



**Tomorrow's workers**  
*... They are right here*



**Montgomery County ESC  
Business Advisory Council  
2021-2022 Joint Statement of Work**



# **Montgomery County ESC Business Advisory Council**

## **Ensuring our workforce can compete by enhancing partnerships between schools, higher education and employers**

### **THE BUSINESS ADVISORY COUNCIL IS:**

- Ensuring student success and career-readiness
- Helping existing and new businesses thrive
- Keeping talent in our region
- Making Montgomery County a great place to live and work

As we enter year three of this pandemic, our region's Business Advisory Council is working hard to continue to innovate in these difficult times. We are working closely with non-profits, industry, and higher-ed partners to continue our momentum forward despite the many obstacles of the last couple of years. Over the next 12 months, we will continue to build new opportunities for our community's students and strengthen our relationships with our region's in-demand industries. We have recently overseen the implementation of new software and tools to help equip our region to scale the expansion of work-based learning opportunities and track our career connections efforts. We are poised now more than ever to move this work forward with the help our council's partners.

### **VISION**

All MCECSC BAC member districts' students are career-focused and have the preparation they need to succeed on the job and in life.

### **MISSION**

We will promote substantive and effective collaboration between educators and industry to prepare students to compete in a global economy.

### **VALUES**

We believe in:

- 1. Integrity** – Our workforce must embrace personal and civic responsibility and hold strong ethical standards.
- 2. Equity** – All students' educational needs and aspirations must be respected. Every career choice has value.
- 3. Innovation** – The job market and employers' needs are ever-changing. Innovation is a constant and requires life-long skill development.
- 4. Diversification** – Montgomery County's economy is diverse by design, and every industry sector is counting on access to talented employees. Young people need to have access to diverse educational options that prepare them to succeed in our local economy.
- 5. Collaboration** – Industry leaders and educators must work together to create a cohesive and sustainable system that builds a highly skilled and adaptable workforce.
- 6. Communication** – Clear and proactive feedback is a prerequisite for successful partnerships.

# How we work together

The Plan was established at this level, and continues to be reviewed and updated based on feedback, and then re-submitted to the Ohio Department of Education and the Governor's office as per ORC mandate.

Members of the Steering Committee are comprised of P2P Institute Attendees, Co-Chairs and 5 Subcommittee Leaders.

Co-Chairs host the Annual BAC Dinner and facilitate three other MCECSC BAC At-Large Quarterly Meetings. Additionally, the Steering Committee convenes at least two times per year.

Each of the BAC member organizations is expected to have representation on at least one BAC subcommittee.

Each of the 5 subcommittees is responsible for carrying out the specific BAC Goals. The "Plan" established includes the strategies, actions and those responsible associated with each of the 5 Goals. (See Plan, pages 10-14.)

Each subcommittee meets regularly. Updates are documented for use at MCECSC BAC quarterly meetings.



# CAREER READINESS PROGRESSION

K 1 2 3 4 5 6 7 8 9 10 11 12

## CAREER AWARENESS

Elementary Grades (K-5)

## CAREER EXPLORATION

Middle Grades (6-8)

## CAREER PLANNING

High School (9-12)



- **Career Awareness Programming**
  - A-Z Curriculum
  - Career Speakers
  - Aligned Events

K-8



- **Career Exploration Course Offerings**
- **Industry Site Visits\***
- **Pathways Fair**

*\*Can and should be repeated*

6-8



- **YouScience\***
- **Student SNAP Shots\***
  - ↳ Identifies Career Pathway
- **Job Shadowing Experiences\***  
(aligned to YouScience results)

*\*Can and should be repeated*

8-9



- **Employability Skills Course**
- **Individualized College and Career Plan**
  - ↳ Identifies /confirms Career Pathway
- **Job Shadowing Experiences**

9



- **Essential Career Pathways Course(s)**
  - ↳ Identifies /confirms Career Pathway
- **Digital & Financial Literacy Courses**
- **Job Shadowing Experiences**

10



- **TechPrep/CCP Courses Digital & Financial Literacy Courses**  
(Aligned Pathway)
- **Industrial Credential Curriculum**  
*Sinclair, Graduation Alliance and other identified partners will provide Industry-specific Pathway sheet and Industry Credential Curriculum*
- **Hiring Fairs**
- **Assessment for Industry-recognized Credential**  
*Take at completion of Industry Credential Curriculum*
- **Continued College and Career Advising**

11



**SUMMER Industry experience/ Internship**

3



- **TechPrep/CCP Courses**  
(Aligned Pathway)  
*Sinclair and other higher ed partners will provide Industry-specific Pathway sheet*
- **Industrial Credential Courses**  
*Sinclair, Graduation Alliance and other identified partners will provide Industry Credential Curriculum*
- **College & Career Signing Day**
- **Industry-recognized Credential Assessment**  
*Take at completion of Industry Credential Curriculum*

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**Post-secondary Work/ Training**  
  
**Internship, Course-aligned practicum, College, Apprenticeship, Job or Military**

Choose your district's level of involvement.



**BAC Engaged**

**BENEFITS:**

- Plan and Joint Statement of Work will be completed on your behalf
- Access to opportunities aligned or resulting from BAC Plan
- District leadership and staff connected to work-based learning opportunities
- Students and families connected to jobs, internships, camps, clubs and other important employment resources

**DISTRICT COMMITS TO:**

- Take formal action to join MCESC BAC
- Career Champion attends the BAC quarterly meetings
- Career Champion/Industry Rep actively participates in one of the 5 subgroups
- Attendance at the Annual BAC Dinner



**BAC Mobilized**

**BENEFITS:**

- All from Engaged
- Support in implementing career readiness progression, identification of high impact CCP courses
- Provide opportunities to train your staff to help students understand their findings
- Priority to grant opportunities with MCESC and Learn to Earn Dayton
- Introduction to industry labor market trends and information for educators and counselors
- First consideration for new work-based learning opportunities

**DISTRICT COMMITS TO:**

- All commitments from Engaged
- Will have one cohort of high school students take the YouScience Assessment
- Will offer MCESC Curriculum resources in some capacity
- Will offer at least two of the formalized In-Demand Career Pathways to high school students



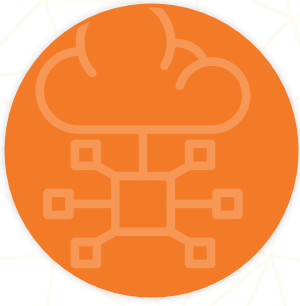
**BAC Invested**

**BENEFITS:**

- All from Engaged & Mobilized
- Priority for pilot opportunities with MCESC and Learn to Earn Dayton
- Priority to Workforce Director
- Access to Seamless WBL data infrastructure
- Receive priority access to limited special events and opportunities

**DISTRICT COMMITS TO:**

- All commitments from Engaged & Mobilized
- Will have two cohorts of high school students take the YouScience Assessment
- Will implement K-5, 6-8, and 9-12 MCESC Career Curriculum in an aligned manner to the Career Readiness Progression
- Will offer at least three of the formalized In-Demand Career Pathways to high school students



## PATHWAYS TO PROSPERITY NETWORK UPDATE

On behalf of the Business Advisory Council, in the fall of 2018, the Montgomery County ESC joined the Pathways to Prosperity Network in support of implementing the council's goals. Pathways to Prosperity is an initiative of Jobs for the Future at the Harvard Graduate School of Education. Many young people want to become career-ready and move into local jobs. Pathways to Prosperity's data-driven work is focused on creating meaningful career pathways for students who are eager to complete high school and earn a high-value credential or degree.



In November 2021, a working group attended the 2021 Fall Pathways to Prosperity Institute. Our group consisted of superintendents and staff from Sinclair College and Learn to Earn Dayton, as well as industry leaders and economic development professionals from the Dayton Development Coalition. After the conclusion of the Fall Institute, we then convened our Pathways to Prosperity support staff to meet in person with our Steering Committee members. This meeting served as an opportunity to better connect our BAC's committee co-chairs and update our regional partners. Notably, our Pathways team has assisted us in supporting our monthly Greater Dayton Area Hospital Association Education Subcommittee and our quarterly meetings with Technology First's Workforce Subcommittee. These industry-led groups have been instrumental in the recent progress our BAC has made. We appreciate our Pathways to Prosperity support in the implementation of this plan.



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***Pathways to Prosperity's data-driven work is focused on creating meaningful career pathways for students who are eager to complete high school and earn a high-value credential or degree.***

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## NEW FRAMEWORKS

Our Business Advisory Council spent the last 18 months working with industry and education partners to create frameworks intended to outline a common set of experiences for students in three of our region's in-demand sectors (IT, advanced manufacturing, and healthcare). These pathways include coursework, potential postsecondary programs, and potential career outcomes. These frameworks will support the alignment of regional stakeholders, including employers, higher education, K-12, and workforce. Most notably, these frameworks were reversed mapped from local labor market data - we were particularly interested in jobs that paid a living wage (\$23.16+) that could be obtained with an associate's degree. Much of the data we pulled for our framework, highlighted a preference for bachelor's degree programs in IT/CS fields. After determining high-wage, high-growth jobs, we looked at programs at Sinclair Community College to prepare people for these jobs. We also determined high school coursework and activities (advising, work-based learning, and competency development) that would set students up for success in college and careers. In December, we completed our third pathway focused on advanced manufacturing. This work was supported by Jobs For Our Future's Pathways to Prosperity Initiative. For a closer examination of these frameworks, we included all three in our index of this report.



## CREATING A REGIONAL CAREER CONNECTIONS CALENDAR

This school year we built on last year's momentum around embracing national and statewide sponsored Career Connections Weeks of Action by producing a calendar with a general timeline of when we recommend districts participate in these initiatives. This is a living document so it will change as the year progresses but we are excited to leverage a regional strategy linked to proven annual efforts like MFG Month and National Health Professions Week.

Some of our region's Coordinated Career Connections Weeks of Action include:

**Construction Appreciation Week** September

**Manufacturing Month** October

**Health Professions Week** November

**Computer Science Education Week** December

**In-Demand Jobs Week** May

## BUSINESS ADVISORY COUNCIL DATES

### BAC Main Meetings 2021/2022

**September 1** 8:30 am-10:00 am

**November 10** 8:30 am-10:00 am

**February 23** 5:00 pm-8:00 pm (Annual Dinner)

**May 5** 8:30 am-10:00 am

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## WORKING GROUP MEETINGS

### Educator Engagement

**March 24** 1:00 pm-2:30 pm

**September 13** 10:30 am-12:00 pm

**October 21** 10:30 am-12:00 pm

**February 10** 10:30 am-12:00 pm

**May 24** 10:30 am-12:00 pm

### Industry Engagement

**September 9** 10:00 am-12:00 pm

**November 11** 10:00 am-12:00 pm

**February 3** 10:00 am-12:00 pm

**May 9** 10:00 am-12:00 pm

### Parent & Community Engagement

**September 28** 8:30 am-10:00 am

**November 8** 8:30 am-10:00 am

**January 31** 8:30 am-10:00 am

**April 12** 8:30 am-10:00 am

### Policy & Advocacy

**September 14** 8:30 am-10:00 am

**November 16** 8:30 am-10:00 am

**March 25** 9:00 am-10:30 am

**April 14** 8:30 am-10:00 am

### Student Engagement

**October 5** 9:00 am-10:30 am

**December 1** 9:00 am-10:30 am

**March 10** 9:00 am-10:30 am

**April 5** 9:00 am-10:30 am

### Warren County Working Group

**August 31** 9:00 am-10:30 am

**October 4** 9:00 am-10:30 am

**December 2** 9:00 am-10:30 am

**April 7** 9:00 am-10:30 am



## THE WAY FORWARD

It's 2022, and we've entered the next phase of our efforts. We've aligned funding to support our BAC districts with new resources, tools, and programs. We can now explore new ways to scale and track the great workforce efforts going on around our region. Each spring we have about 7,000 students set to graduate. That is 7,000 high school graduates looking to their next step in their career journeys. We're at a pivotal moment but we have the right partners at the table to ensure these students find their next steps. As we close out this school year, it will be critical we test out these new tools and tinker with existing efforts like In-Demand Jobs Week. We look forward to expanding programs and incorporating more student voices into these efforts as well!

### *A quick note on our new Warren County Working Group:*

The working group was formed at the beginning of the 2021-2022 school year and since its inception we have seen enormous progress. Our Warren County districts have consistently showed up and dug into the work in front of them. We'd like to specifically call out the work of Warren County ESC Superintendent Tom Isaacs and Sinclair College's Chad Bridgman for their leadership in leading this working group. We formed this committee to specifically address the needs and opportunities of Warren County and they have done a phenomenal job of bringing the right partners to the table.



## OBJECTIVES

### 1) Student Engagement

For students to be well-equipped to make a career plan, they must be aware of the diverse career opportunities that exist locally and beyond and understand what it takes to prepare for these careers.



**Schools must** offer opportunities for career experiences for students both inside and outside of school and assist students in making appropriate plans for after high school.



**Industry must** provide career experiences that help students explore their career opportunities and help advise schools and students on how to move effectively toward careers.



#### Accomplishments

- Partnering schools hosted **236 different career exploration experiences** for our region's students.
- We conducted outreach and hosted information sessions, resulting in **100% of our partner school districts administering aptitude and interest assessments to their students**. We have also secured funding opportunities to implement tools like Transeo and YouScience.
- We embarked on our first regional approach to career exploration events, resulting in **17 of our partner school districts participating in this new schedule of virtual events**.
- In Nov. 2021, we held 2 days of Career Exploration Days of Action at the Dayton Metro Library **reaching over 950+ middle school students** from five different BAC member districts.

### 2) Parent and Community Engagement

Our region is rich in career and educational opportunities, but our parents and community need to better understand how they can be advocates for students' success.



**Schools must** share with parents and the community what is already occurring to help prepare students for their futures. They must highlight the diversity of industries that can lead to successful careers.



**Industry must** collaborate with schools to create opportunities for industry exposure that elevates the community's understanding of locally available careers.



#### Accomplishments

- We partnered BAC members to administer an outreach campaign to provide parents and community members with resources to **help families understand educational and career opportunities**. 74% of our BAC districts participated.
- We partnered with school staff and explored new ways to **highlight in-person and online resources for families** to have meaningful conversations with their students about careers.

STUDENT ENGAGEMENT | PARENT AND COMMUNITY ENGAGEMENT



### 3) Industry Engagement

For efficient and productive career experiences (i.e. internships, job shadowing, apprenticeships) to be feasible, we need a one-stop shop for industry and schools to connect.



**Schools must** provide flexibility in scheduling to allow students to participate in career experiences.



**Industry must** engage in meaningful partnerships and invest in opportunities for students to have career experiences while they are still in school.



#### Accomplishments

- Through partnerships with the Dayton Area Chamber of Commerce, SOCHE, and MCECSC, **we have continued to promote a one-stop portal for employers** to get involved in our region's schools.

- We have successfully **recruited 10 BAC school districts to utilize Transeo**, a software to help educators track students' graduation requirements and career connections activities.
- We've **grown our 2 different industry-led education subcommittees in healthcare and technology**, to inform the BAC's future work and strengthen industry partnerships.

### 4) Educator Engagement

Educators are well-positioned to guide our students on a path toward career success if they have the training, curriculum tools and support from industry to increase their own awareness, knowledge and skills to support students' career planning



**Schools must** provide opportunities for educators to connect to careers and curriculum designed to give students experiences to help them design plans after high school.

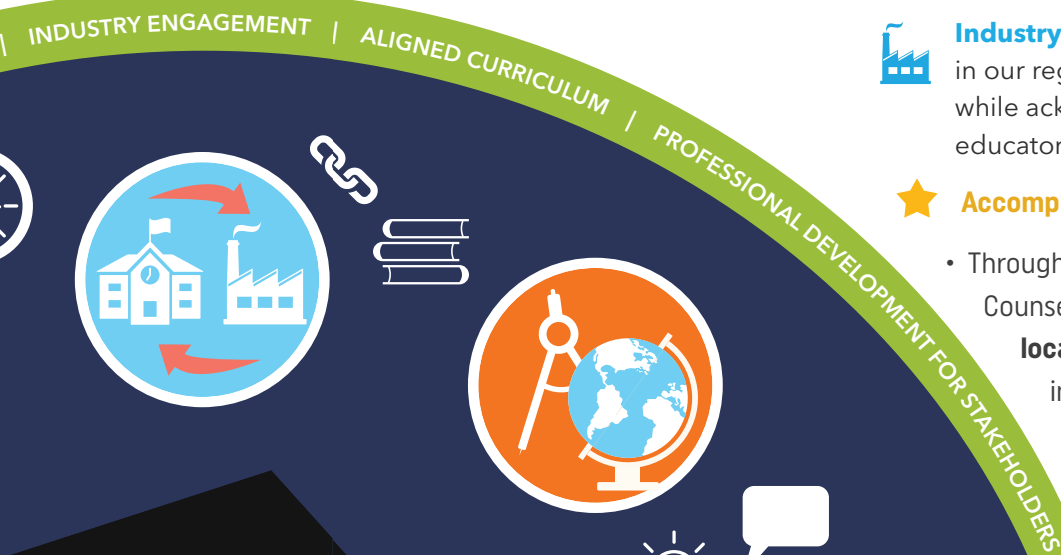


**Industry must** invest time and resources in our region's career connections work while acknowledging the challenges educators face.



#### Accomplishments

- Through our Career Champions and Counselors Academy, **we have taken local educators to visit employers** including PSA Airlines and the Dayton Airport, the Modern College of Design, and Sinclair's Automotive Programs to learn about career opportunities in our region.



#### 4) Educator Engagement Accomplishments continued

- We expanded our Quarterly Career Champion Meetings to now include monthly check-in meetings that have seen a rise in attendance due to virtual participation options. **These monthly check-ins have allowed us to facilitate far more events and highlight more resources than ever before.** This year we partnered with Sinclair College to provide themed presentations to support our members.
- We have now **successfully completed all three pathway frameworks** including our newest highlighting ways students can get into advanced manufacturing.

#### 5) Policy and Advocacy

A statewide approach is critical in addressing the needs of an ever changing workforce landscape.



**Schools must** inform policymakers on the needs and challenges of K-12 partners.



**Industry must** inform policymakers on the specific needs of our future workforce.

#### ★ Accomplishments

- In November 2021, **10 partners** from industry, the community, and K-12 and higher education **attended the Pathways to Prosperity Fall Institute.**
- This subcommittee has convened twice and is in progress identifying policy priorities and the associated action steps to **address COVID-19's effects on our local education ecosystem.**
- In February 2022, **we held a Legislative Update to highlight the progress we're making as a Business Advisory Council.** Several local elected leaders attended as well as our Lt. Governor, Jon Husted.

#### 6) Warren County Working Group

**This special committee serves as a resource for Warren County member districts to apply the larger efforts of our BAC to their localized framework.**

#### ★ Accomplishments

- We have held several informational meetings regarding **workforce software like YouScience and Transeo.**
- We have also convened partners to discuss how to leverage workforce programs like Warren County's Ohio Means Job teen employment program where **BAC members have learned about how to place their students into quality work-based learning opportunities.**





PAS	(G)	3.802	20.02
BLN	(G)	3.802	20.02
YBY	(G)	3.802	20.02
MML	(G)	3.802	20.02
W1	(G)	3.802	20.02
MBS	(G)	3.802	20.02
HLM	(G)	3.802	20.02
134	(G)	3.802	20.02
(+2)	(G)	3.802	20.02



## Student Engagement

For students to be well-equipped to make a career plan, they must be aware of the diverse career opportunities that exist locally and beyond and understand what it takes to prepare for these careers.



**Schools** must offer opportunities for career experiences for students both inside and outside of school and assist students in making appropriate plans for after high school.



**Industry** must provide career experiences that help students explore their career opportunities and help advise schools and students on how to move effectively toward careers.

Strategy	Actions	Responsibility	Timeframe	Metric
1. Utilize social media to expand awareness of careers & educational opportunities	<ul style="list-style-type: none"> <li>Develop &amp; deploy social media engagement plan in conjunction with County Communications Collaborative and Think TV</li> </ul>	<ul style="list-style-type: none"> <li>Student Engagement</li> <li>Parent &amp; Community Engagement</li> <li>Educator Engagement</li> <li>County Communications Collaborative</li> <li>All Districts</li> </ul>	Regularly present at County Communications Collaborative monthly meetings	<ul style="list-style-type: none"> <li>73% of districts utilized social media for career awareness</li> </ul>
	<ul style="list-style-type: none"> <li>Provide info/photos/etc. for social media engagement</li> </ul>	Chamber/Industry Orgs/ BBB/DDC	Present a mid-school year review to the BAC via email in Jan. 2022	<ul style="list-style-type: none"> <li>We are continuing to produce social media content for schools to share about career opportunities</li> </ul>
2. Increase understanding of students' aptitude in relation to in-demand careers	<ul style="list-style-type: none"> <li>Implement Career Aptitude tool (ex. YouScience)</li> </ul>	MCESC/All Districts	2Q 2022	<ul style="list-style-type: none"> <li>100% of all districts are currently using YouScience, Naviance, OMJ or some other assessment tool. YouScience = 43%, Naviance = 43% OMJ = 35%* Some districts use multiple assessments.</li> <li>We have recently secured YouScience funding for Montgomery County BAC member districts</li> </ul>
	<ul style="list-style-type: none"> <li>Fund YouScience implementation</li> </ul>	DDC/Chamber/Trade Orgs		
3. Promote a student-facing information campaign with videos that address in-demand industry sectors, college affordability, and options for education beyond HS	<ul style="list-style-type: none"> <li>Provide career activity time (Power Lunch, Career Fair, guest speakers, etc)</li> <li>Leverage Inside Dayton Internship Program recommendations and work with the Montgomery County Student Advisory Delegation for future feedback and input</li> <li>Organize Career Exploration Weeks of Action</li> </ul>	MCESC/All Districts	2Q 2022	<ul style="list-style-type: none"> <li>236 different activities held across partner districts</li> <li>17/23 74% of districts participating in career connections weeks of action</li> <li>All major industry partner organizations assisted in these events</li> <li>Approximately 279 companies involved</li> <li>Approximately 90% of businesses involved in our in-demand sectors</li> </ul>
	<ul style="list-style-type: none"> <li>Resource career activities (provide speakers, open for tours, etc.)</li> </ul>	Trade Orgs/Businesses/MVHRA		
4. Create more career videos for each of the local in-demand industry sectors	<ul style="list-style-type: none"> <li>Deploy videos through classes and other communications channels</li> </ul>	MCESC/All Districts	1Q 2022	<ul style="list-style-type: none"> <li>We shared 15 videos</li> <li>74% of member districts are sharing the videos</li> <li>Approximately 70 careers covered</li> <li>5 sectors covered</li> </ul>
	<ul style="list-style-type: none"> <li>Identify companies and employees for career videos</li> </ul>	Trade Orgs/Businesses/MVHRA/Think TV/Higher Ed institutions		
5. Focus on K-5 career connections outreach	Develop K-5 student outreach strategies on a school by school basis utilizing our A to Z videos plus other partner resources	L2ED/MCESC	2Q 2022	<ul style="list-style-type: none"> <li>In Progress / Still assessing participation</li> </ul>
	Provide necessary information for outreach communications	Trade Orgs/Businesses		

**Parent & Community Engagement** Our region is rich in career and educational opportunities, but our parents and community need to better understand how they can be advocates for students' success.



**Schools must** share with parents and the community what is already occurring to help prepare students for their futures. They must highlight the diversity of industries that can lead to successful careers.



**Industry must** collaborate with schools to create opportunities for industry exposure that elevates the community's understanding of the careers available locally.

<b>Strategy</b>	<b>Schools</b>	<b>Industry</b>	<b>Actions</b>	<b>Responsibility</b>	<b>Timeframe</b>	<b>Metric</b>
1. Utilize social media to expand awareness of careers & educational opportunities	<b>Schools</b>		<ul style="list-style-type: none"> <li>Develop &amp; deploy social media engagement plan in conjunction with County Communications Collaborative and Think TV</li> </ul>	<ul style="list-style-type: none"> <li>Student Engagement</li> <li>Parent &amp; Community Engagement</li> <li>Educator Engagement</li> <li>County Communications Collaborative</li> <li>All Districts</li> </ul>	Regularly present at County Communications Collaborative monthly meetings	74% of districts utilizing social media to share career videos
	<b>Industry</b>		<ul style="list-style-type: none"> <li>Provide info/photos/etc. for social media engagement</li> </ul>	Chamber/Industry Orgs/ BBB/DDC	Present a mid-school year review to the BAC via email in Jan. 2022	
2. Promote parent-facing information campaign videos that address in-demand industry sectors, college affordability, and options for education beyond HSS	<b>Schools</b>		<ul style="list-style-type: none"> <li>Deploy content through official school communications channels and other social media campaigns and community specific groups</li> </ul>	MCESC/All Districts	1Q 2022	74% of districts utilizing career connections videos
	<b>Industry</b>		<ul style="list-style-type: none"> <li>Provide videos, events, and other resources</li> </ul>	Trade Orgs/Businesses/ MVHRA/Think TV/Higher Ed institutions		
3. Focus on K-5 career connections outreach	<b>Schools</b>		<ul style="list-style-type: none"> <li>Develop K-5 parent outreach strategies on a school by school basis using events like "Dress for Success" utilizing age appropriate career exploration curriculum</li> </ul>	L2ED/MCESC	2Q 2022	20% of districts are conducting K-5 career connection outreach - In Progress
	<b>Industry</b>		<ul style="list-style-type: none"> <li>Provide necessary information for outreach communications</li> </ul>	Trade Orgs/Businesses/ MVHRA/Think TV/Higher Ed institutions		
4. Organize outreach to alumni and recently graduated seniors	<b>Schools</b>		<ul style="list-style-type: none"> <li>Conduct outreach and highlight alumni via digital and physical marketing like posters and social media</li> <li>Focus on outreach to grandparents during career connections weeks of action</li> </ul>	MCESC/All Districts	2Q 2022	10% of districts are highlighting alumni and recent graduates - In Progress
	<b>Industry</b>		<ul style="list-style-type: none"> <li>Provide necessary information for outreach material</li> </ul>	Trade Orgs/Businesses/ MVHRA/Think TV/ Higher Ed institutions		

## Industry Engagement

For efficient and productive career experiences (i.e. internships, job shadowing, apprenticeships) to be feasible, we need a one-stop shop for industry and schools to connect.



**Schools must** provide flexibility in schedules to allow students to participate in career experiences.



**Industry must** engage in meaningful partnerships and invest in opportunities for students to have career experiences while they are in school.

Strategy	Actions	Responsibility	Timeframe	Metric
1. Continue adoption and deployment of the Engage platform to educate students, parents, and industry and promote occupational opportunities	<b>Schools</b>	<ul style="list-style-type: none"> <li>Deploy the Engage platform through links on school websites including materials and important links to standardize messaging for both students, parents and employers</li> </ul>	MCESC/All Districts	<ul style="list-style-type: none"> <li>We're currently working with schools to link their websites to SOCHE's Engage Internship Portal</li> </ul>
	<b>Industry</b>	<ul style="list-style-type: none"> <li>Utilize Engage platform which houses information on K-12 workforce pathways as well as how to connect with schools for career engagement</li> <li>Continue to provide feedback on the Engage platform</li> </ul>	SOCHE/ Business/ Trade Organizations	<ul style="list-style-type: none"> <li>SOCHE has been contacted by over 100 businesses this school year</li> </ul>
2. Promote and continue to build additional job descriptions with student qualifications and desired learning outcomes in key industries	<b>Schools</b>	<ul style="list-style-type: none"> <li>Ensure job descriptions and Career Connections Framework are reflected in coursework</li> <li>Advertise job descriptions and Career Connections Framework to students participating in career engagement</li> </ul>	MCESC/All Districts	<ul style="list-style-type: none"> <li>65% of schools are engaged in utilizing SOCHE Engage</li> </ul>
	<b>Industry</b>	<ul style="list-style-type: none"> <li>Utilize job descriptions in career engagement opportunities</li> <li>Give feedback and suggest new job descriptions</li> </ul>	SOCHE/ Business/ Trade Organizations	<ul style="list-style-type: none"> <li>In Progress</li> </ul>
3. Establish partnerships which will provide opportunities for engaging students	<b>Schools</b>	<ul style="list-style-type: none"> <li>Partner with SOCHE for assistance with student career engagement with industry</li> <li>Identify companies in close proximity to your school for partnership in career engagement</li> </ul>	MCESC/All Districts	<ul style="list-style-type: none"> <li>On track for 50% engagement with industry partners</li> </ul>
	<b>Industry</b>	<ul style="list-style-type: none"> <li>Build workforce development sub-committees in your industry group to discuss and participate in career engagement</li> <li>Utilize the career engagement form on Engage to partner with schools in the region</li> <li>Work with Trade Associations to engage with Schools and utilize a sustainable process to build workforce</li> </ul>	SOCHE/ Business/ Trade Organizations	<ul style="list-style-type: none"> <li>High Schools are continuing to share list of companies they are partnered with</li> </ul>
4. Increase the # of students and industry members who participate in career engagement opportunities	<b>Schools</b>	<ul style="list-style-type: none"> <li>Utilize Transeo to track career engagement of students</li> <li>Every school develops a list of students prepared for career engagement</li> <li>Students complete resume in order to prepare for career engagement opportunities</li> </ul>	MCESC/All Districts	<ul style="list-style-type: none"> <li>Completed beyond expectation. We have signed up 10 school districts to take advantage of Transeo.</li> <li>We are currently developing and publishing a deployment campaign</li> </ul>
	<b>Industry</b>	<ul style="list-style-type: none"> <li>Analyze operations to determine areas in organization that can benefit from an intern</li> <li>Engage students in career engagement opportunities</li> </ul>	SOCHE/ Business/ Trade Organizations	<ul style="list-style-type: none"> <li>We are currently developing and deploying a promotion campaign</li> <li>We are in progress to reach 600 students this school year</li> </ul>



## Policy and Advocacy

A statewide approach is critical in addressing the needs of an ever changing workforce landscape.



**Schools must** K-12 partners.

Inform policymakers on the needs and challenges of



**Industry must** Inform policymakers on the specific needs of our future workforce.

Strategy	Actions	Responsibility	Timeframe	Metric
1. Create a policy agenda to guide our efforts for the 2021/2022 school year	<b>Schools</b> <ul style="list-style-type: none"> <li>To provide on the ground observations as it pertains to workforce development policy for schools</li> </ul>	All districts	Create an initial agenda with key policy priorities for Q2 2022	<ul style="list-style-type: none"> <li>Creation of a policy agenda - In Progress</li> <li>Identification of 2 to 3 key policy priorities - In Progress</li> </ul>
	<b>Industry</b> <ul style="list-style-type: none"> <li>To provide feedback on workforce needs and possible policy and legislative language changes</li> </ul>	Chamber/Industry Orgs/ BBB/DDC		
2. Specifically examine policies to address our state's digital divide and online access issues	<b>Schools</b> <ul style="list-style-type: none"> <li>Remediate those barriers with local, state, and federal resources available</li> </ul>	All districts	2Q 2022	<ul style="list-style-type: none"> <li>Successfully map online learning access and barriers in our region - In Progress</li> </ul>
	<b>Industry</b> <ul style="list-style-type: none"> <li>Highlight possible public/private partnerships</li> </ul>	Chamber/Industry Orgs/ BBB/DDC		
3. Explore policies specifically aimed at offering more work-based learning opportunities for K-12 students	<b>Schools</b> <ul style="list-style-type: none"> <li>Partner with employers to create high quality work-based learning experiences</li> </ul>	All districts	2Q 2022	<ul style="list-style-type: none"> <li>Successfully define and draft incentives and policies - In Progress</li> </ul>
	<b>Industry</b> <ul style="list-style-type: none"> <li>Identify pragmatic incentives and policies to increase employer participation in work-based learning opportunities</li> </ul>	Chamber/Industry Orgs/ BBB/DDC		
4. Improve tracking and access to community workforce data	<b>Schools</b> <ul style="list-style-type: none"> <li>Define what datasets would help build capacity for schools to understand if equity or opportunity gaps exist</li> <li>If equity gaps exists, define strategies to close those identified gaps</li> </ul>	All districts	2Q 2022	<ul style="list-style-type: none"> <li>Define strategies to identify important workforce data - In Progress</li> <li>We have met with national partners to explore how to better leverage local data into decision-making</li> </ul>
	<b>Industry</b> <ul style="list-style-type: none"> <li>Explore, measure and disaggregate college credit attainment, industry recognized credential attainment, Ohio means jobs readiness seal attainment</li> </ul>	Chamber/Industry Orgs/ BBB/DDC		

## Educator Engagement

Educators are well-positioned to guide our students on a path toward career success if they have the training, curriculum tools and support from industry to increase their own awareness, knowledge and skills to support students' career planning.



**Schools must** provide opportunities for educators to connect to careers and curriculum designed to give students experiences to help them design plans after high school.



**Industry must** invest time and resources in our region's career connections work while acknowledging the challenges educators face.

Strategy		Actions	Responsibility	Timeframe	Metric
1. Align existing programs and resources to meaningfully meet the ODE career connections requirements	<b>Schools</b>	Determine and Promote MCESC BAC Operational Definitions of Work-Based Learning	Educator Engagement Team, with ODE Representative	May 2022 focus on IT, Healthcare, and Adv Manufacturing	Measured by awareness of School Career Connections Survey Survey - In Progress
		Provide Work-Based Learning Resources (Guidance documents, OMJ readiness seal, pre-apprenticeships, job shadowing, etc.)	Educator Engagement Team, with ODE Representative	May 2022 focus on IT, Healthcare, and Adv Manufacturing	Approximately 61% of BAC districts participated this school year
		Share examples of Career Connections at Career Champions meetings	MCESC Staff	Ongoing Qrtly Meetings	Hold information session for management tools to foster career connections planning - In Progress
		Create an adaptable career connections planning tool for districts that identifies requirements by band, aligns available resources, and identifies gaps	Educator Engagement Team	2021-2022 focus on IT, Healthcare, and Adv Manufacturing	Partner with 100% of districts in a one on one meeting to discuss industry-relevant opportunities - In Progress
2. Utilize data to drive decision and increase career readiness across the educational continuum	<b>Industry</b>	Partner with schools to help plug identified gaps with industry-relevant opportunities (speakers, tours, lunches, projects, etc)	TBD as gaps are identified	2021-2022 focus on IT, Healthcare, and Adv Manufacturing	Host professional learning around state's new data portal - In Progress
		Share Learn to Earn Indicators, Career Readiness Survey Data, and SnapShot Data with Career Champions, Counselors, Building Admin, MVRCD, Teachers	MCESC/L2ED Staff & Educator Engagement Team	Annually	75% of districts reporting use of data walks - In Progress
2. Utilize data to drive decision and increase career readiness across the educational continuum	<b>Schools</b>	Share protocols to use for data walks in districts			
		Explore new ways to leverage statewide data portal			

<b>Strategy</b>	<b>Actions</b>	<b>Responsibility</b>	<b>Timeframe</b>	<b>Metric</b>
<b>3. Expand authentic experiences and activities connected to careers</b>	Leverage and promote career activities and tasks that align with content standards (technical and employability skills)	All districts, MCEC staff	2021-2022 academic year	<ul style="list-style-type: none"> <li>• 236 career connection experiences</li> <li>• Track # of schools implementing K-5 career connections - Approximately 5 schools, the effort still In Progress</li> <li>• Usage of Employability Skills &amp; Career Sector Courses - In Progress</li> </ul>
	Promote careers within each Industry Cluster, by generating resources and activities for one week's worth of programming for each cluster (using Manufacturing Week as a model)	All districts, MCEC staff	2021-2022 academic year	<ul style="list-style-type: none"> <li>• Creation of (1) week of programming for each cluster - Completed</li> </ul>
	Host quarterly Career Champions/Counselors Meetings with Industry Tours	All districts, MCEC staff	2021-2022 academic year	<ul style="list-style-type: none"> <li>• Host 4 quarterly meetings - In Progress (have held 3 this school year)</li> </ul>
	Host Teacher Industry Experience	All districts, MCEC staff	2021-2022 academic year	<ul style="list-style-type: none"> <li>• Host 4 teacher industry experiences - In Progress</li> </ul>
<b>4. Create plug and play structural course alignment options for workforce sectors</b>	Attend focus groups to develop career activity ideas and identify career alignment with content standards Host Industry Tours and Experiences	Chamber & Trade Orgs to identify key employers to participate	2021-2022 academic year	<ul style="list-style-type: none"> <li>• Track # of focus groups - In Progress</li> </ul>
	Work with P2P to identify career pathways structures - research existing options within and beyond the local districts and draft local pathway option	MCEC & L2ED in coordination with the Educator Engagement Team	2021-2022 academic year	<ul style="list-style-type: none"> <li>• Finalize 3rd pathway (advanced manufacturing) - Completed</li> <li>• Track # of pre-apprenticeships/apprenticeships - In Progress</li> </ul>
	Work with schools (K-12 & HE) to identify targeted pathways, coursework, and credentials	Chamber, Trade Orgs & Key business leads in identified pathways	2021-2022 academic year	<ul style="list-style-type: none"> <li>• Track # of credential opportunities - In Progress</li> </ul>

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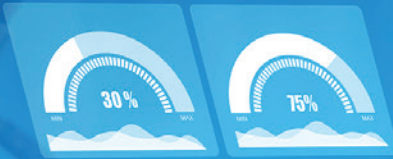


## Robotic Arm Performance

PRODUCTION LINE CONTROL SYSTEM  
MONITORING AND CONTROL SYSTEM FOR THE ROBOTIC  
ARM. THE SYSTEM IS DESIGNED TO MONITOR THE  
PERFORMANCE OF THE ROBOTIC ARM AND TO  
CONTROL ITS MOVEMENTS. THE SYSTEM IS  
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### Control System

- System
- Performance
- Daily Target



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# Montgomery County Information Technology/Computer Science Pathway

This framework outlines a common set of experiences for students in an information technology (IT)/computer science pathway from 8th grade through their future careers. It supports the alignment of regional business, higher education, K–12, and workforce outcomes to ensure that pathways prepare young people for careers with family-supporting wages and build a robust talent pipeline for employers. This is a living document that will need to be updated frequently to be up-to-date with current education programs and workforce needs.

## Academic Coursework

This general coursework is recommended for all students in the IT/computer science pathway.

	Grade 8	Grades 9 and 10	Grade 11	Grade 12	
<b>Career Focused Courses</b>	Information Technology Networking Programming	Foundational IT/Comp Sci or CCP Course such as: ⊕ CIS 1107–Introduction to Operating Systems ⊕ BIS 1120–Introduction to Software Applications ⊕ BIS 1105–IT Fundamentals	Strategic CCP Course such as: ⊕ CIS 1130–Network Fundamentals ⊕ CIS 1111–Introduction to Problem Solving and Computer Programming	Strategic CCP Course such as: ⊕ CIS 1140–Information Systems Analysis and Design ⊕ CIS 2165–Database Management	<p>⊕ <b>Note:</b> College Credit Plus courses apply to both high school and postsecondary requirements, saving students time and money. Students who complete the following six courses can earn the IT Fundamentals Certificate at Sinclair Community College: BIS 1120, CIS 1107, CIS 1111, CIS 1130, CIS 1140, CIS 2165</p>
<b>English</b>	Grade 8 English	English I English II	English III	English IV ⊕ ENG 1101–English Composition I	
<b>Math</b>	Algebra I	Geometry ⊕ MAT 1470–College Algebra	Algebra II	Trigonometry/Calculus	
<b>History</b>	Social Studies	World History	US History	US Government	
<b>Science</b>	Physical Science	Biology	Chemistry	Physics	

## College and Career Preparation

These additional activities support students in preparing for both college and career. Work-based learning enables students to apply their academic learning in a real-world setting. Advising supports students in making decisions that align best with their strengths and future goals. Competencies describe the technical skills students need for a successful career in information technology and computer science.

	Grade 8	Grades 9 and 10	Grade 11	Grade 12
<b>Work-Based Learning</b>	<b>Career Exploration:</b> • Career Adventures Course—IT • Work-Site Tours • Power Lunches • Pathway Fairs	<b>Career Planning:</b> • Job Shadow • HR Interview • Virtual Pathway Mentor • Resume Prep	<b>Career Planning:</b> • Internship • Career Fair • Mock Interview	<b>Career Planning:</b> • Internship • Career Fair • Mock Interview • Exposure to Related Software Languages
<b>Advising</b>	• YouScience	• Individualized College and Career Plan (ICCP) • Confirmation of Pathway • Identification of Credentials and College Options • Revisit ICCP	• Financial Literacy Course • College Application Prep Work • Industry Recognized Credential Examination	• Free Application for Federal Student Aid (FAFSA) • Complete Ohio Means Jobs (OMJ) Readiness Seal • College and Career Signing Day
<b>Competencies</b>	• Employability Skills Course	• User and Customer Support • Principles of IT Systems and Concepts • Principles of Data and Documentation • Logic and Fundamentals of Computer Languages • Principles of Software • Word Processing, Spreadsheet, and Presentation Software	• Security, Compliance, and Risk Management • Routing and Network Configurations • Servers and Storage • Fundamentals of Cloud Computing and Virtualization	• Individualized Specialization

## IT/Computer Science Technical Competencies

### User and Customer Support

Use understanding of the range of services and customer-focused approaches used to provide assistance and technical support in order to help users solve problems and implement solutions related to IT.

### Principles of IT Systems and Concepts

Use understanding of fundamental IT concepts, systems, platforms, and tools to understand the common roles and career trajectories of IT professionals.

### Principles of Data and Documentation

Use understanding of numerical sequencing, information flow, data, and record keeping in order to understand the role of technology in converting data into organized content and maintaining accurate records.

### Logic and Fundamentals of Computer Languages

Use understanding of how computer languages communicate to build basic mobile and web applications.

### Principles of Software

Use understanding of designing, writing, testing, and maintaining source code of computer program to manage, maintain, and edit software.

### Word Processing, Spreadsheet, and Presentation Software

Use understanding of Microsoft Office and Google Suite to create written documents, organize data, and develop visual presentations.

### Security, Compliance, and Risk Management

Use understanding of malware, firewall, IDS, and legal or regulatory requirements to recognize basic threats to networked computers and ensure procedures are in place for compliance.

### Routing and Network Configurations

Use understanding of common networking protocols to explain the purpose of routing, monitoring, and network configurations.

### Servers and Storage




Use understanding of data backup systems to store and recover information.

### Fundamentals of Cloud Computing and Virtualization

Use understanding of the features, benefits, and concepts of virtualization to differentiate among types of cloud services.

## Selected Postsecondary Options

These selected postsecondary credentials in IT/computer science, based on program options and transfer agreements at Sinclair Community College, lead to careers with family-supporting wages. Some education paths have credentials that easily stack or build from the previous credential, while others are not as easily stackable. Stackable credentials can help an individual progress in their career pathway or move up a career ladder to different or higher paying jobs. Within the fields of IT and computer science, a particular education credential can prepare students for a variety of occupations.

	 Potential Initial Credential	 Stackable Credentials	 Typical Occupational Outcome
Computer Information Technology	<ul style="list-style-type: none"> <li>• CompTIA A+</li> <li>• CompTIA IT Fundamentals+</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Computer Information Systems—User Support Associate of Applied Science</b> Students eligible to take the following certification exams: A+, Network+, Security+, MCSA Exam TestOut Client Pro</li> </ul>	<ul style="list-style-type: none"> <li>• Computer Information Systems Bachelor of Science</li> <li>• Computer Network Support Specialist</li> <li>• Computer User Support Specialist</li> </ul>
	<ul style="list-style-type: none"> <li>• CompTIA IT Fundamentals+</li> <li>• CompTIA A+</li> <li>• CCENT</li> <li>• Network+</li> <li>• MTA</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Computer Information Systems—Network Engineering Associate of Applied Science</b> Students eligible to take the following certification exams: CCNA, Security+, A+, MCSA Exam TestOut Server Pro 2016: Install and Storage* *This credential is connected to an optional elective course, students need to take that specific elective in order to take the certification exam.</li> </ul>	<ul style="list-style-type: none"> <li>• Network Administrator</li> <li>• Network Security Analyst</li> <li>• Network Engineer</li> </ul>
	<ul style="list-style-type: none"> <li>• CompTIA IT Fundamentals+</li> <li>• MTA</li> <li>• CompTIA A+</li> <li>• OCAJ</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Computer Information Systems—Software Development Associate of Applied Science</b> Students eligible to take the Network+ certification exam</li> </ul>	<ul style="list-style-type: none"> <li>• Software Developer</li> <li>• Web Developer</li> <li>• Help Desk Analyst</li> <li>• Network Administrator</li> <li>• User Support Specialist</li> <li>• Network Security Analyst</li> <li>• Network Engineer</li> </ul>
Cybersecurity: Prevention and Investigation Technology	<ul style="list-style-type: none"> <li>• CompTIA IT Fundamentals+</li> <li>• CompTIA A+</li> <li>• MTA</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Computer Information Systems—Secure System Administration Associate of Applied Science</b> Students eligible to take the following certification exams: Network+, Linux+, Security+, MCSA Exam TestOut Server Pro 2016: Install and Storage, MCSA Exam TestOut Server Pro 2016: Networking, MCSA Exam TestOut Server Pro: Identify, Securing Windows Network Environment 2016 Exam</li> </ul>	<ul style="list-style-type: none"> <li>• Information Technology and Cybersecurity Bachelor of Science</li> <li>• Cybersecurity Analyst/Technician</li> <li>• Cyber Crime Analyst/Investigator</li> <li>• Incident Analyst/Responder</li> <li>• IT Auditor</li> </ul>
	<ul style="list-style-type: none"> <li>• CompTIA IT Fundamentals+</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Cyber Investigation Technology Associate of Applied Science</b> Students eligible to take the following certification exams: Network+, Linux+, Security+, MCSA Exam TestOut Server Pro 2016: Install and Storage, Securing Windows Network Environment 2016 Exam</li> </ul>	<ul style="list-style-type: none"> <li>• Intelligence Analyst</li> <li>• IT Specialist</li> <li>• Systems Administrator</li> <li>• Network Engineer</li> <li>• Information System Security Manager</li> <li>• Cyber Security Incident Response Specialist</li> <li>• Private Investigator</li> </ul>
Guided Transfer	<ul style="list-style-type: none"> <li>• CompTIA IT Fundamentals+</li> <li>• CompTIA A+</li> <li>• CompTIA Security+</li> </ul>	<ul style="list-style-type: none"> <li>• Computer Science Associate of Science</li> </ul>	<ul style="list-style-type: none"> <li>• Computer Science Bachelor of Science</li> <li>• Software Developer</li> <li>• Software Engineer</li> <li>• Data Engineer</li> </ul>

## Selected Occupations, Wages, and Job Growth

The IT and computer science careers listed below are projected to grow in the region. The living wage is from the MIT Living Wage Calculator for one adult and one child in Montgomery County. Note that all occupations included have median hourly earnings above a living wage, but that some jobs have a large pay range; this means that employees who have less experience, credentials, and skills can be paid significantly less than the median wage, which can be seen in the “entry level wages” column. The last column shows national data on how many workers in these positions have a bachelor’s degree or higher, indicating that for some positions, a four-year degree is an important credential.

Typical Job	Alternate Job Titles	Pays Living Wage (\$23.16)			Expected Growth (2020–2025)		Typical Work Experience Required	Workers with a Bachelor’s or Higher*
		Median Hourly Earnings	Entry Level Wages	Positions (2020)	Positions	Percent		
Software Developers	<ul style="list-style-type: none"> <li>• Application Developers</li> <li>• Systems Engineer</li> </ul>	\$44.13	\$26.68	5,561	646	12%	None	85%
Computer Systems Analysts	<ul style="list-style-type: none"> <li>• Information Technology Analyst</li> </ul>	\$42.09	\$26.36	1,740	127	7%	None	73%
Computer and Information Systems Managers	<ul style="list-style-type: none"> <li>• Application Development</li> <li>• Director IT Director</li> </ul>	\$63.86	\$41.01	943	92	10%	5+ Years	73%
Computer User Support Specialists	<ul style="list-style-type: none"> <li>• Desktop Support Technician</li> <li>• Help Desk Analyst</li> </ul>	\$25.39	\$15.82	2,129	71	3%	None	48%
Information Security Analysts	<ul style="list-style-type: none"> <li>• Information Security Officer</li> <li>• Network Security Analyst</li> </ul>	\$47.61	\$27.32	373	65	17%	Less Than 5 Years	67%
Network and Computer Systems Administrators	<ul style="list-style-type: none"> <li>• Network Administrator</li> <li>• Systems Administrator</li> </ul>	\$37.41	\$23.56	955	27	3%	None	54%
Computer Network Architects	<ul style="list-style-type: none"> <li>• Network Analyst</li> <li>• Network and Security Engineer</li> </ul>	\$43.36	\$28.72	293	23	8%	5+ Years	57%
Web Developers	<ul style="list-style-type: none"> <li>• Web Designer</li> <li>• Webmaster</li> </ul>	\$38.45	\$21.03	750	6	1%	None	68%

# Montgomery County Health Science Pathway Framework

This framework outlines a common set of experiences for students in a health science pathway from 8th grade through their future careers. It supports the alignment of regional business, higher education, K-12, and workforce outcomes to ensure that pathways prepare young people for careers with family-supporting wages and build a robust talent pipeline for employers. This is a living document that will need to be updated frequently to be up-to-date with current education programs and workforce needs.

## Academic Coursework

This general coursework is recommended for all students in the health science pathway.

	Grade 8	Grades 9 and 10	Grade 11	Grade 12	
Career Focused Courses	Health Science and Technology	Foundational Health Science or CCP Course such as: ⊕ ALH 1101–Introduction to Healthcare Delivery	Strategic CCP Course such as: ⊕ HIM 1101–Medical Terminology	Strategic CCP Course such as: ⊕ PSY 1100–General Psychology	⊕ College Credit Plus (CCP) courses apply to a broad range of postsecondary programs in health science. The credits apply to both high school and postsecondary requirements, saving students time and money.
English	Grade 8 English	English I, English II ⊕ ENG 1101–English Composition	English III ⊕ COM 2206–Interpersonal Communication	English IV ⊕ COM 2206–Interpersonal Communication	
Math	Grade 8 Math or Algebra I	Algebra I, Geometry ⊕ MAT 1470–College Algebra	Algebra II	Trigonometry/Calculus ⊕ MAT 1470–College Algebra	
History	Social Studies	World History	US History	US Government	
Science	Physical Science	Biology ⊕ BIO 1107–Human Biology	Chemistry	Physics ⊕ BIO 1141–Principles of Anatomy & Physiology I	

## College and Career Preparation

These additional activities support students in preparing for both college and career. Work-based learning enables students to apply their academic learning in a real-world setting. Advising supports students in making decisions that align best with their strengths and future goals. Competencies describe the technical skills students need for a successful career in the health sciences.

	Grade 8	Grades 9 and 10	Grade 11	Grade 12
Work-Based Learning	Career Exploration: • Career Adventures Course—Healthcare • Work-Site Tours • Power Lunches • Pathway Fairs	Career Planning: • Job Shadow • HR Interview • Virtual Pathway Mentor • Resume Prep	Career Planning: • Internship • Career Fair • Mock Interview	Career Planning: • Internship • Career Fair • Mock Interview
Advising	• YouScience	• Individualized College and Career Plan (ICCP) • Confirmation of Pathway • Identification of Credentials and College Options • Revisit ICCP	• Financial Literacy Course • College Application Prep Work • Industry Recognized Credential Examination	• Free Application for Federal Student Aid (FAFSA) • Complete Ohio Means Jobs (OMJ) Readiness Seal • College and Career Signing Day
Competencies	• Employability Skills	• Computer Applications, Records, and Data Recording • Professional Working Environments • Healthcare Rules and Regulations • Healthcare Industry Ethics • Healthcare Confidentiality	• Medical Terminology • Customer Service and Patient Focus • Healthcare Safety Systems and Environment • Healthcare Professional Licensure • Healthcare Sanitation	• Individualized Specialization

## Health Science Technical Competencies

### Computer Applications, Records, and Data Recording

Use understanding of keyboarding, data entry, and word processing to accurately record information on health technology systems.

### Professional Working Environments

Use understanding of the importance of a sequence of tasks, cross-functional working environments, and professional communication to successfully work as part of a team.

### Healthcare Rules and Regulations

Use understanding of basic laws and regulations (Patient Bill of Rights, CLIA, EMTALA, OSHA, etc.) to meet accreditation standards and obey the law.

### Healthcare Industry Ethics

Use understanding of confidentiality, morality, and legal concepts to evaluate and apply the merits, risks, and social concerns to workplace decisions.

### Healthcare Confidentiality

Use understanding of HIPAA in order to adhere to legal requirements and maintain confidentiality.

### Medical Terminology

Use understanding of basic medical terminology, including abbreviations, acronyms, and diagnostic terms, to communicate effectively with healthcare personnel and patients.

### Customer Service and Patient Focus

Use understanding of communication, active listening, and conflict resolution to identify and meet the needs of a patient or customer.

### Healthcare Safety Systems and Environment

Use understanding of health and safety procedures and protocols to ensure a safe, secure, and healthy work environment.

### Health Professional Licensure

Use understanding of appropriate industry education requirements, licensure, and certification to ensure adherence to regulations that guide service delivery.




### Healthcare Sanitation

Use understanding of health cleanliness regulations and sanitation procedures to ensure that healthcare facilities and tools meet standards for cleanliness.



## Selected Postsecondary Options

The selected postsecondary credentials in health science, based on program options and transfer agreements at Sinclair Community College, lead to careers with family supporting wages. Some education paths have credentials that easily stack or build from the previous credential, while others are not as easily stackable. Stackable credentials can help an individual progress in their career pathway or move up a career ladder to different or higher paying jobs.

	 Potential Initial Credential	 Stackable Credentials	 Typical Occupational Outcome	
Allied Health	Radiographer	Associate of Applied Science in Radiologic Technology—students eligible to take the ARRT exam	Advanced Imaging Certifications e.g.: Computed Tomography (CT), Magnetic Resonance Imaging (MRI), and Mammography Bachelor of Radiation Science Technology Bachelor of Science in Healthcare Administration	Radiologic Technician
	State Tested Nurse Aide (STNA)	Associate of Applied Science in Respiratory Care	Bachelor of Science in Respiratory Care Bachelor of Health Sciences Bachelor of Science in Healthcare Administration	Respiratory Therapist
	Certified Dental Assistant	Associate of Applied Science in Dental Hygiene—students eligible to take state board exams and apply for state licensing	Expanded Function Dental Auxiliary (EFDA) Continuing Education Programs e.g.: Local Anesthesia and Nitrous Oxide for Dental Hygiene	Dental Hygienist
Nursing	State Tested Nurse Aide (STNA) Licensed Practical Nurse (LPN)	Associate of Applied Science (AAS) in Nursing—students eligible to take RN exam	Bachelor of Science in Nursing (BSN) Master of Science in Nursing (MSN)	Nurse
Guided Transfer (pre-med, pre-dentistry, or other advanced degree track)	State Tested Nurse Aide (STNA)	Associate of Science in Pre-Professional Studies	Bachelor of Science Doctoral Degree	Physician (Doctor or Dentist)

## Selected Occupations, Wages, and Job Growth

The health science careers listed below are projected to grow in the region. The living wage is from the MIT Living Wage Calculator for one adult and one child in Montgomery County. Note that some jobs in the table do not pay a living wage and do not easily stack to further credentials, making economic advancement difficult.

Typical Job	Pays Living Wage (\$23.16)	Median Hourly Earnings	Preferred Education	Stackable Credential	Positions (2020)	Expected Growth (2020–2030)	
						Positions	Percent
Home Health and Personal Care Aides	No	\$11.33	Short-Term Home Health Aide Certificate	Not typically stackable	3,458	860	25%
Medical Assistants		\$16.53	Medical Assistant Technology (AAS)		1,701	432	25%
Emergency Medical Technicians and Paramedics		\$16.53	Emergency Medical Services (AAS)		502	159	32%
Phlebotomists		\$16.85	Short-Term Phlebotomy Certificate		742	144	19%
Medical and Health Services Managers	Yes	\$47.22	Health Information Management/ Administration (BS)	Health Administration (MS)	808	116	14%
Respiratory Therapists		\$28.60	Respiratory Care (AAS)	Respiratory Care (BS)	584	71	12%
Radiologic Technicians		\$28.24	Radiographic Technology (AAS)	Radiation Science Technology (BS)	626	43	7%
Diagnostics Medical Sonographers		\$35.77	Diagnostic Medical Sonography (AAS)	Diagnostic Medical Sonography (BS)	284	39	14%
Dental Hygienists		\$34.00	Dental Hygiene (AAS)	Expanded Function Dental Auxiliary (EFDA) License	644	20	3%
Registered Nurses	Yes	\$32.61	Nursing (BS)	Nursing (MS)	10,190	611	6%
Nurse Practitioners		\$51.02	Nursing (MS)	Terminal degree for this occupation	672	174	26%
Physicians	Yes	\$101.08	Doctor of Medicine (MD)	Terminal degree for this occupation	1,220	141	12%

This document was developed by JFF, Learn to Earn Dayton, and the Montgomery County ESC. Special thanks to the Greater Dayton Area Hospital Association (GDAHA) Education Subcommittee and Sinclair Community College for your feedback and contributions.

# Montgomery County Advanced Manufacturing Pathway

This framework outlines a common set of experiences for students in an advanced manufacturing pathway from 8th grade through their future careers. It supports the alignment of regional business, higher education, K-12, and workforce outcomes to ensure that pathways prepare young people for careers with family-supporting wages and build a robust talent pipeline for employers. This is a living document that will need to be updated regularly to reflect current education programs and workforce needs.

## Academic Coursework

This general coursework is recommended for all students in the advanced manufacturing pathway.

	Grade 8	Grades 9 and 10	Grade 11	Grade 12	
Career Focused Courses		<b>Foundational Advanced Manufacturing or CCP Course such as:</b> + MET 1131–Personal Computer Applications for Engineering Technology + CAM 1109–Fundamentals of Tooling and Machining	<b>Strategic CCP Course such as:</b> + EET 1120–Introduction to DC and AC Circuits + EGR 1106–Basic Mechanical and Technical Skills	<b>Strategic CCP Course such as:</b> + COM 2211–Effective Public Speaking	+ College Credit Plus (CCP) courses apply to a broad range of postsecondary programs in advanced manufacturing. The credits apply to both high school and postsecondary requirements, saving students time and money.
English	Grade 8 English	English I English II	English III	English IV + ENG 1101–English Composition I	
Math	Grade 8 Math or Algebra I	Algebra I Geometry	Algebra II	Trigonometry/Calculus + MAT 1470–College Algebra	
History	Social Studies	World History	US History	US Government	
Science	Physical Science	Biology	Chemistry	Physics	

## College and Career Preparation

These additional activities support students in preparing for both college and career. Work-based learning enables students to apply their academic learning in a real-world setting. Advising supports students in making decisions that align best with their strengths and future goals. Competencies describe the technical skills students need for a successful career in advanced manufacturing.

	Grade 8	Grades 9 and 10	Grade 11	Grade 12
Work-Based Learning	<b>Career Exploration:</b> • Workforce Sector Course—Advanced Manufacturing • Work-Site Tours • Power Lunches • Pathway Fairs	<b>Career Planning:</b> • Job Shadow • HR Interview • Virtual Pathway Mentor • Resume Prep	<b>Career Planning:</b> • Internship • Career Fair • Mock Interview	<b>Career Planning:</b> • Internship • Career Fair • Mock Interview
Advising	• YouScience	• Individualized College and Career Plan (ICCP) • Confirmation of Pathway • Identification of Credentials and College Options • Revisit ICCP	• Financial Literacy Course • College Application Prep Work • Industry Recognized Credential Examination	• Free Application for Federal Student Aid (FAFSA) • Complete Ohio Means Jobs (OMJ) Readiness Seal • College and Career Signing Day
Competencies	• Employability Skills	• Equipment Safety • Manufacturing Environment • Personal Health and Safety • Spatial Reasoning • Process, Design, and Development • Installation	• Customer Focus • Quality Assurance and Continuous Improvement • Digital Manufacturing • Supply Chain Logistics	• Individualized Specialization

## Manufacturing Competencies

### Equipment Safety

Students can use their understanding of equipment usage, practices, and procedure to maintain a healthy, safe, and secure work environment.

### Manufacturing Environment

Students can use their understanding of workstations, tools, and equipment operations to safely navigate a manufacturing environment.

### Personal Health and Safety

Students can use their understanding of personal safety and environmental regulations to comply with local, federal, and company health/safety demands.

### Spatial Reasoning

Students can use their understanding of objects in relation to one another to understand three-dimensional imaging.

### Process, Design, and Development

Students can use their understanding of technical drawings and schematics to complete the design and development process.

### Installation

Students can use their understanding of tools to assemble and disassemble simple tools.

### Customer Focus

Students can use their understanding of communication and project management to understand client needs and complete projects accordingly.

### Quality Assurance and Continuous Improvement

Students can use their understanding of product and process to meet quality systems requirements as defined by customer specifications.

### Digital Manufacturing

Students can use their understanding of digital manufacturing tools and computer-based programs to complete the development and design for implementation processes.

### Supply Chain Logistics

Students can use their understanding of materials, suppliers, and internal systems to plan and monitor movement and storage of materials and products.

## Selected Postsecondary Options

The selected postsecondary credentials in advanced manufacturing are based on program options and transfer agreements at Sinclair Community College, except for the welding program, offered through Hobart Institute. Some education paths have credentials that easily stack or build from the previous credential, while others are not as easily stackable. Stackable credentials can help an individual progress in their career pathway or move up a career ladder to different or higher paying jobs.

	 Initial Credentials	 Stackable Credentials	 Potential Occupational Outcome
Engineering Technology	<ul style="list-style-type: none"> <li><b>Industrial Engineering Technology Associate of Applied Science</b> Students eligible to take the following certification exam: Six Sigma Green Belt Certification</li> </ul>	<ul style="list-style-type: none"> <li><b>Bachelor of Science in Industrial Engineering Technology</b> (with additional transfer courses)</li> </ul>	<ul style="list-style-type: none"> <li>Engineering Technicians</li> <li>Quality Control Technicians</li> <li>Production Supervisors</li> <li>Continuous Improvement Specialists</li> </ul>
	<ul style="list-style-type: none"> <li><b>Mechanical Engineering Technology Associate of Applied Science</b> Students eligible to take the following certification exam: Certified SolidWorks Associate (CSWA) IRC</li> </ul>	<ul style="list-style-type: none"> <li><b>Bachelor of Science in Mechatronics Engineering</b></li> <li><b>Bachelor of Science in Mechanical and Manufacturing Engineering Technology</b></li> </ul>	<ul style="list-style-type: none"> <li>Mechanical Engineering Technicians</li> </ul>
	<ul style="list-style-type: none"> <li><b>Automation and Control Technology with Robotics</b> Students eligible to take the following certification exam: FANUC Handling Tool</li> </ul>		<ul style="list-style-type: none"> <li>Control System Technician and Designer</li> <li>Systems Engineering Technician</li> <li>Industrial Equipment Professional</li> </ul>
Welding (Hobart Institute)	<ul style="list-style-type: none"> <li><b>Pathway Welding Program</b> Students eligible to take four nationally recognized certifications: AWS® D1.1 Shielded Metal Arc Welding AWS® D1.1 Flux Cored Arc Welding AWS® D1.6 Gas Tungsten Arc AWS® D1.1 Gas Metal Arc Welding Pulsed Spray Transfer</li> </ul>	<ul style="list-style-type: none"> <li><b>Welder-Fabricator Pathway</b> Students eligible to take two additional nationally recognized certifications: AWS® D1.1 Gas Metal Arc Welding Pulsed Spray 3G AWS® D1.1 Flux Cored Arc Welding Self-shielded</li> </ul>	<ul style="list-style-type: none"> <li>Welder</li> </ul>
Computer Aided Manufacturing	<ul style="list-style-type: none"> <li><b>Computer Aided Manufacturing/CNC Technology Associate of Applied Science</b></li> </ul>		<ul style="list-style-type: none"> <li>Machinist/CNC Machinist</li> <li>Process Improvement Specialist</li> </ul>
Guided Transfer	<ul style="list-style-type: none"> <li><b>Engineering and Engineering Technology University Transfer Associate of Science</b></li> </ul>	Several options including, but not limited to: <ul style="list-style-type: none"> <li>Bachelor of Science in Civil Engineering</li> <li>Bachelor of Science in Electrical Engineering</li> <li>Bachelor of Science in Mechanical Engineering</li> <li>Bachelor of Science in Industrial Engineering</li> </ul>	<ul style="list-style-type: none"> <li>Engineer</li> </ul>

## Selected Occupations, Wages, and Job Growth

The advanced manufacturing careers listed below are projected to have job openings over the next five years in the region. The living wage (\$28.66/hour) is from the MIT Living Wage Calculator for one adult and one child in Montgomery County. Like all industries, many high-wage jobs in advanced manufacturing require a bachelor's degree or beyond. However, there are a few jobs below that don't require a four-year degree and pay over \$20/hour. In manufacturing, there are few defined career advancement opportunities, but one such opportunity is moving into a managerial/supervisory role. The last column in the table shows the occupation's risk of being affected by automation, a factor to consider as individuals plan for their careers.

Typical Job	Pays Living Wage (\$28.66)	Median Hourly Earnings	Entry Level Wages	Positions (2021)	Average Annual Openings	Expected Growth (2021–2026)	Typical Education Required	Higher-than-Average Risk of Automation
Electronics Engineers	Yes	\$53.67	\$42.73	1,388	87	-2%	Bachelor's degree	No
Software Developers and Software Quality Assurance Analysts and Testers	Yes	\$44.13	\$26.68	5,640	482	11%	Bachelor's degree	No
Mechanical Engineers	Yes	\$43.37	\$34.38	1,213	79	4%	Bachelor's degree	No
Industrial Engineers	Yes	\$38.47	\$31.96	1,114	85	8%	Bachelor's degree	No
Electrical and Electronics Repairers	Yes	\$31.38	\$28.24	78	7	6%	Postsecondary certificate	No
Supervisors/Managers	Yes	\$30.77	\$24.53	2,052	190	2%	High school diploma or equivalent	No
Machinist/CNC Machinist	No	\$23.20	\$17.88	2,050	206	4%	High school diploma or equivalent	Yes
Welders, Cutters, Solderers, and Brazers	No	\$20.89	\$17.72	663	82	8%	High school diploma or equivalent	Yes
Maintenance Repair Workers	No	\$19.80	\$16.09	3,277	320	0%	High school diploma or equivalent	Yes
Inspector/Quality Assurance Auditor	No	\$18.93	\$16.21	1,855	196	-6%	High school diploma or equivalent	Yes

# MONTGOMERY COUNTY BUSINESS ADVISORY COUNCIL PARTICIPANTS

Thank you to the members of the Business Advisory Council. The group includes representatives from 25+ school districts, 7 in-demand industries, higher education, local government, local economic development organizations and other community partners.

**To join the Council or to learn more about how your school or business can participate, contact Bryan Stewart, Workforce Director at [Bryan.Stewart@MCESC.org](mailto:Bryan.Stewart@MCESC.org).**

Abbot Nutrition	Little Miami Local School District
All Service Plastic Molding	Loveland City Schools
Better Business Bureau	Mad River Local Schools
Brookville Local Schools	Miamisburg City Schools
CareSource	Miami Valley Apprenticeship Coordinators Group
Carlisle Local Schools	Miami Valley Career Technology Center
Centerville City Schools	Miami Valley HR Association
Construction Builders Association	Montgomery County
CRG, Inc.	Montgomery County Educational Service Center
Dayton Area Chamber of Commerce	New Lebanon Local Schools
Dayton Area Logistics Association	Northmont City Schools
Dayton Business Committee	Northridge Local Schools
Dayton Children's Hospital	Oakwood City Schools
Dayton Development Coalition	PSA Airlines
Dayton Metro Library	Rush Transportation & Logistics
Dayton Region Manufacturers Association	Shook Construction
Dayton Public Schools	Sinclair College
Expedient Technology Solutions	Southwestern Ohio Council for Higher Education
Franklin City Schools	Springboro Community City School District
Greater Dayton Area Hospital Association	Technology First
Hobart Institution of Welding Technology	Trotwood-Madison City Schools
Huber Heights City Schools	Valley View Local Schools
Jefferson Township Local Schools	Vandalia-Butler City Schools
Kettering City Schools	Warren County Career Center
Kettering Health Network	Warren County Educational Service Center
Kings Local Schools	Wayne Local Schools
Learn to Earn Dayton	West Carrollton City Schools
Lebanon City Schools	Wright-Patterson Air Force Base
Libra Industries	

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