCCC

Monthly Meeting Agenda
Strategic Focus Area: Innovative Earn and Learn

Ohio TechNet invites you to join us on Tuesday, April 21, at 8:30 AM
Aaron Burdette, University of Cincinnati
Assistant Professor of Practice | Department of Biomedical Engineering
Co-Director, Medical Device Innovation and Entrepreneurship Program
Faculty Director, Workforce Development and Continuing Education

The **University of Cincinnati (UC)** will provide updates on key workforce development initiatives aimed at strengthening Ohio's talent pipeline. The presentation will cover recent enhancements to UC's co-op program, efforts to align and expand Registered Apprenticeship pathways, and the continued expansion of UC Skills as a flexible, industry-driven learning platform. UC will also highlight custom employer-partnered training programs designed to meet specific workforce needs and support upskilling across the region.

University of CINCINNATI

Important Update: Ohio TechNet Monthly Meetings are now hosted on Microsoft

OhioTechNet

Experiential Learning Webinar Series

Join the Ohio Association of Community Colleges (OACC) and Ohio TechNet in this dynamic six-part webinar series exploring the full spectrum of experiential learning—from foundational concepts to innovative earn-and-learn models that strengthen pathways into high-demand fields—reimagine what experiential learning can look like on your campus.

Upcoming Webinars:

- Designing Earn and Learn Programs - May 28, 2026
- Building Industry Partnerships - July 22, 2026
- Innovative Approaches: Micro-Internships and Project-Based Learning - September 30, 2026
- Leveraging Simulations and Virtual Labs - November 18, 2026
- Recap & Launch of the **Updated** Experiential Learning Replication Guide - December 9, 2026

Register Here: https://oaccsuccesscenter.regfox.com/experiential-learning-on-your-campus-webinar-series

Webinar #1: Foundations of Experiential Learning

April 1, 2026, at 12:00 PM

Explore the core principles of experiential learning and how institutions can build strong, intentional models that connect student learning with career preparation.

WATCH WEBINAR #1 VIEW WEBINAR #1 SLIDES

https://ohiotechnet.org/our-work/current-work/webinar-series/

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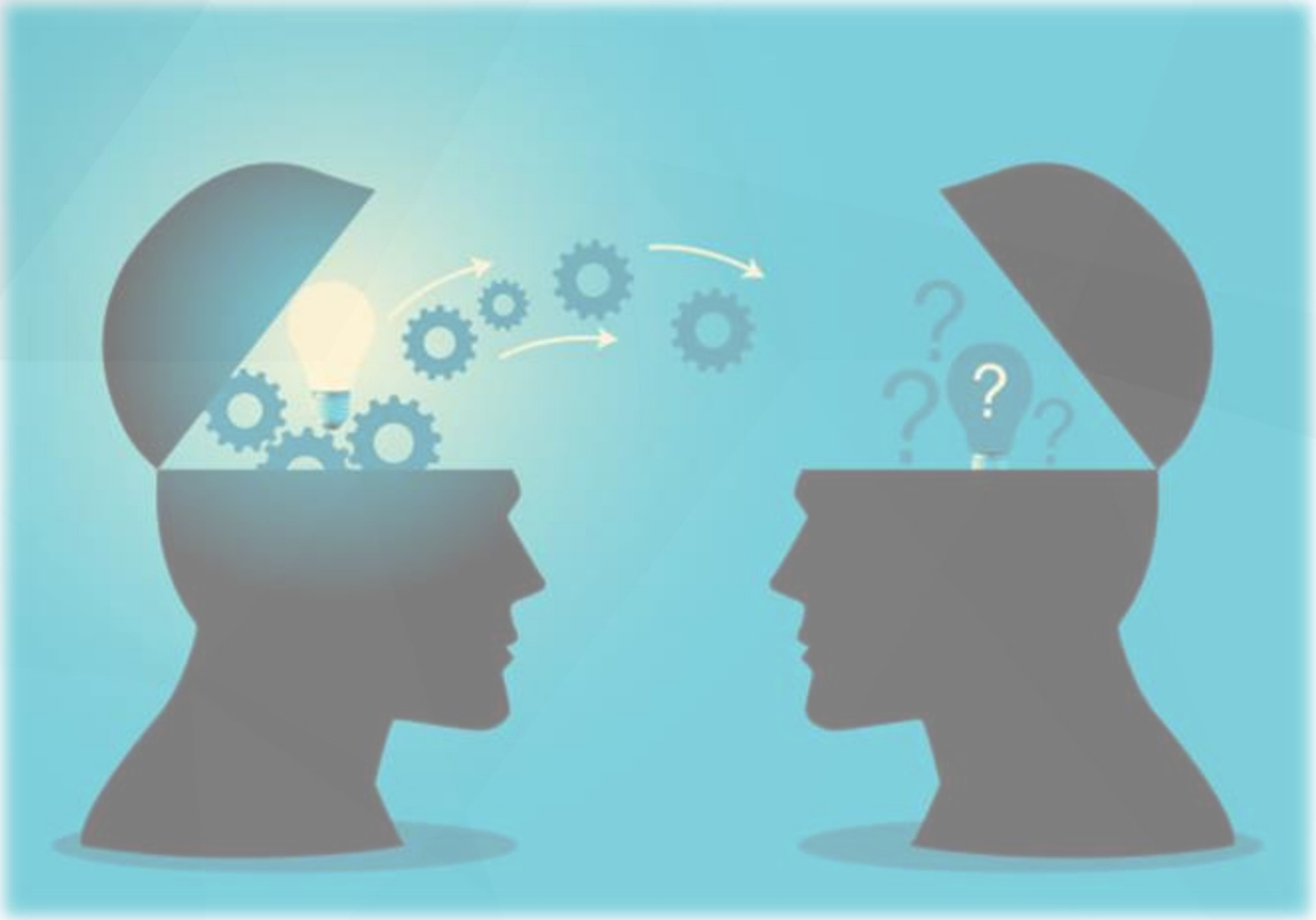

Other upcoming events, success stories, or announcements to share?

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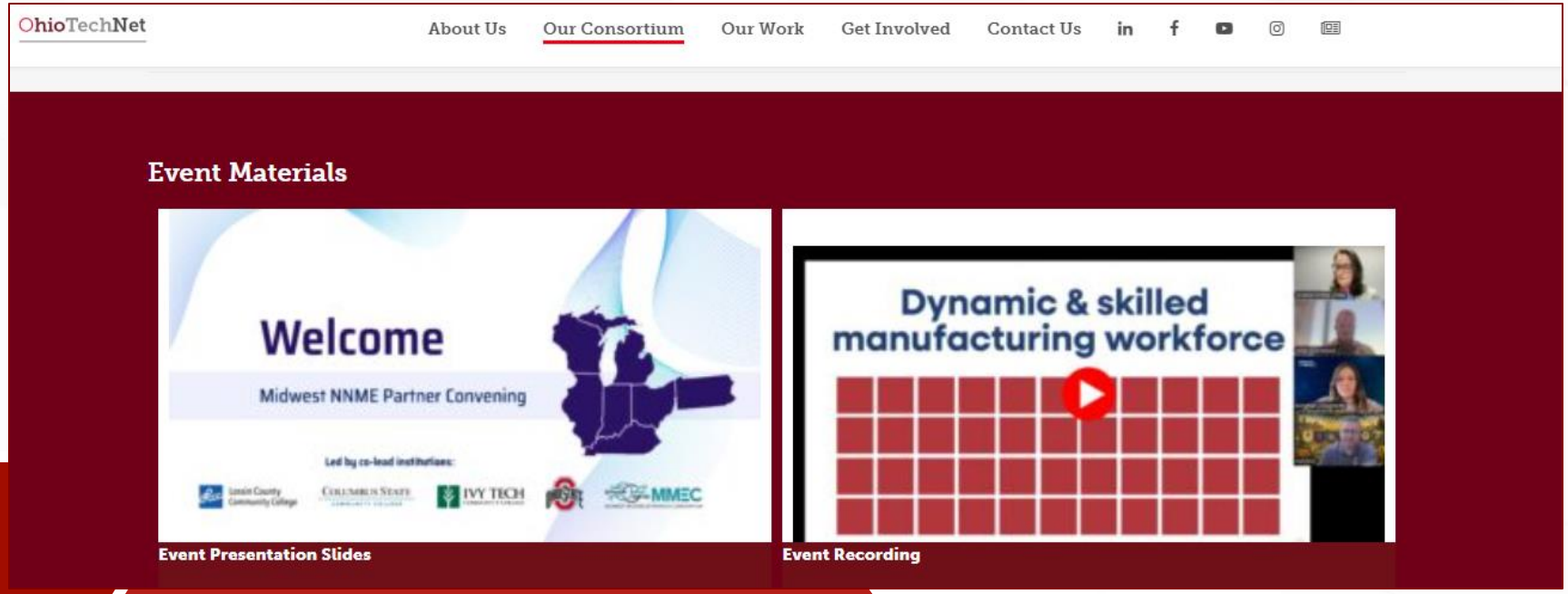
EXCELERATE-ME: Preparing the Midwest for Semiconductor Workforce Growth

On April 9, 2026, Lorain County Community College, Columbus State Community College, Ivy Tech Community College, The Ohio State University, and the Midwest Microelectronics Consortium convened more than 65 partners from industry, education, and workforce development across seven states. Participants represented Indiana, Illinois, Kentucky, Michigan, Ohio, Pennsylvania, and Wisconsin—including five of the seven state manufacturing associations in the Midwest.



https://ohiotechnet.org/our-consortium/midwest_nnme_partner_convening/

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Innovative Earn and Learn

Aaron Burdette, University of Cincinnati
Assistant Professor of Practice | Department of Biomedical Engineering
Co-Director, Medical Device Innovation and Entrepreneurship Program
Faculty Director, Workforce Development and Continuing Education

- Recent enhancements to UC's co-op program
- Efforts to align and expand Registered Apprenticeship pathways
- The continued expansion of UC Skills as a flexible, industry-driven learning platform

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Partners in Training Ohio's Manufacturing Workforce

FOLLOW OHIO TECHNET ON LINKEDIN!

NEXT MEETING:

May 19, 2026
8:30am

APRIL MEETING – OHIO TECHNET

UNIVERSITY OF CINCINNATI

Aaron Burdette, Faculty Director of Workforce Development
Elizabeth Kerr, Assistant Dean of Professional, Continuing, and Workforce Education

University of CINCINNATI

College of Cooperative Education and Professional Studies

Who we are and what we do.

From division to college

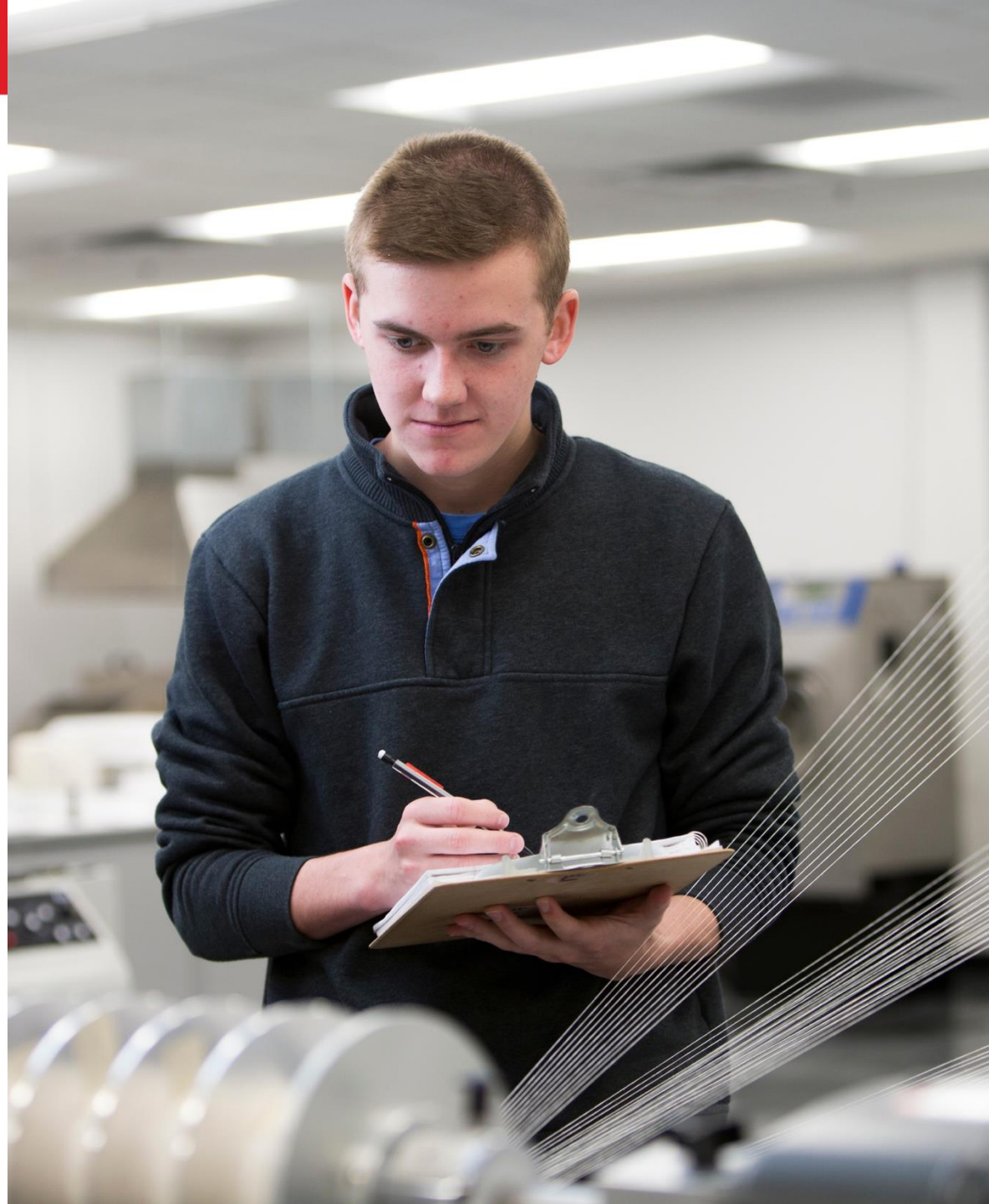
How we came to be.

- Experience-Based Learning and Career Ed (ELCE)
  - Co-op & Service Learning
  - PD courses & Career Services
  - BPS
  - Partnership Development
  - Workforce Development programs (Apprenticeship)
- Professional and Continuing Ed
  - OLLI, Communiversity, Aspire
  - Expanded Mission = UC Skills

Co-op…

…short for cooperative education, is an educational model that lets students learn through meaningful, career-oriented, compensated, workplace experiences.

Our goal is to offer the widest variety of opportunities to students across the university. We connect students with university, industry, government, and community partners. Co-op students build their skills and networks while actively contributing to today's workforce.



Primary College Name	Freshman	Sophomore	Pre-Junior	Junior	Senior	Graduate	Grand total
Arts & Sciences	1	6	0	4	7	0	18
College Conservatory of Music	0	0	0	0	1	0	1
DAAP	0	1	83	168	311	0	563
CECH	1	28	52	48	108	2	239
CEAS	0	181	348	440	445	0	1414
Lindner	1	24	0	97	114	1	237
Grand Total	3	240	483	757	986	3	2472

PROFESSIONAL DEVELOPMENT

01

#2 public university for co-ops and internships

02

More than 8,300 paid co-op experiences a year

03

$94 million earned by co-op students last year

Bearcat Promise Career Studio

The Bearcat Promise Career Studio is a place where all UC students can participate in career exploration, planning and development.

Career Studio data (AY 2024-2025)

1,509 students received coaching
2,983 students used headshot/interview booths
37,120 students receive monthly newsletter
148,794 total Handshake logins
27,096 unique Handshake logins
334,915 total application submitted through Handshake
2,404 students signed up for interview slot on Handshake
93 classroom presentations/Career Studio workshops

Who are **co-op advisors**?

- Dedicated professionals who guide students through mandatory co-op programs
- Career Coaches in the Career Studio who assist students in optional co-op tracks

What impact do **co-op advisors** have?

- Lighten the load for faculty and staff
- Handle logistics of supporting student job searches
- Reinforce students' education with opportunities to apply it in professional settings

What do **co-op advisors** do?

- Job Search Support
- Skill Development
- Career Planning

Bachelor of Professional Studies

Designed to flex according to each student's aspirations and their unique situations.

This is a fully online program where students can use their existing work experience toward a degree. This program emphasizes a breadth of study to teach students applicable skills. This program is ideal for adult learners with existing work experience. Credit for prior experience and supportive advising are cornerstones of this unique degree program.

96 students enrolled (2025)

Partnership Development

- **8,395** co-op placements last year across Fortune 500 companies, startups, nonprofits, and research labs
- Experiential learning opportunities offered in all **50 states** and **22 countries**.
- **1,757** co-op employers

UC SKILLS

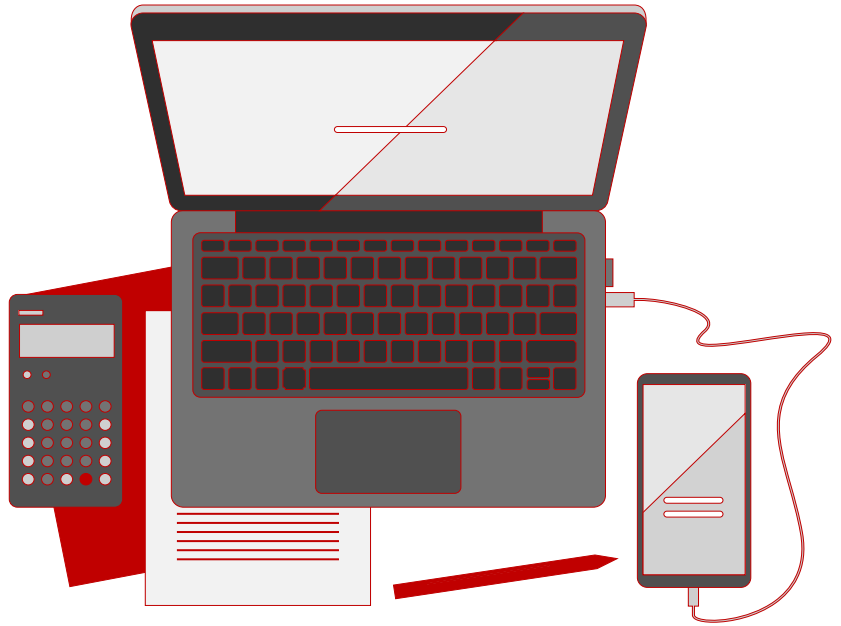
NON-CREDIT LEARNING AND CREDENTIALS

University of CINCINNATI

WHAT IS UC SKILLS?

UC's gateway to professional education

- Website, course catalog & registration system
- Short-term, flexible learning
- Designed for working professionals
- Built on UC expertise

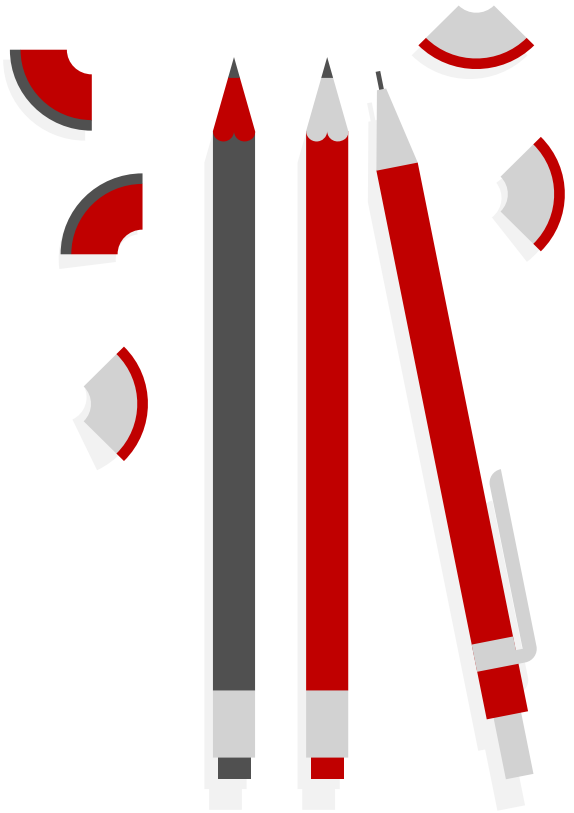


WHAT'S OFFERED

Open registration
Publicly available for anyone to participate in

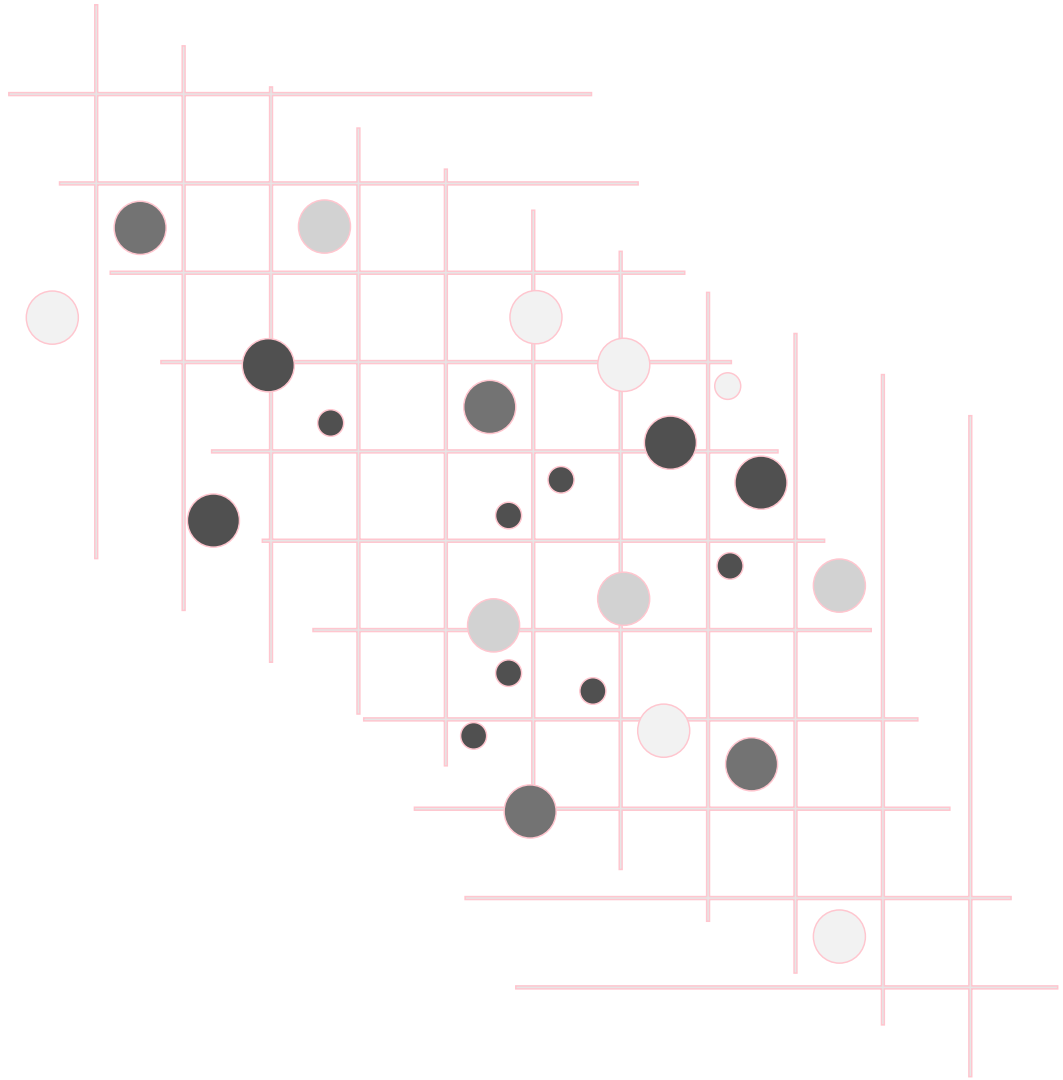
Private registration
Create a private link for any of our programs that is only available when shared

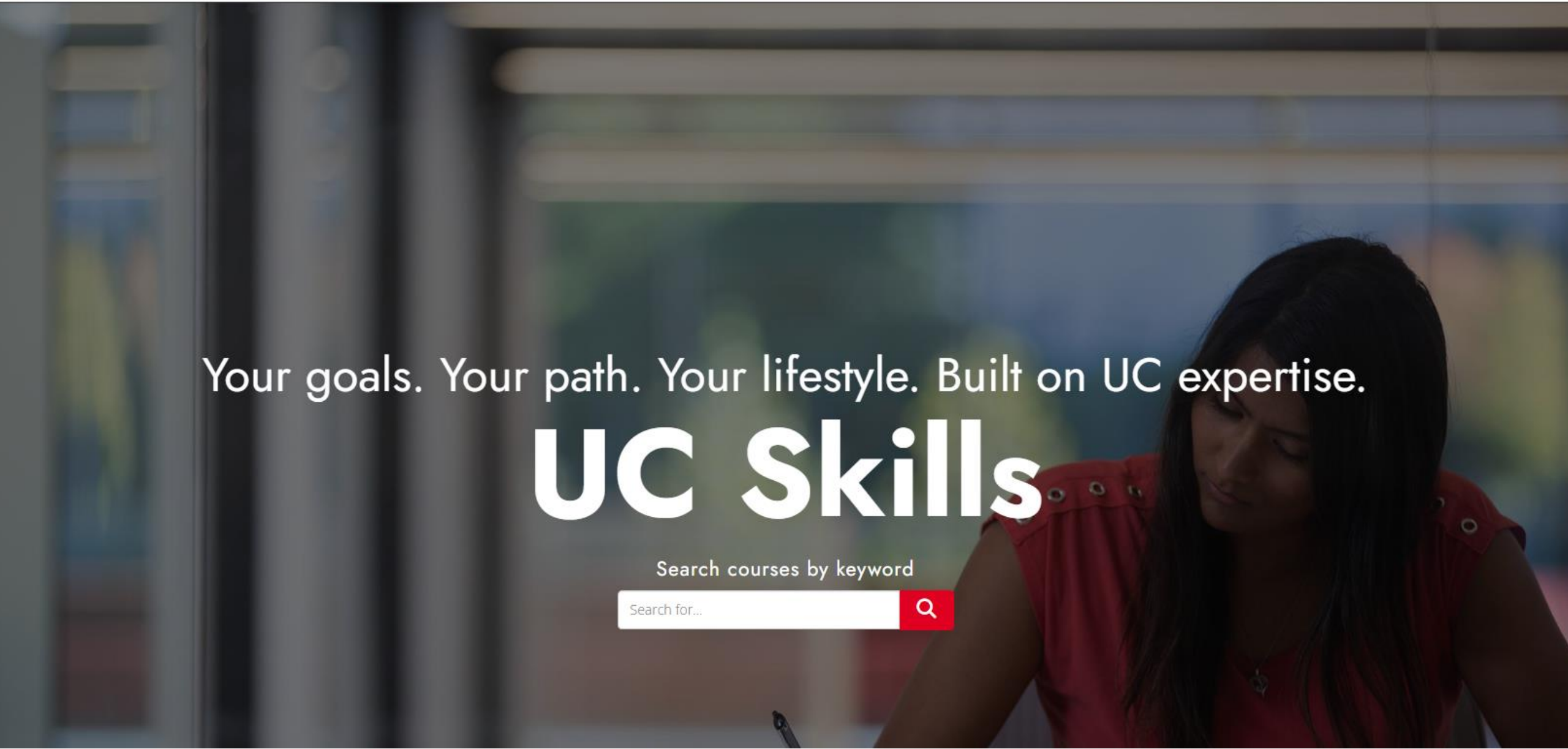
Custom programs
We partner with employers to create a course that fits their organization's needs



TOPICS INCLUDE

- Business & leadership
- Digital skills & technology
- Teaching & education
- Engineering & manufacturing
- Health & pharmacy
- Academic Preparation




Your goals. Your path. Your lifestyle. Built on UC expertise.
UC Skills
Search courses by keyword
Search for...

Explore

Search keywords

Toggle Grid/List View

Clear | Expand | Collapse

Offering Type

- [x] Course
- [ ] Program

Delivery Format

- [ ] Blended
- [ ] In-Person
- [ ] Online Live
- [ ] Online Self-Paced

Interest Area

Course

American Pharmacists Association's The Pharmacist & Patient-Centered Diabetes Care

Blended

James L. Winkle College of Pharmacy

$

Course

Arlitt Child Development Associate (CDA)

Online Self-Paced (Facilitated)

Record of Completion

College of Education, Criminal Justice, and Human Services

$

Course

Bearcats Bootcamp: Mastering Specialty Pharmacy

Online Self-Paced (Non-Facilitated)

Continuing Education/CEU, Record of Completion

James L. Winkle College of Pharmacy

$

Cart (3 Items)

CHECKOUT

Item	Options	Quantity	Subtotal
Course Bearcats Bootcamp: Mastering Specialty Pharmacy CE-25PA1001X - 001 Fee: $99.00 Remove	Fee: Course Fee $99.00 Apply a discount	1	$99.00
Course Meditation 101 CE-18PA1020X - 001 Fee: $99.00 Remove	Fee: Course Fee $99.00	1	$99.00
Course Bearcats Executive Leadership Program: Both/And Thinking CE-22PA1014X - 001 Fee: $195.00 Remove	Fee: Course Fee $195.00 Apply a discount	1	$195.00

Subtotal **$393.00**

Total **$393.00**

CHECKOUT

Registration Policies

LANGUAGE FRAMEWORK

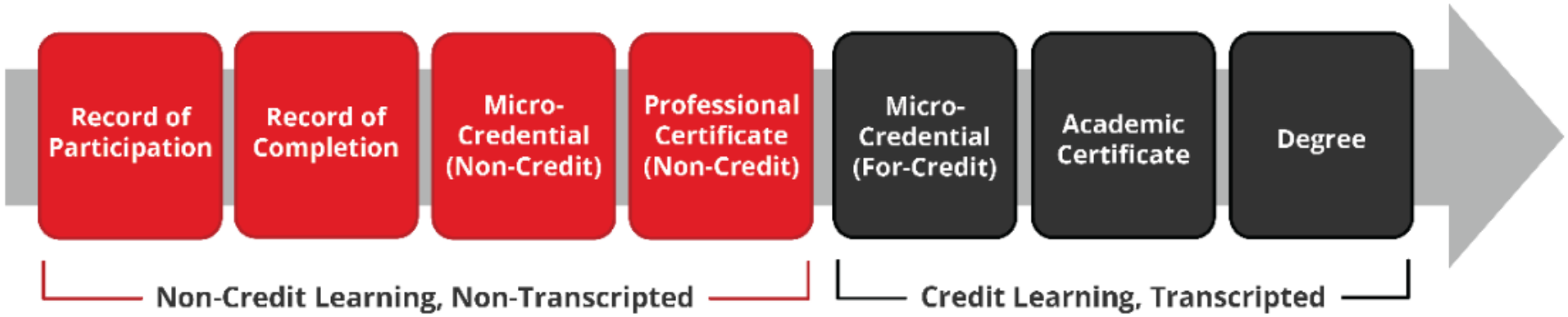
Non-Credit Learning Classifications		
Course	Learning Program	Non-Credit Credential
Workshop	Program	Record of participation
Training	Institute	Record of completion
Course	Conference	Micro-credential
Bootcamp	Summit	Professional certificate

	Workshop	Training	Course	Bootcamp
Description	A workshop is a structured and interactive session designed to guide learners through a process that will lead to a specified outcome. Workshops are designed to engage participants and foster their active involvement in the process.	Instruction designed for developing a specific skill or competency during the training session.	Non-credit courses are short-term classes designed for learners who want to explore new concepts or expand their knowledge base. Courses are more theoretical than workshops and training.	A non-credit bootcamp is a short-term, accelerated program that teaches skills in a specific field, often preparing learners for an industry-recognized credential. The content is often hands-on and project-based. Ideally, career services are provided in conjunction with instruction.
Modality	Synchronous (in-person or online live)	Any	Any	Any
Instructor Engagement	High level of instructor-learner interaction	Varying levels of instructor-learner interaction	Varying levels of instructor-learner interaction	Varying levels of instructor-learner interaction
Focus	Hands-on learning to perform specific tasks	Developing specific skills or competencies	Understanding concepts and building a knowledge base	Developing in-demand skills for job readiness
Learner Time Commitment	Up to 40 hours, contained within the workshop	Up to 40 hours, contained within the training	Up to 126 hours. Learners may complete tasks or assignments outside of designated instructional time	15 to 126 hours. Learners may complete tasks or assignments outside of designated instructional time
Credential	Record of completion	Record of completion	Record of Completion or micro-credential	Record of completion or micro-credential

	Program	Institute	Conference	Summit
Description	A program is a set of related courses with a particular long-term aim, like building a skillset or understanding of an area of study.	An institute is a structured educational experience focused on deep learning, skill development, and collaboration around a specific topic or area of practice. Institutes are typically immersive in nature and require a high level of engagement from participants. There is often an emphasis on project-based learning, collaboration, and practical application. There may be sustained learner engagement and networking at the conclusion of the institute.	A conference is a gathering of learners in a particular field or profession to discuss and explore topics related to a central subject.	A summit is a gathering of individuals focused on exchanging ideas, showcasing work, and exploring solutions around a shared topic or challenge. Summits are typically composed of keynote speakers, panel discussions, breakout sessions, and networking opportunities.
Modality	Any	Synchronous (in-person or online live)	Synchronous (in-person or online live)	Synchronous (in-person or online live)
Focus	Building a skillset or comprehensive understanding	Deep learning, skill development, and collaboration	Structured learning opportunities around a central subject	Dialogue, collaboration and exposure
Learner Time Commitment	Three or more consecutive courses	8 to 126 hours. Typically spans multiple days, though not always consecutive	4 to 50 hours. Typically spans a half-day to several consecutive days	4 to 50 hours. Typically spans a half-day to several consecutive days
Credential	Record of completion, micro-credentials, or professional certificate	Record of completion or micro-credential	Record of participation	Record of participation

INNOVATIVE CREDENTIALS

- Four levels of non-credit innovative credentials
- Micro-credentials and professional certificates:
  - Validate learning through meaningful assessment
  - Speak to job readiness
- Issued as digital badges through Credly



A record of participation is a basic credential that acknowledges participation in a non-credit learning activity and may only be issued for conferences. It acknowledges participation but does not validate the completion of the activity or any learning outcomes.

This type of innovative credential is suitable for conferences requiring a time commitment ranging from 4 to 50 hours, and it does not assess levels of understanding.

A record of completion is a basic credential that acknowledges completion of a non-credit learning activity, applicable to all course and program types except conferences.

While it acknowledges participation and completion, it does not validate learning outcomes or assess levels of understanding. This innovative credential can be earned for activities requiring any amount of time commitment.

A micro-credential (non-credit) is a credential that validates a learner's knowledge of a specific skill or competency within a particular field or industry. It applies to courses and bootcamps and requires demonstrated mastery of all learning outcomes.

This innovative credential validates learning outcomes and can be categorized by foundational, intermediate, and advanced levels of understanding. The time commitment for earning a micro-credential ranges from 10 to 126 hours, with an emphasis on the rigor of content, stackability, and industry value.

Micro-credentials are designed to support learners in the workforce. When determining if a micro-credential is the right fit, ask, “Would an employer hire, promote, and/or offer a higher wage as a result of this credential?”

A professional certificate (non-credit) is the highest non-credit credential, validating a learner's knowledge, competency, and job readiness in a specific professional or occupational field. It is broader in scope and requires a greater time commitment than a micro-credential (non-credit), with micro-credentials potentially stacking into professional certificates.

This credential validates learning outcomes and can be categorized by foundational, intermediate, and advanced levels of understanding. It requires a time commitment of over 100 hours, is specific to non-credit programs, and is not equal to an academic certificate.

Professional certificates are designed to support learners in the workforce. When determining if a professional certificate (non-credit) is the right fit, ask, “Would an employer hire, promote, and/or offer a higher wage as a result of this credential?”

DIGITAL BADGES

- Visual representation of the credential
  - Similar to how a diploma represents a degree
- Shareable and verifiable
- Tamper-proof using blockchain technology
- Embedded metadata to describe the value of the earned credential
- Coordinated with the Office of the Registrar

Earn this badge

Foundations of Python 2: Working with Data

Issued by University of Cincinnati

This micro-credential is awarded by the University of Cincinnati Libraries in partnership with the College of Engineering and Applied Science. Learners explore Python data analysis with Pandas to manipulate dataframes via slicing, indexing, and querying. Learners apply statistical and aggregation methods to analyze datasets, create visualizations with matplotlib, Pandas, and seaborn, and build understanding of linear regression models for prediction with NumPy, scikit-learn, and statsmodels.

Learn more

Validation | Foundational | Hours | $ Free

Skills

Data Analysis | Data Manipulation | Data Processing | Data Visualization | General Linear Models | Google Colab | Information Visualization | Jupyter Notebook | Linear Regression | Mathematical Analysis | Pandas | Python | Regression Analysis | Seaborn | Statistical Analysis | Statistics

Earning Criteria

- Complete a comprehensive Canvas course featuring instructional videos and knowledge-check quizzes while working through hands-on Jupyter notebook exercises.
- Demonstrate competency by successfully completing all module assessments covering data manipulation with Pandas, statistical analysis techniques, data visualization creation, and regression modeling implementation. Participants apply learned concepts through practical coding exercises in Google Colab.

NON-UC VALIDATION OF LEARNING

- Continuing Education Units
  - Varies by industry
  - Add hours to Credly badges + enable PDF certificate
- Industry-Recognized Credentials
  - May offer a record of completion for trainings that prepare for IRCs, but are very cautious about the language
    - Naming is not IRC naming
    - Meta-data enforces preparation, not attainment
    - Clarity to participants

HOW THE LANGUAGE FRAMEWORK WAS DEVELOPED

- Lots of research!
  - AACRAO
  - UPCEA
  - Credential Engine's Credential Transparency Description Language
  - Other institutions (shout out to Stanford!)
- Institutional norms
  - What language were we already using?
- Credential earned vs. artifact received
- Input from campus stakeholders

What Is Workforce Development?

Definition (U.S. Department of Labor): "A system of strategies and services that connect education and training to employment, enabling individuals to gain the skills, credentials, and supports needed for long-term career success."

85%

Employers prioritizing workforce upskilling

63%

Employers identify skills gaps as major barrier

7.6M

Current U.S. job openings


WORKFORCE DEVELOPMENT
ALIGNING TO APPRENTICESHIPS
University of
CINCINNATI

Source: U.S. Bureau of Labor Statistics.


FRED
Labor Force Participation Rate
63.0
62.8
62.6
62.4
62.2
62.0
61.8
61.6
61.4
61.2
Percent
Jul 2021
Jan 2022
Jul 2022
Jan 2023
Jul 2023
Jan 2024
Jul 2024
Jan 2025
Jul 2025
Jan 2026
Source: U.S. Bureau of Labor Statistics via FRED®
Shaded areas indicate U.S. recessions.
fred.stlouisfed.org
Fullscreen

The Workforce Imperative

Critical factors driving workforce development initiatives across sectors

Skills Gap Challenge

Employers struggling to find qualified workers for available positions despite high unemployment

Technological Disruption

Automation and digital transformation creating demand for new workforce competencies

Career Pathways

Strategic alignment between education, training, and industry needs for sustainable employment

Collaborative Solutions

Cross-sector partnerships developing innovative approaches to workforce challenges

The Workforce Imperative

National Unemployment: 4.3%

March 2025 figures show steady unemployment despite economic changes.

Ohio Unemployment: 4.2%

State figures remain slightly above national average.

Labor Participation: 61.9%

Participation rates stagnant with limited year-over-year growth.

Job Openings: 7.6 million

Significant opportunities exist despite economic headwinds.

Skills Gap and Training Initiatives

Employer Concerns

63% of employers identify skill gaps as major barrier to business transformation.

85% plan to prioritize upskilling their workforce to remain competitive.

Federal Programs

DOL emphasizes youth workforce readiness through targeted grants.

Focus areas include soft skills development, certifications, and apprenticeships.

Innovative Models

AI Technicians initiative between U.S. Army and Carnegie Mellon pioneers rapid training.

Programs target swift preparation for emerging AI-related roles.

Demographic and Political Influences

Aging Workforce

Aging Workforce: Older workers (55+) are expected to drive 42% of U.S. labor force growth over the next decade, with women leading this trend .Center for American Progress

Policy Shifts

Policy Shifts: The Trump administration's cuts to international labor programs have raised concerns about the enforcement of labor standards and the impact on global supply chains, along with increased labor shortages in the US .The Guardian

Key Components of Workforce Development

Skills Training & Upskilling

Formal and informal learning aligned with market needs

Supportive Services

Childcare, transportation, and wraparound supports

Credentialing

Degrees, certificates, microcredentials, and badges

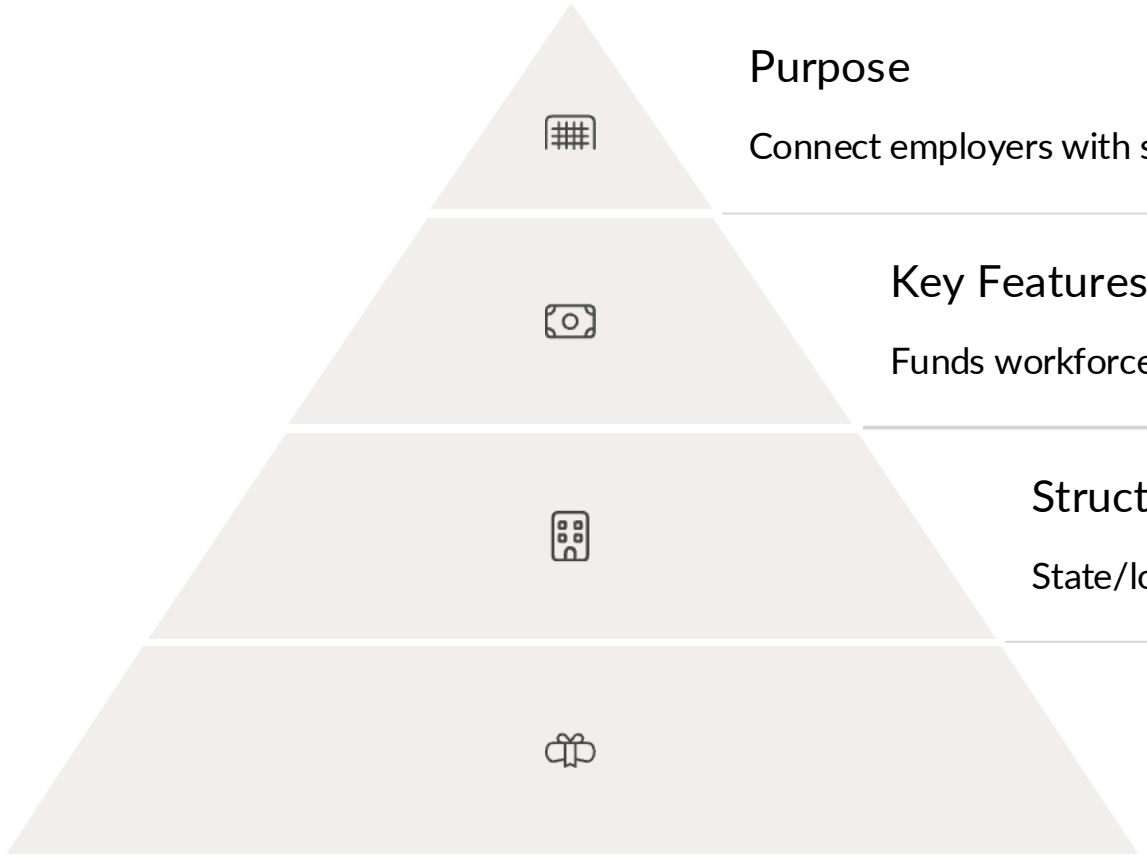
Career Navigation

Advising, job placement, and career services

Employer Engagement

Industry input on curriculum and apprenticeships

What is WIOA?



Purpose

Connect employers with skilled workers

Key Features

Funds workforce boards and training programs

Structure

State/local implementation of federal guidelines

UC Relevance

Universities can offer WIOA-funded training (UC Aspire)

The Workforce Innovation and Opportunity Act funds adult, youth, and dislocated worker training while encouraging co-investment in apprenticeships.

What ARE we doing…

K-12 Integration

Enhance career exposure, dual credit, and CTE opportunities

Pathway Development

Strengthen College Credit Plus and career tech connections, growth in Apprenticeships, degree apprenticeships, stacked and modular education

Deeper Collaboration

Build clearer, earlier pathways using IDD models in pre-apprenticeship

Early workforce development creates stronger pipelines from education to employment. UC can play a pivotal role in connecting students with career opportunities earlier.

APPRENTICESHIP ACADEMIC DEGREE PATHS.

Word Choice – Updating to 21st Century

Apprenticeships

National Apprenticeship Act – Amendment B (2020)

Internships

GLATT v. FOX SEARCHLIGHT PICTURES INC (2015)

Co-ops

DEFINITIONS - APPRENTICESHIP

Apprenticeship is a structured training model combining on-the-job training (OJT) and related classroom instruction, often under oversight of the U.S. Department of Labor or state apprenticeship agencies.

Under 20 CFR § 688.120, a "registered apprenticeship program" is defined as an apprenticeship program that:

- (1) Is registered under the National Apprenticeship Act (the Act of August 16, 1937, 29 U.S.C. 50 et seq.); and
- (2) Meets such other criteria as the Secretary of Labor may establish.

Under Ohio Revised Code § 4139.01:

- (A) "Apprentice" means a person at least sixteen years of age (unless a higher minimum age is otherwise required) who is in a registered apprenticeship program to learn a skilled occupation pursuant to a registered apprenticeship agreement.
- (B) "Apprenticeship agreement" means a written agreement, registered with the Apprenticeship Council, providing for not less than 2,000 hours of reasonably continuous employment, and for participation in an approved schedule of work experience through employment supplemented by at least 144 hours per year of related and supplemental instruction.

DEFINITIONS – COOPERATIVE EDUCATION

Under 20 U.S.C. § 2302(10), cooperative education means:

- a method of education for individuals who, through written cooperative arrangements between a school and employers, receive instruction, including required rigorous and challenging academic courses and related career and technical education instruction, by alternation of study in school with a job in any occupational field, which alternation—
- (A) shall be planned and supervised by the school and employer so that each contributes to the education and employability of the individual; and
- (B) may include an arrangement in which work periods and school attendance may be on alternate half days, full days, weeks, or other periods of time in fulfilling the cooperative program.

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DEFINITIONS – COOPERATIVE EDUCATION

Ohio Definition / Regulation:

Under Ohio Administrative Code 3333-1-63 (the Ohio “co-op/internship program” rule), a “cooperative education program” is defined as:

a partnership between students, institutions of higher education, and employers that formally integrates students’ academic study with work experience in cooperating employer organizations and that meets all of the following conditions:

- (a) alternates or combines periods of academic study and work experience in appropriate fields as an integral part of student education;
- (b) provides students with compensation from the cooperative employer in the form of wages or salaries;
- (c) evaluates each participating student’s performance in the cooperative position, from both the academic institution and employer;
- (d) provides participating students with academic credit upon successful completion;
- (e) is part of an overall degree or certificate program for which a percentage of the total program acceptable to the Chancellor involves cooperative education.

CO-OP & APPRENTICESHIP

National Apprenticeship Act (NAA) Amendment B - 2020

- Expands the definition of apprenticeship to more closely tie to Co-op in March of 2020
- Expands hallmarks and standards of Apprenticeship to Co-op Model
  - https://ecfr.federalregister.gov/current/title-29/subtitle-A/part-29
- 5 Key Hallmarks:
  - Career/Occupation Related
  - Include On-the-Job Learning with Mentorship/Supervision
  - Contain Related Instruction
  - Must Incorporate Annual Wage
  - Result in National Credentials

Registering Co-op Programs as Apprenticeship Program

- **Educator Model of Apprenticeship**
  - University – Tracking of Data remains the same
  - Same Employer Partners
  - Same Curriculum
  - Same Students
  - Added National Credential – Apprenticeship Certification
  - Added Tax and Financial benefits for employers

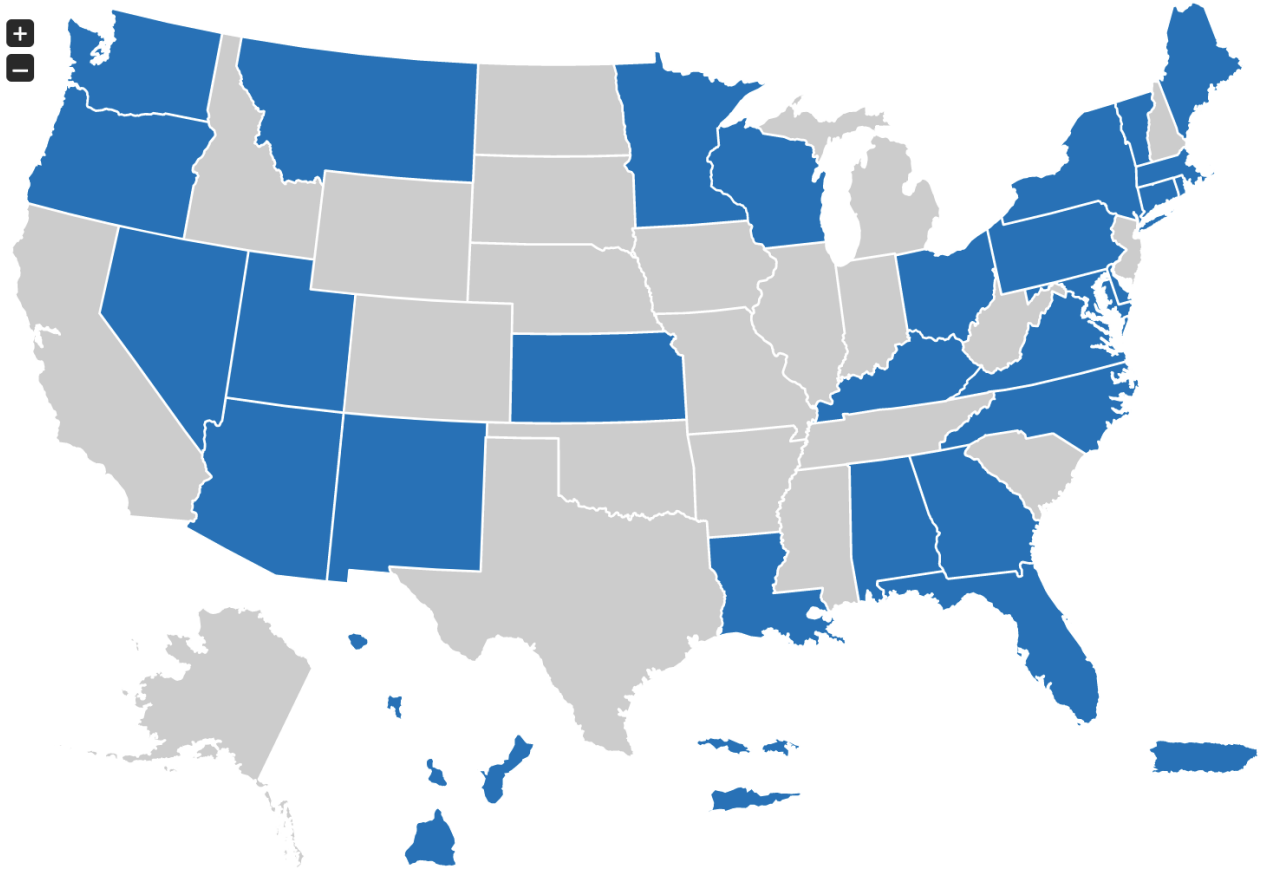
DEGREE APPRENTICESHIPS

- Allow individuals who do not have opportunities to take on the financial burden of a 4-year degree or forgo full-time salaries, to engage in formal degree training and attain industry recognized credentials.

- Provide avenues for individuals to take the experience already gained and submit for college credit for areas of equivalencies.

- Have shown **GREAT SUCCESS** for countries like the United Kingdom, growing in the number university offering since its launch in 2016, providing increase access to higher education.

US Apprenticeship & State Agencies



1937 – Fitzgerald Act

HALLMARKS OF APPRENTICESHIP IN THE US

- Paid, work-based learning
- Structured on-the-job training and mentorship
- Related technical instruction
- Completion of a nationally portable, industry-recognized credential
- Safety and equal opportunity standards

STATE REQUIREMENTS

Of the 29 state agencies, each require different minimums for registered apprenticeship. Most require minimum …

- 2000 hours OJT hours
- 144 hours of RTI hours.

This is for all 3 models of apprenticeship:

- Time-based,
- Hybrid, and
- Competency-based.

Characteristics	Time-base	Hybrid	Competency-based
Must be an approved apprenticeable occupation as required in Section 29.4.	Yes	Yes	Yes
Occupation term requires a minimum of 2,000 hours (one-year) of on-the-job learning.	Yes	Yes	No
An apprentice must be registered in an approved competency-based occupation for twelve (12) calendar months of on-the- job learning	No	No	Yes

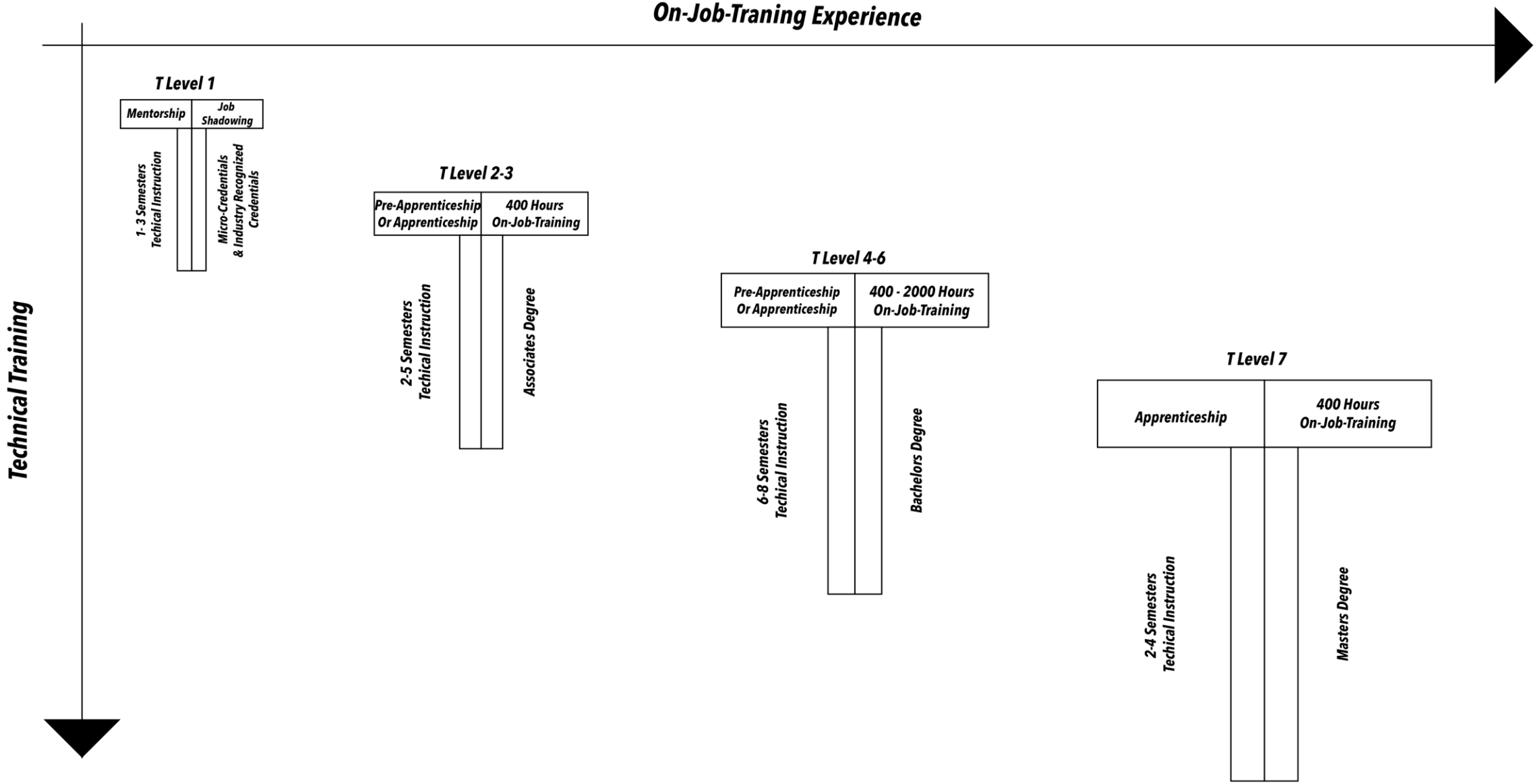
BUILDING ON WHAT WE KNOW..

Cooperative education is a structured method of combining classroom-based education with practical work experience.

A cooperative education experience, commonly known as a “co-op”, provides academic credit for structured job experience.

Co-op are:

- Either full-time (40 hours per week) alternating periods (semester, quarter) of work and school or part-time (20 hours per week) combining work and school during the same time period.
- Paid, supervised by a professional who has followed the same career path of the student and students complete more than one assignment (2 or more) with progressive levels of responsibility.


On-Job-Traning Experience
Technical Training
T Level 1
Mentorship
Job Shadowing
1- 3 Semesters Techical Instruction
Micro-Credentials & Industry Recognized Credentials
T Level 2-3
Pre-Apprenticeship Or Apprenticeship
400 Hours On-Job-Training
2-5 Semesters Techical Instruction
Associates Degree
T Level 4-6
Pre-Apprenticeship Or Apprenticeship
400 - 2000 Hours On-Job-Training
6-8 Semesters Techical Instruction
Bachelors Degree
T Level 7
Apprenticeship
400 Hours On-Job-Training
2-4 Semesters Techical Instruction
Masters Degree

CERTIFICATE OF COMPLETION - MINIMUM REQUIREMENTS:

- The Certificate of Completion of Apprenticeship issued by the Registration Agency to those registered apprentices certified and documented by the Sponsor as successfully completing the apprentice training requirements for the competency-based, hybrid, or time-based approach, as specified in the Standards of Apprenticeship.
- The apprentice is also required to have worked under the Program Sponsor as a registered apprentice, in the apprenticeable occupation for **a minimum of six (6) months**, exclusive of any prior experience granted.

ASSESSMENT PROCESS

- Measures or tests of competency attainment and demonstrated skills performance are the **responsibility of the sponsor** and should be observable, repeatable and agreed to in advance.
- Assessments on-the-job and off-the-job should be carried out on a structured on-going basis, and include course work, practical assessments and theoretical assessments. **Written and practical end-testing may also be utilized**..

GOVERNMENT DEPARTMENTS: WHICH ONES MATTER?

National Center for Education Statistics

Bureau of Labor Statistics

Census Bureau

CONNECTING THE DOTS…

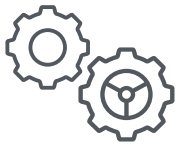
CLASSIFICATION SYSTEMS

CLASSIFICATION OF INSTRUCTIONAL PROGRAMS (CIP)

A taxonomic coding scheme developed by the National Center for Education Statistics in 1980 to help organize, collect, and report the fields of study and program completions. It is the accepted federal government statistical standard on instructional program classifications and is used in a variety of education information surveys and databases. The latest revision occurred in 2020.

STANDARD OCCUPATIONAL CLASSIFCIATION (SOC)

A hierarchical coding scheme originally developed in 1980 that was designed to reflect the current occupational structure of the United States. Federal statistical agencies use it to classify workers and jobs into occupational categories for the purpose of collecting, analyzing, or disseminating data. The latest revision occurred in 2021. (Also known as O'net Codes)



NORTH AMERICA INDUSTRY CLASSIFICATION SYSTEM (NAICS)

A standard industry classification system developed in 1997 through cooperation of Canada, Mexico, and the United States. The system is unique because of its single framework and production-orientation which is critical to collect and publish information on both inputs and outputs together (e.g. measuring productivity, unit labor costs, capital intensity of production, estimating employment-output relationships, constructing input-output tables). Economic units (establishments) that have similar production processes have the same industry classification. The latest revision occurred in 2022.

CROSSWALKS FROM INDUSTRIES TO EDUCATION

- **NAICS (industries) to SOC (occupations)**
  - Staffing pattern matrix, US Bureau of Labor Statistics
- **SOC (occupations) to CIP (curricula)**
  - CIP 2020 crosswalk, National Center for Education Statistics

CODING SYSTEMS

Slated – Degree Apprenticeships

- Aerospace Engineers
- Architectural and Civil Drafters - Structural
- Biomedical Engineering Technician (BMET)
- Chemical Technicians
- Civil Engineering Technologists and Technicians
- Computer Hardware Engineers
- Computer Programmers, Engineer, Scientific
- Construction Inspector
- Cybersecurity Engineer (Cyber Engineer)
- Electrical and Electronic Engineering Technologists and Technicians
- Electrical and Electronic Engineering Technologists and Technicians
- Environmental Scientists and Specialists, Including Health
- Fire Inspectors and Investigators
- Industrial Engineer
- Mechanical Engineers
- Mechanical Engineering Technician (Mechanical Engineering Tech)
- Architectural Designer
- Historians
- Graphic Designer
- Fashion Designer
- Fine Artist
- Game Designers
- Horticulturist
- Industrial Designer
- Interior Designer
- Landscape Drafter
- Project Management Specialists
- Cybersecurity Specialist (Cyber)
- IT Systems
- Database Architect
- Game Developer
- Network and Computer Systems Administrators
- Devops Engineer
- Industrial Manufacturing Technician
- Computer System Analyst
- Surgical Technologist
- Additive Manufacturing Technician
- Medical and Clinical Lab Technician
- Hospitality Manager

PRE-APPRENTICESHIPS

- Engineering (Drafting/CAD)
- IT
- Hospitality
- Electronics Technician
- Advanced Manufacturing

UC IDD EDUCATION RE-APPRENTICESHIPS & APPRENTICESHIPS

University of CINCINNATI | INTELLECTUAL AND DEVELOPMENTAL DISABILITY EDUCATION CENTER

1. **STEM Access for All Summer Camp**
   - High school students with disabilities gain hands on experiences with computer aided design (CAD) and introductory engineering concepts. The camp is developed and implemented by an interdisciplinary team (Intervention specialist, engineering majors, OT and SLP students)
   - Funded by ODEW Grant

2. **Fall & Spring 2023 Pilot Pre-Apprenticeship Programs**

   (Information Technology & Hospitality)
   - This training platform supports K–12 student success by improving graduation outcomes while developing the essential technical and workplace skills needed for future employment.
   - Pre-apprenticeships are structured work-based learning programs that prepare individuals to enter a Registered Apprenticeship, transition directly into employment, or continue into postsecondary education and training. These programs build foundational technical, academic, and employability skills, providing learners with hands-on experience and a clear pathway to skilled careers and long-term workforce participation.
   - Funded by Deans Compact

1. **Fall & Spring 2024 Pilot Engineering Pre-Apprenticeship**
   - Program leads to credentialling in SolidWorks (Computer Aided Design)
   - This program leads to entry level positions in advanced manufacturing and drafting occupations
   - Funded by Deans Compact
2. **Fall & Spring 2025 Second Cohort Engineering Pre-Apprenticeship**
   - Program leads to credentialling in SolidWorks (Computer Aided Design)
   - This program leads to entry level positions in advanced manufacturing and drafting occupations
   - Participants utilized OOD and private pay for tuition
   - SDI Grant

Pre-RAP & Apprenticeship Programs

Engineering	Information Technology	Hospitality	Laboratory Technician	Early Childhood

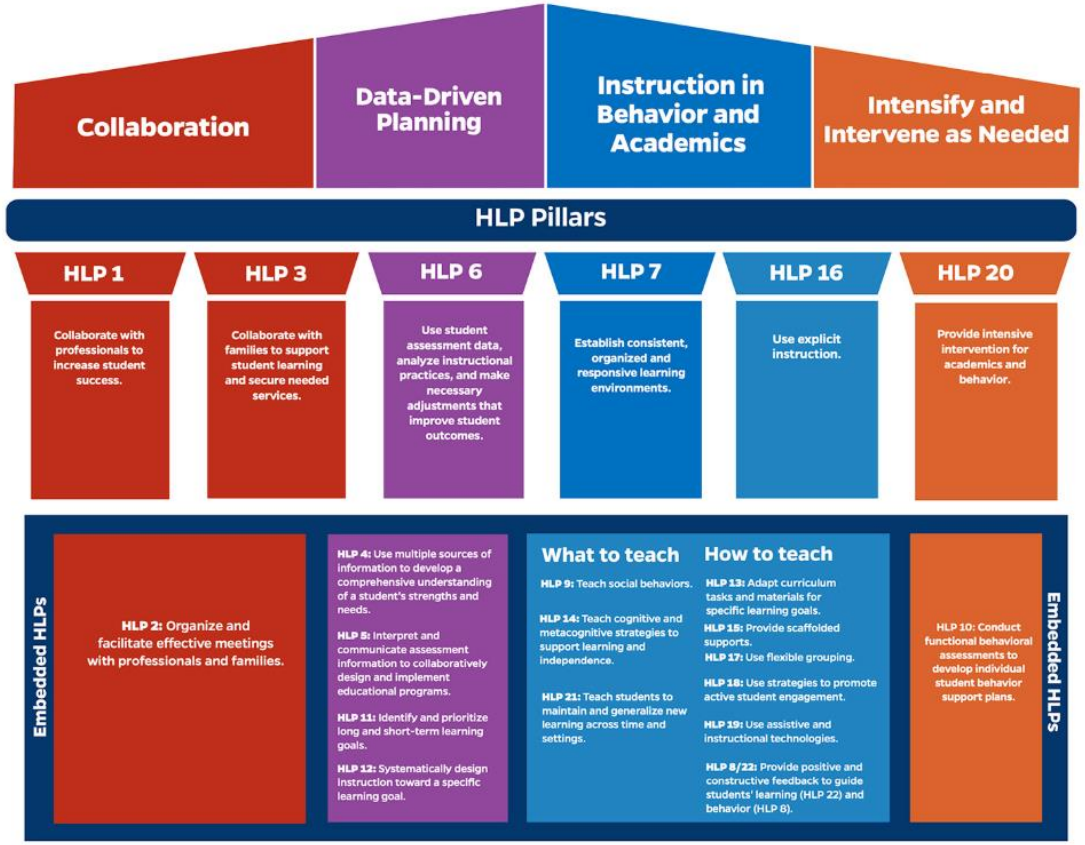
ACCESSIBLE TECHNICAL TRAINING:

Skill / Competencies	Description	
Proficiency with CAD Software	Ability to use key features of the software (e.g., NX Software, SolidWorks, AutoCAD, Fusion 360), including interface navigation, tool commands, and file management.	X
3D Modeling Skills	Ability to create complex 3D models, applying techniques such as extruding, revolving, and lofting.	X
File Conversion and Collaboration	Ability to export, import, and manage CAD file formats across different platforms, as well as work in collaborative environments.	X
Proportional Accuracy	Ability to capture correct proportions and relationships between objects in a technical drawing or artistic sketch.	X
Line Quality and Precision	Mastery of clean, consistent, and precise lines in manual and digital drawing techniques.	X
Perspective Drawing	Understanding and application of perspective drawing techniques (one-point, two-point, etc.) for representing 3D objects on a 2D surface.	X
Isometric and Orthographic Views	Ability to create and interpret isometric and orthographic projections from 3D objects to 2D space.	X
Freehand Sketching	Ability to quickly sketch ideas and concepts by hand, focusing on the visualization of form and function without the need for precision tools.	X
Detailing	Skill in adding necessary details to sketches to enhance understanding, including material textures, connectors, or functional elements.	X
Printer Setup and Calibration	Competence in setting up and calibrating the 3D printer, including bed leveling, filament loading, and nozzle temperature adjustment.	X
3D Printing Safety and Maintenance	Knowledge of safety procedures for operating the Bambu printer, handling materials, and maintaining the printer (cleaning, nozzle maintenance, part replacement).	X

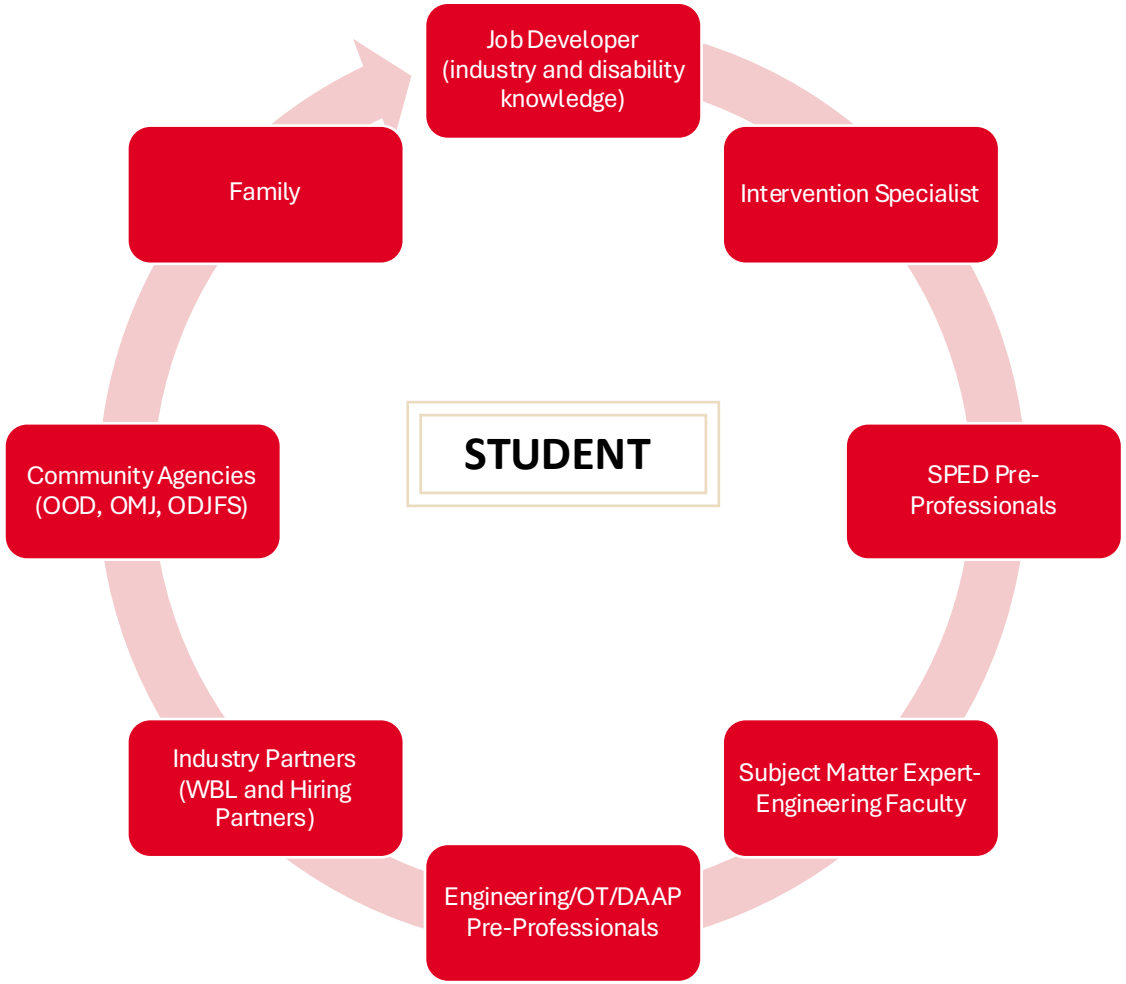
INDUSTRY RECOGNIZED CREDENTIALLING:

HIGH LEVERAGE TEACHING PRACTICES:

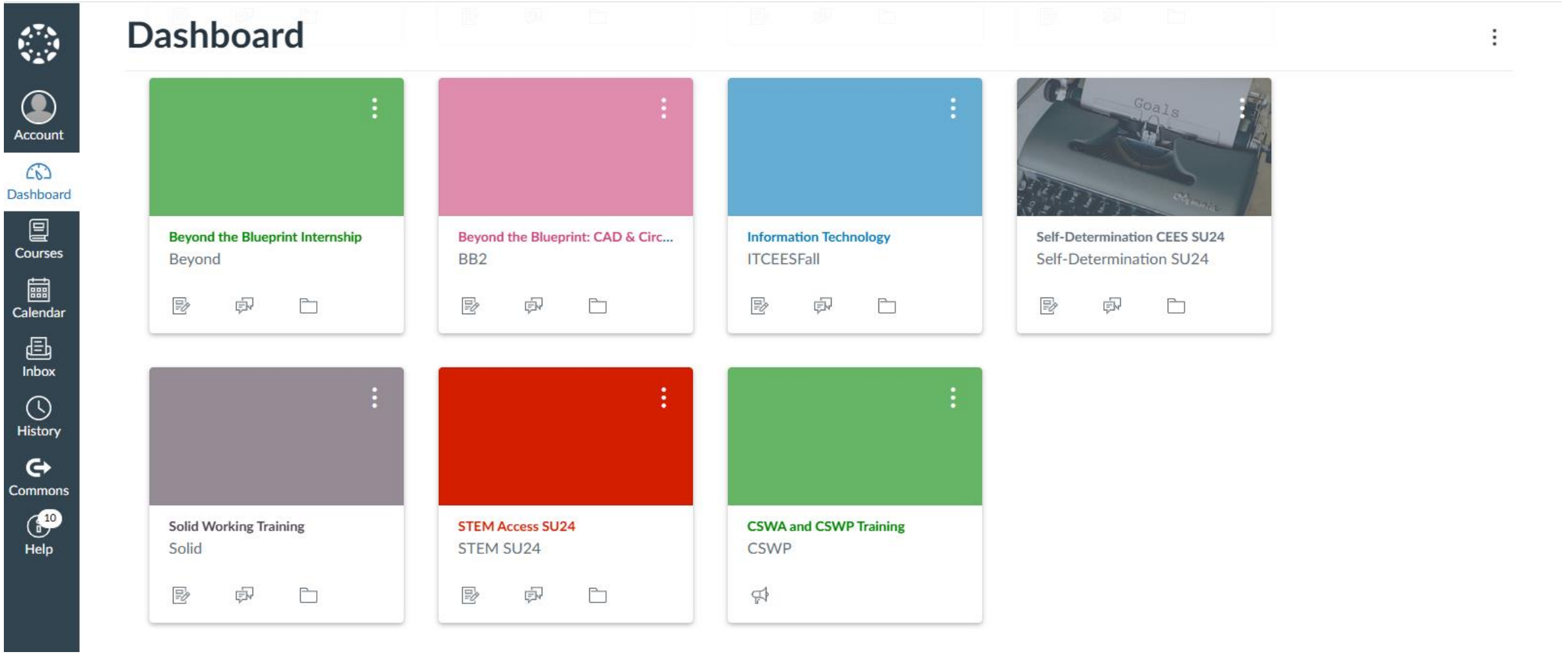
- Explicit Instruction
- Systematic Instruction
- Differentiation
- Metacognition
- Feedback
- Peer Collaboration
- Modeling & Demonstration
- Task Analysis
- Scaffolding



INTERDISCIPLINARY INSTRUCTIONAL TEAMS:



POSTSECONDARY PREPARATION



Supportive Services

- Career Counseling and Job Readiness
- Mentoring-Near-Peer Support
- Academic Support
- Work-Readiness and Soft Skills Training
- Work Experience and Placement Support
- Post-Program Transition Support

Ohio Opportunities for Ohioans with Disabilities

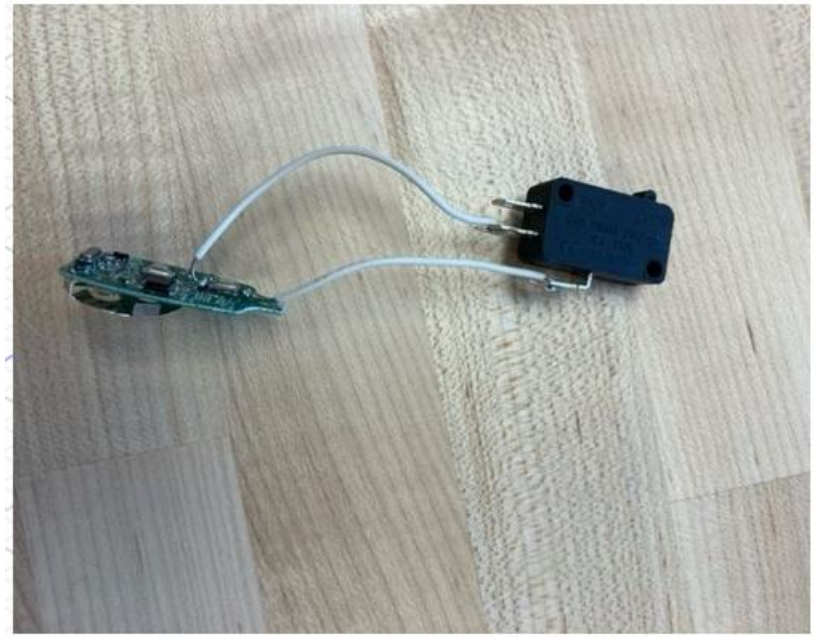
Ohio Department of Job and Family Services

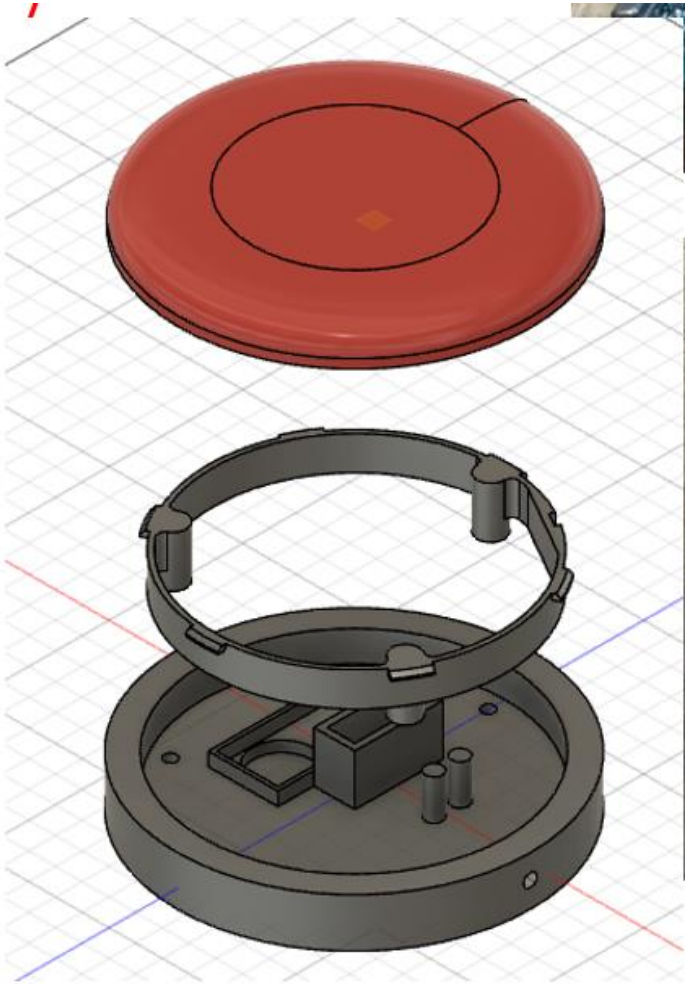
Ohio Department of Education & Workforce

University of CINCINNATI

QUALITY WORK-BASED LEARNING OPPORTUNITIES:

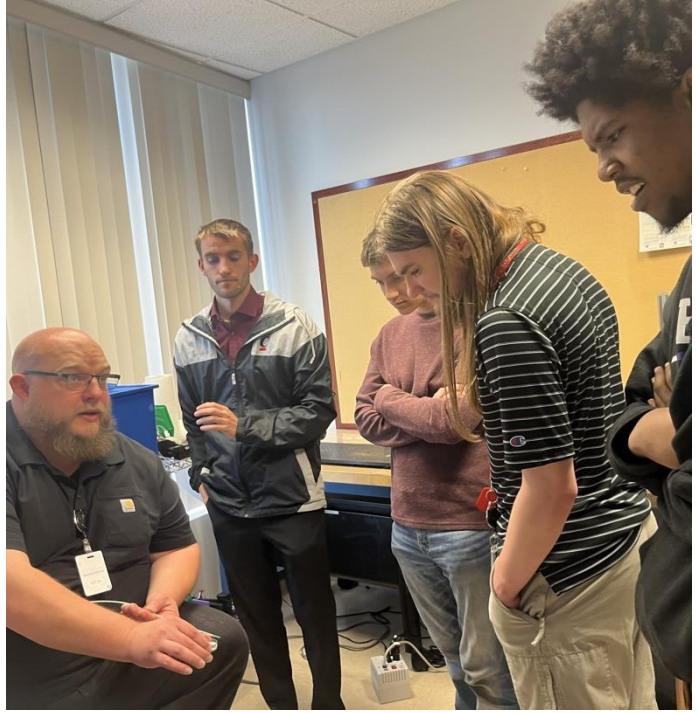
- May We Help https://maywehelp.org/





SIMENS & MAMMOTOME

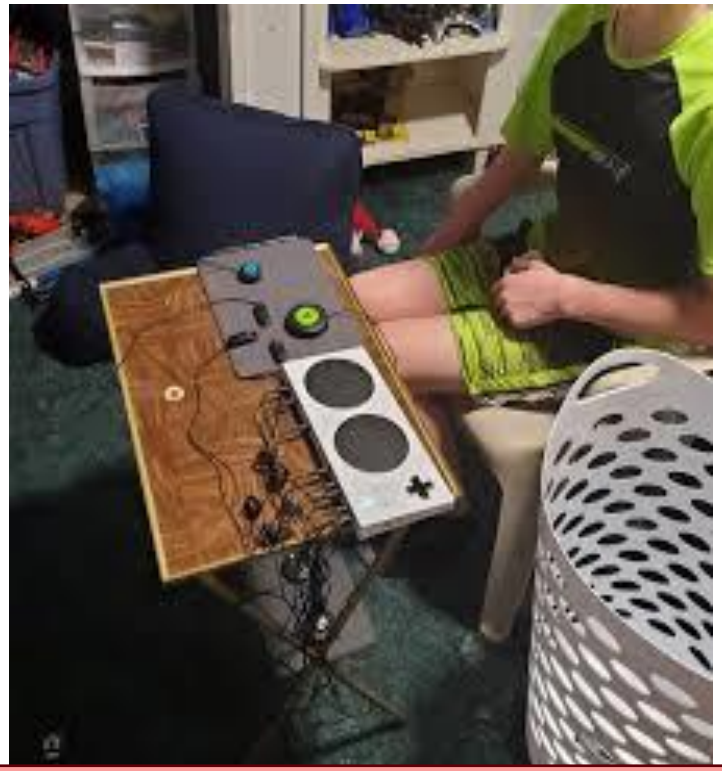
Solid Edge, NX Software, and Design Inspirations through AI



MAMMOTOME

WORK-BASED LEARNING OPPORTUNITIES:
The Bridge: Adaptive Sports and Recreation

https://www.thebridgeadaptive.org/



Students working together to build and set up the Bambu Printers

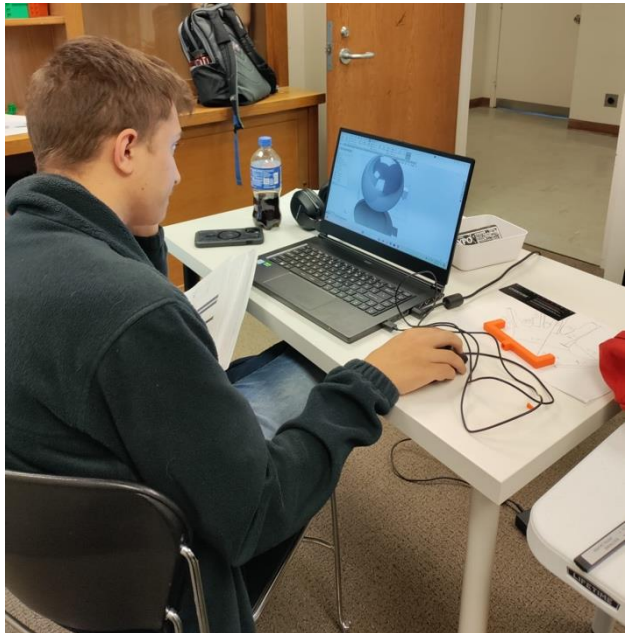
Bambu Printers have been vital in the students' learning and creation process.

WORK-BASED LEARNING OPPORTUNITIES:

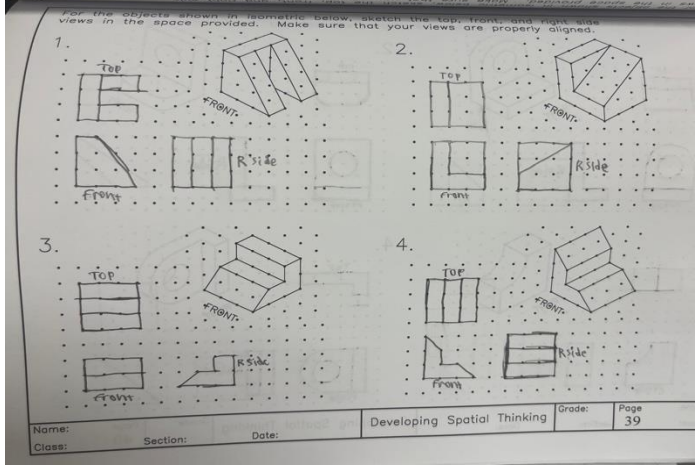
- **Primary Objective:** Utilize CAD to develop an adaptive gaming controller for individuals with physical disabilities.

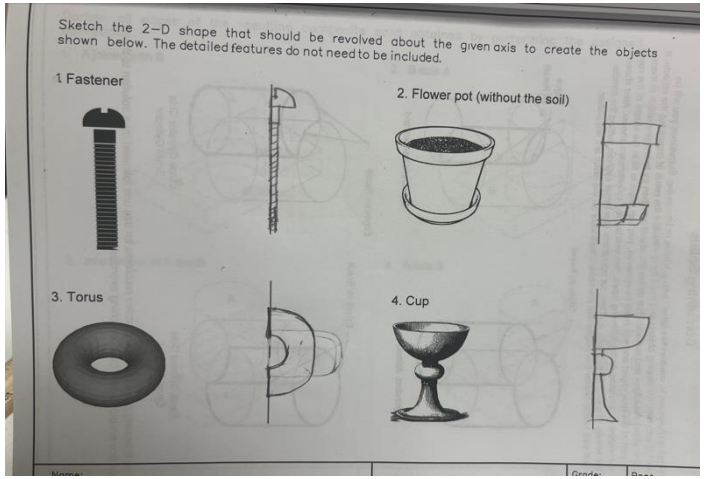
Learning and using Chamfer and Fillet.

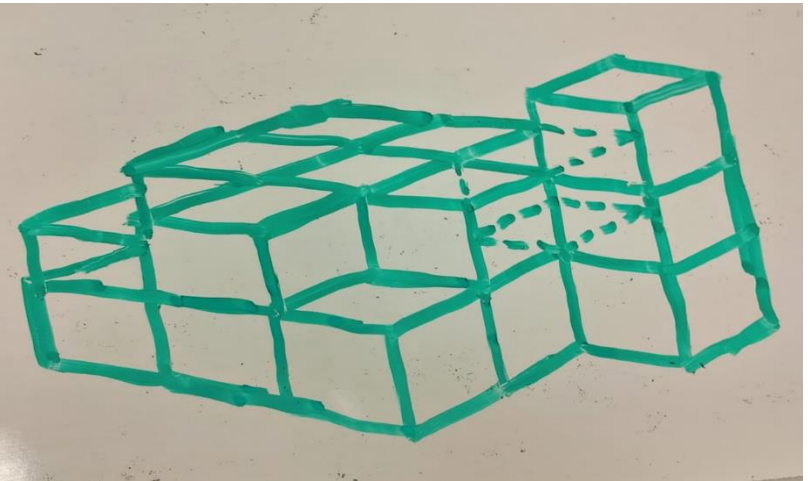
Learning Revolve by making a sphere.

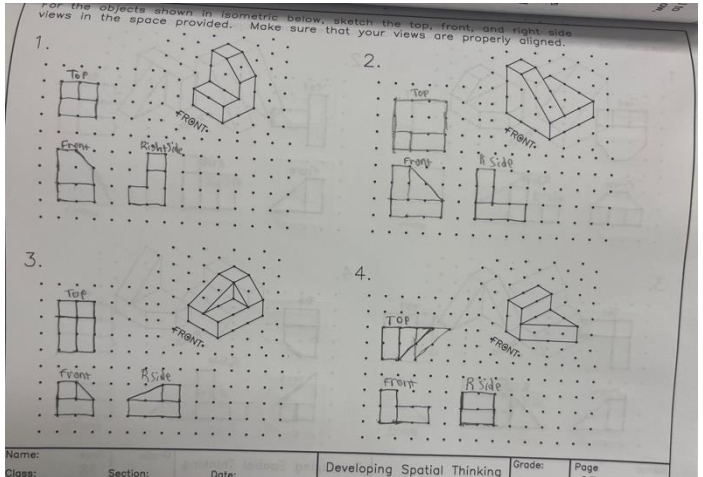


Learning and using Extrude.

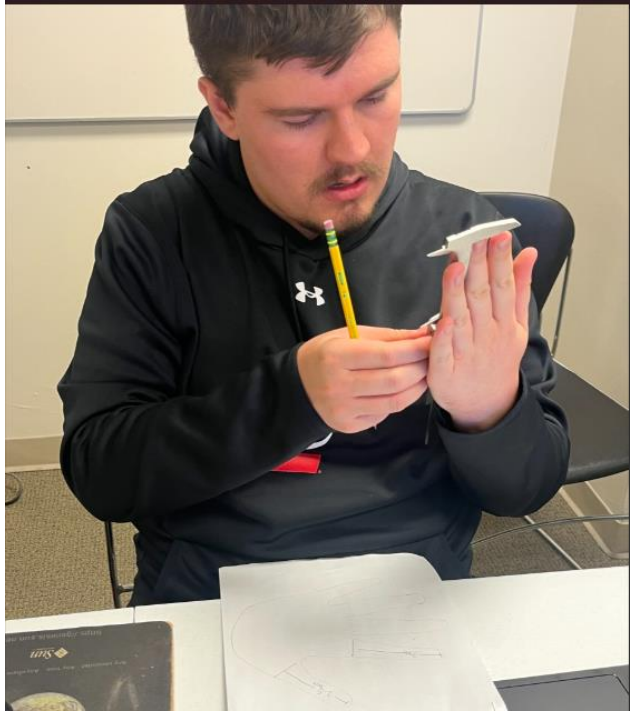








- Students have been able to sketch and interoperate orthographic and isometric sketches.
- Utilizing whiteboards, workbooks, and blocks has made the content accessible and helped the students with visualization and the design process.



Joe M.

(First Client)

- Students have learned about various adaptive equipment and adaptive gaming devices.
- They have used their hands to get critical dimensions for sketches and designs.
- Met a real client, "Joe" who they will be designing a custom remote joystick and base for.

CAREER PATHWAYS:

Job Title	How It Aligns with Junior CADder Competencies	Typical Work Setting	O*NET Job Code	Median Ohio Wage (2025 est.)
Junior CAD Designer (Junior CADder)	Entry-level role focused on creating and editing 2D and 3D models in software such as SolidWorks, AutoCAD, or Revit. Applies geometric construction, scaling, and tolerance knowledge to real-world design tasks under supervision.	Design departments, engineering firms, manufacturing plants	*17-3013.00 – Mechanical Drafters*	**$26.50/hr ($55,000/yr)**
Mechanical Drafter / CAD Technician	Builds on CAD and drafting foundations to prepare detailed mechanical drawings and 3D assemblies. Uses orthographic projection and dimensioning to support product and tooling design.	Manufacturing, automotive, aerospace, or product design firms	*17-3013.00 – Mechanical Drafters*	**$27.10/hr ($56,400/yr)**
Design Technician / Engineering Assistant	Uses advanced CAD modeling and drawing interpretation skills to support engineers in design development, prototype modeling, and technical documentation.	R&D labs, design engineering offices, innovation centers	*17-3027.00 – Mechanical Engineering Technologists and Technicians*	**$28.75/hr ($59,800/yr)**
Production Drafting Specialist	Focuses on translating 3D CAD models into detailed shop drawings and layouts. Applies drafting standards and tolerance principles to ensure manufacturability.	Engineering support offices, fabrication or production facilities	*17-3013.00 – Mechanical Drafters*	**$26.90/hr ($56,000/yr)**
Additive Manufacturing / 3D Printing Technician	Extends CAD proficiency into 3D printing workflows—preparing and modifying digital CAD models, slicing files, and monitoring print quality.	Innovation labs, educational fabrication spaces, prototyping studios	*51-9161.00 – Computer Numerically Controlled Tool Operators*	**$25.60/hr ($53,200/yr)**

UD IDD EDUCATION CENTER/CCHMC/PROJECT SEARCH: LABORATORY TECHNICIAN

- 10 Week Pilot with UC IDD Education & Project Search students
- CCHMC is working towards becoming a pre-RAP and Apprenticeship provider to support the extension of this training platform

LABORATORY TECHNICIAN

EARLY CHILDHOOD EDUCATION

University of Cincinnati

Profile

Partner Type: RAP Sponsor

Organization Type: Community College/University

Phone: (513) 556-5600

Industries: Colleges, Universities, and Professional Schools

SEND EMAIL Save Partner

RAP Sponsor Information

Program Type: Registered Apprenticeship Program (RAP)

Service Area: State/Local

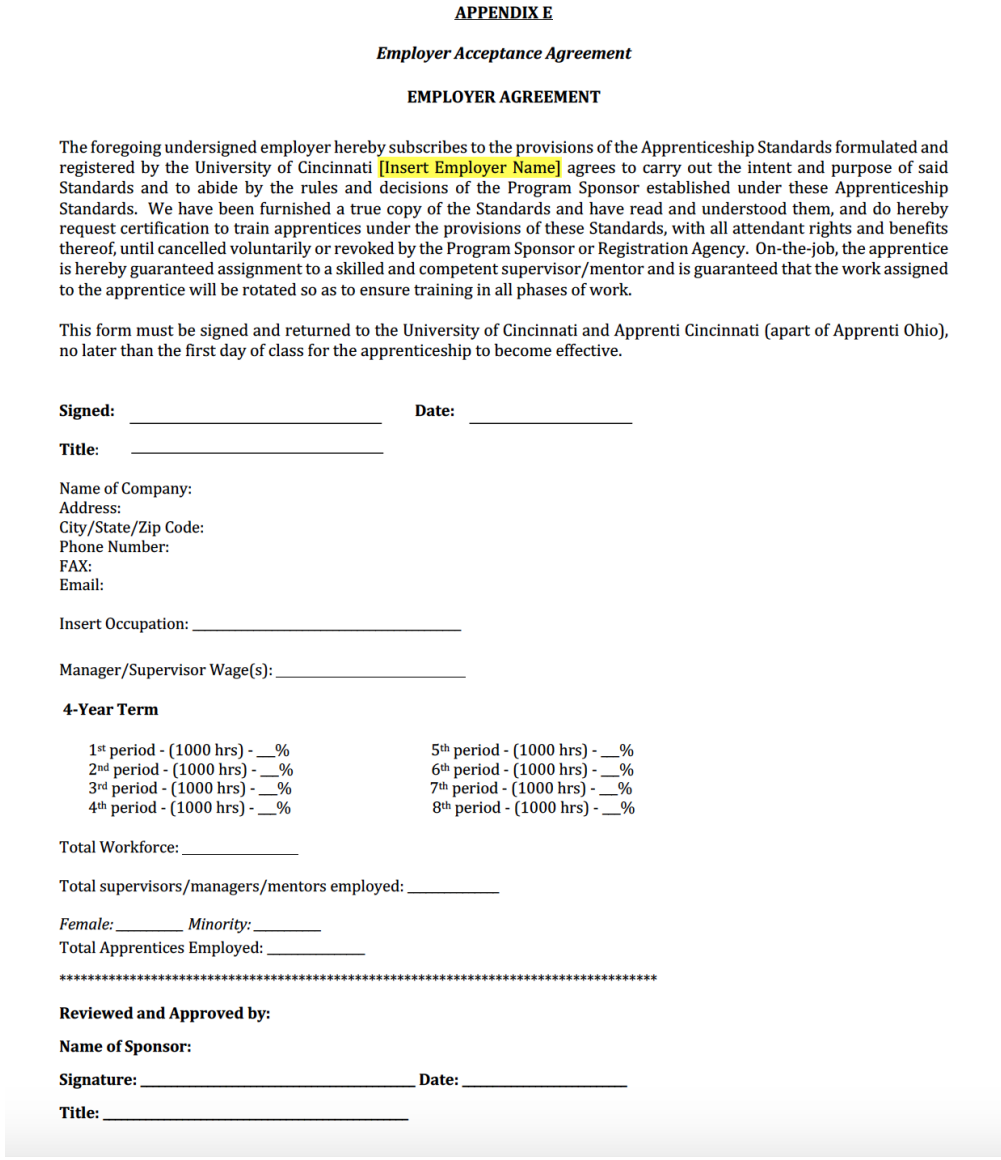
Supported Occupations:

- Teachers and Instructors, All Other

EMPLOYER ENGAGEMENT - PROCESS

CO-OP & APPRENTICESHIP

- Employers can connect with ONE letter and can be incorporated into standard employer on-boarding.



APPENDIX E

Employer Acceptance Agreement

EMPLOYER AGREEMENT

The foregoing undersigned employer hereby subscribes to the provisions of the Apprenticeship Standards formulated and registered by the University of Cincinnati [Insert Employer Name] agrees to carry out the intent and purpose of said Standards and to abide by the rules and decisions of the Program Sponsor established under these Apprenticeship Standards. We have been furnished a true copy of the Standards and have read and understood them, and do hereby request certification to train apprentices under the provisions of these Standards, with all attendant rights and benefits thereof, until cancelled voluntarily or revoked by the Program Sponsor or Registration Agency. On-the-job, the apprentice is hereby guaranteed assignment to a skilled and competent supervisor/mentor and is guaranteed that the work assigned to the apprentice will be rotated so as to ensure training in all phases of work.

This form must be signed and returned to the University of Cincinnati and Apprenti Cincinnati (apart of Apprenti Ohio), no later than the first day of class for the apprenticeship to become effective.

Signed: _____ **Date:** _____

Title: _____

Name of Company:
Address:
City/State/Zip Code:
Phone Number:
FAX:
Email:

Insert Occupation: _____

Manager/Supervisor Wage(s): _____

4-Year Term

1st period - (1000 hrs) - __%
2nd period - (1000 hrs) - __%
3rd period - (1000 hrs) - __%
4th period - (1000 hrs) - __%
5th period - (1000 hrs) - __%
6th period - (1000 hrs) - __%
7th period - (1000 hrs) - __%
8th period - (1000 hrs) - __%

Total Workforce: _____

Total supervisors/managers/mentors employed: _____

Female: _____ *Minority:* _____
Total Apprentices Employed: _____

****

Reviewed and Approved by:

Name of Sponsor:

Signature: _____ **Date:** _____

Title: _____

WHAT ARE THE COMMON QUESTIONS ABOUT APPRENTICESHIPS?

Isn’t this approach too commingled with the industry and will compromise our autonomy?

I am an expert in the field who has challenged and shaped minds for years. This is the way it has always been done. Why do we need industry to step in?

How much extra work will this be?

How will I know that they’re learning the correct content?

We need more classroom time. Will this experience take-away from lectures and campus learning?

WHAT'S IN IT FOR HIGHER EDUCATION AND FACULTY?

BRINGS PRESTIGE

MAKES YOUR JOB EASIER

DRAWS RECRUITMENT

OFFERS GREATER INDUSTRY ACCESS

PRESENTS STUDENT VALUE

FORTIFIES KNOWLEDGE WITH EXPERIENCE

BUILDS NETWORKS

EQUIPS LEARNERS WITH SOFT SKILLS

WHAT STEPS SEEM TO WORK

- Established Common Language and Phrases
- Developed Marketing Strategy
- Produced Curriculum Pre-work
- Identified (and Coop-ed) Faculty Champions
- Held Leadership Meeting (e.g., Dean and Department Chair)
- Hosted Department Meeting
- Offered Faculty Compensation/Course Release
- Framed Service Role (e.g., akin to Online Instructional Designers) of Apprenticeship Team

- Aaron Burdette, Faculty Director – Workforce Development
- burdetaj@uc.edu | 606-922-6670
- Elizabeth Kerr, Assistant Dean of Professional, Continuing, and Workforce Education
- kerreh@ucmail.uc.edu

THANK YOU

University of CINCINNATI