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Workforce Development in the 21st Century for High School Students

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**Consultancy Project
Executive Summary**

Organization:	Gardner-Webb University School of Education
Project Title:	Workforce Development in the 21 st Century for High School Students
Candidate:	Bruce Mack
Consultancy Coach:	Dr. Dale Lamb
Defense Date:	July 07, 2020
Authorized by:	Tony Fogleman, Director of CTE Programs

Amendment History

<u>Version</u>	<u>Issue Date</u>	<u>Changes</u>
Version 1	May 16, 2020	Initial version.
Version 2	June 13, 2020	Minor edits, added an Appendix item.

Approval

This consultancy project was submitted by Bruce Mack under the direction of the persons listed below. It was submitted to Gardner-Webb University School of Education and approved in partial fulfillment of the requirements for the degree of Doctor of Education at Gardner-Webb University.

Dr. Dale Lamb, Faculty Advisor
Gardner-Webb University

Date

Tony Fogleman, Site Advisor
Cleveland County Schools
Director of CTE Programs

Date

Acknowledgements

Matthew 23:10-12 “And don’t let anyone call you Teacher, for you have only one teacher, the Messiah. The greatest among you must be a servant. But those who exalt themselves will be humbled, and those who humble themselves will be exalted.”

This Doctor of Education degree is dedicated in memory of my mother, Gloria Downs, who always believed in my ability to be successful in the academic arena. As I turn the next chapter in my life, I am thankful and appreciative to those who supported me during this process. Although, this process has been exhausting these past three years, more importantly it has been humbling. Without God in my life none of this would have been possible, but with God all things are possible! I am grateful to God for giving me his grace and mercy during this process. I appreciate the support, prayers and patience of my devoted wife, Michelle, of almost 25 years. To my children, Cameron and Carmyn, for being supportive cheerleaders. I am also thankful for my father, Edward Downs, mother-in-law, siblings, in-laws, nephews, nieces, aunts, uncles. You have each played a unique part in your own special way and I will never forget your contributions. I would like to thank Pastor Leslie Davis and my church family, Mt. Zion Baptist Church for being supporting during the last three years. Your calls, cards, messages and encouraging words gave me the inspiration to continue moving forward. I am eternally grateful.

I thank Dr. Jason Hurst and my colleagues at Cleveland Community College for developing me over the last 24 years. Special thank you to Cleveland County Schools, Drs. Stephen Fisher, Brian Hunnell and Anita Ware, Tony Fogleman, Titus Hopper, Amy Dulin, and Karen Sweezy for their guidance and trust in the development of this program.

Finally, I thank Gardner-Webb, Drs. Jeff Hamilton and Dale Lamb, Jade Cox, Dennis Forester, Jessica Ivey and Lori Metcalf, my cohort members, for their shared wisdom, encouragement, and unconditional support.

Abstract

Workforce Development in the 21st Century for High School Students. Mack, Bruce, 2020: Consultancy Project, Gardner-Webb University.

Workforce Development is a critical component of economic development in Cleveland County. During the time of this project, Cleveland County was experiencing job growth in manufacturing-related jobs requiring post-secondary experience. My project is a collaboration between Cleveland County Schools, Cleveland Community College and local industries in the county. This project is two-fold: (1) prepare graduating high school students with the skills needed for employment after graduating high school, and (2) help them identify a career in manufacturing.

The project is the development of the Advanced Manufacturing Academy. This Academy selects rising high school juniors to dually enroll in high school and college during their junior and senior years. The program goal is three-fold: (1) graduate from high school, (2) receive a post-secondary and industry-recognized credential, and (3) participate in a work-based learning experience (on-the-job training).

This study of 18 participants revealed following results: (1) 100% of the participants received their high school diploma, (2) 72% of the participants received a post-secondary credential from CCC, (3) 100% of the participants received an industry-recognized credential, (4) 67% of the participants participated in a work-based learning experience, and (5) 27% of the participants were employed in their field of study within 6 months after completion of the program.

Keywords: Workforce development, high school, credential, community college

Table of Contents

1	Introduction.....	1
1.1	Project Purpose	1
1.2	Associated Documents.....	1
1.3	Project Plan Maintenance	2
2	Project Scope	3
2.1	Outline of Partnering Organization’s Objectives.....	3
2.1.1	Objectives	3
2.1.2	Success Criteria.....	4
2.1.3	Risks.....	4
2.2	Outline of Student’s Objectives	5
2.2.1	Objectives	5
2.2.2	Success Criteria.....	5
2.2.3	Risks.....	6
2.3	Definitive Scope Statement.....	6
3	Deliverables	7
3.1	To Partnering Organization.....	7
3.2	From Student.....	7
4	Project Approach	8
4.1	Project Lifecycle Processes.....	8
4.2	Project Management Processes	9
4.3	Project Support Processes	9
4.4	Organization.....	9
4.4.1	Project Team	9
4.4.2	Mapping Between Cleveland County Schools and Student	10
5	Communications Plan	11
6	Work Plan	12
6.1	Work Breakdown Structure	12
6.2	Resources	12
7	Milestones	13
8	Metrics and Results.....	14
9	Risks, Constraints, Assumptions.....	17
9.1	Risks.....	17
9.2	Constraints	18
9.3	Assumptions.....	18
10	Financial Plan.....	19
11	Quality Assurance Plan.....	21
	Appendix A Organizational Facts.....	24
	Appendix B Program Facts.....	25
	Appendix C Marketing Flyer	26
	Appendix D Program Options	27
	Appendix E School Calendar.....	34
	Appendix F AMA Handout	35
	Appendix G Orientation.....	36

Appendix H SWOT Analysis.....	37
<i>Appendix I Fishbone Diagram.....</i>	<i>40</i>
Appendix J Professional Literature Review	42
References	47

1 Introduction

1.1 Project Purpose

Workforce Development has been a phrase surrounding job demand in Cleveland County (CC) in recent years. “Workforce Development” is an essential component of community economic development in an economic climate, and certainly even more critical during the financial crises we are experiencing today (Haralson, 2010). In general, the term has come to describe a relatively wide range of activities, policies and programs employed by geographies to create, sustain and retain a viable workforce that can support current and future business and industry (Haralson, 2010). Cleveland County was in a crisis to develop the workforce for existing and new jobs in the county. In response to this crisis, a Workforce Development Strategic Planning Committee (WDSPC) was formed consisting of Cleveland Community College (CCC), Cleveland County Schools (CCS), Cleveland County Economic Development Partnership (CCEDP), Region C Workforce Development Board, County Government, and local industries. The problem statement the committee defined was “the region has an insufficient pool of candidates with skills to compete for entry level manufacturing positions.”

One initiative recommended by the committee was the need to prepare high school students with the skills needed for entry level manufacturing positions in Cleveland County. My consultancy project is a collaboration between CCC and CCS to create a workforce development program that will prepare high school students with the necessary skills and credentials needed for 21st century manufacturing. The Project is the development of the Advanced Manufacturing Academy (AMA). The duration of this program is 2 years. Dr. Stephen Fisher, Superintendent of CCS, believes in what he refers to as the three Es: enrolled, enlisted, or employed. He believes every graduate in CCS will either: enroll in college, enlist in the military or be employed with a local industry. CCS graduates approximately 1,100 students each year. The project will address the “employed” in the superintendent’s three E’s. This project targets high school rising juniors, as a pipeline, who are interested in entering the workforce immediately after graduation to help meet the demand of entry level manufacturing positions. This seemed like a logical task at the time, because Cleveland County had approximately 5,625 youth between ages 16-24 not in the labor force (Bureau, 2018).

1.2 Associated Documents

The following documents Associated Documents may be found in the Executive Summary appendices:

- Cleveland County Schools Mission Statement
- Cleveland County Schools Vision Statement

- Cleveland County Schools Core Values
- Cleveland County Schools Strategic Plan
- WDSPC Fishbone Diagram

1.3 Project Plan Maintenance

My Consultancy Project went through several iterations as a part of the consultancy process. Throughout each semester, the development of the program was analyzed, reviewed and modified. Updates to the program were discussed and implemented in collaboration with Tony Fogleman, Director of CTE at CCS, and Dr. Dale Lamb, consultancy project supervisor. The Project Plan was evaluated as each project milestone was completed and approved by Dr. Lamb.

2 Project Scope

Prior to the inception of the AMA, WDSPC was concerned about how the county would respond to the job demand in Cleveland County. Cleveland County was in job growth with jobs in advanced manufacturing and automation. Previous years, most industries in the County were textile manufacturing plants. The County experienced a downturn in the economy due to textile industries shutting down and moving their businesses to Mexico and other countries. Cleveland County's Commissioners, along with CCEDP, were recruiting companies with advanced technologies requiring a different skill set and post-secondary training. The scope of this project focused only on participants in the AMA program during the 2017-2019 year. The program was limited to a small number of participants I could evaluate the program and offer any recommendations moving forward.

The project scope is to help develop high school graduates with the skills needed for an entry level job in manufacturing. This was measured through the following objectives:

2.1 Outline of Partnering Organization's Objectives

2.1.1 Objectives

My main objective was to serve as a Champion for the project. A Champion as defined by Business Dictionary is a person who voluntarily takes extraordinary interest in the adoption, implementation, and success of a cause, policy, program, project, or product. He or she will typically try to force the idea through entrenched internal resistance to change and will evangelize it throughout the organization (Business Dictionary, 2020).

The partnering organization's objectives for the Advanced Manufacturing Academy Program include the following:

- Foster collaboration among college faculty and high school teachers to better align similar curriculum content
- Assess college-readiness as well as persistence in college
- Create a link between the high school and community college to develop career pathways
- Collaborate with local business and industry
- Help in navigating the complex process of matriculating into college
- Utilize a summer bridge program to help potential students enter college with a career pathway in mind
- Build in learning outcome components to monitor student progress as well as recognize student understanding pre and post program completion

2.1.2 Success Criteria

The overall success of the partnering organization was measured through the analysis and reflection upon program objective execution. Overall, success criteria include the following:

- Develop a program to prepare participants for 21st century manufacturing
- Bridge the relationship between high students, post-secondary, and local business and industry
- Help CCS understand the components needed to prepare the participant to enter the workforce immediately after graduation
- Build on the relationship with the local high schools
- Understand the career pathways from high school to college
- Help students build on the school to work experience
- Build a model that is transferrable to other career sectors.

2.1.3 Risks

A SWOT analysis was completed with the partnering organization and other stakeholders. A SWOT analysis is a study undertaken by an organization to identify its internal strengths and weaknesses, as well as its external opportunities and threats (Dubrin, 2013). The following table highlights some results from the SWOT.

Strengths	<ul style="list-style-type: none"> • Receive college education while in high school • Exposure to industries • Low instructor to student ratio • Skill for in-demand jobs
Weaknesses	<ul style="list-style-type: none"> • Miss out on traditional high school • Online high school courses • Number of students participating • Lack of student motivation
Opportunities	<ul style="list-style-type: none"> • Job placement • Connect with employers before graduation • More partnerships • Growth and awareness
Threats	<ul style="list-style-type: none"> • 4-year college • Compete with CTE courses at the high school • Economy • Dropout

These risks were minimized through consistent communication, data-driven decision-making, and collaborative work efforts.

The main risk factor associated with the project is dropout prevention. The project will mitigate the risk of students dropping out of high school. This project will give potential dropouts another option for successful completion of high school.

To help mitigate this risk, coordinators and lab assistants will monitor the student's progress and send early alerts to the student, teacher and parents.

2.2 Outline of Student's Objectives

2.2.1 Objectives

The student's objectives related to the Advanced Manufacturing Academy Program include the following:

- Develop facts and insight about academic program development
- Cultivate consciousness and empathy of adult learner needs
- Collaborate with various departments across the county in order to better serve participants
- Initiate options for program development
- Research and development a model transferrable to other career sectors
- Create buy-in from various departments after demonstrating need for the program
- Monitor, revise, and modify project as a result of feedback

2.2.2 Success Criteria

In addition to the program criteria identified in section 2.1.2, success criteria for the student were as follows:

- Provide high school students with academic and remedial support to ensure high school completion and successful transition to post-secondary education
- Reduce college costs by offering a dual-credit program
- Provide college access for low-income, first-generation college students
- Increase the likelihood for post-secondary completion
- Engage parents/family as active participants in their students' daily academic activities and challenges

- Introduce early diagnostics of students to teachers to help students connect to college-ready resources
- Provide high school students with the opportunity to participate in a work-based learning (on-the-job training) experience

2.2.3 Risks

In addition to the risks identified in section 2.1.2 for the program, the following risks were associated with the student objectives:

- Lack of support from stakeholders involved
- Lack of willingness to consider program because of the stigma regarding manufacturing
- Lack of sufficient parental support and involvement
- Lack of self-confidence in ability to succeed academically
- Financial and social barriers associated with the program

These risks were mitigated by purposely on-boarding stakeholders early on and through teaming up with those willing to support the program. Using stakeholders as key voices, any threats of invalidating the program as a result of being developed were minimized.

2.3 Definitive Scope Statement

The overall scope of the consultancy project is to develop a workforce development program between CCS and CCC, which will allow rising high school juniors, who plan to enter the workforce immediately after graduation, an opportunity to dually enroll at CCC to complete their high school diploma, earn a post-secondary credential, and participate in a work-based learning experience. The project is developed to help meet the job growth demand in the county. The project will address the question: What are the components required to create a successful workforce development program for high school students entering the workforce immediately after graduation?

3 Deliverables

3.1 To Partnering Organization

The consultancy project deliverables include the following:

- Goals and objectives of the AMA Program (Fall 2016)
- Career pathways and sequencing of courses selected by CCS (Fall 2016)
- Presentation materials used in recruiting participants for the program (Spring 2017)
- Schedule an orientation and tour with the participants/parents interested in the career pathways at CCC (Spring 2017)
- Selection criterion for the AMA participants (Spring 2017)
- Conduct a summer camp for the participants of the program (Summer 2017)
- Present handbook and calendar to the first cohort of participants (Fall 2017)
- Coordinate industry tours for the participants with local industries (Fall 2017)
- Offer Working Smart industry-recognized credential to participants (Spring 2018)
- Provide feedback and improvements for the next cohort of participants to CCS (Spring 2018)
- Collaborate work-based learning experience for participants (January 2019)

3.2 From Student

Deliverables from the student regarding the consultancy project include the following:

- Develop program assessment and tools that foster program creation
- Cultivate program development to personal development
- Facilitate meetings with groups such as the WDSPC
- Present program objectives to stakeholders

4 Project Approach

4.1 Project Lifecycle Processes

The process for the Advanced Manufacturing Academy Program included the following:

2016-2017 Academic Year

Stage 1: Plan

- Collaborated with CCS coordinators and administration to fully develop the program
- Conducted research on comparable offerings and other Local Education Agencies (LEA) as well as review of relevant data
- Consulted with CCC and CCS on the selection of the career pathways
- Assisted in the development of the sequencing of courses
- Consulted with CCC and CCS to determine the supplies needed for each career pathway
- Reviewed and approved the career pathways and sequencing of courses
- Met with CCS principals and administrators about the recruitment process
- Developed a selection criterion for the program
- Developed brochures, presentation, and handouts to inform external stakeholders about the program

Summer and Fall 2017 Semester

Stage 2: Do

- Conducted a summer camp for participants in the program
- Consulted with CCS coordinators and administration on a regular basis
- Assisted CCC coordinator with participant's orientation
- Reviewed and approved AMA participant's handbook

Spring 2018 Semester

Stage 3: Check

- Established what worked and what did not
- Compared obtained result and expected results
- Gathered feedback from CCS coordinators and administration

Summer 2018 Semester

Stage 4: Act

- Reviewed the results of the program, and planned for sustainability
- Incorporated results not expected into the next cycle
- Documented the revised plan
- Planned for the next cycle of improvement

4.2 Project Management Processes

Regular meetings discussing the development of the AMA program were completed with the following individuals or groups:

- Dean of Advanced Manufacturing/Consultant
- Director of CTE with CCS/Consultancy Project Advisor
- Advanced Manufacturing Academy (AMA) Coordinator
- Career Technical Coordinators with CCS
- Assistant Superintendent of CCS
- Principal of CECHS

4.3 Project Support Processes

Regular meetings occurred with the AMA coordinator, project advisor and Assistant Superintendent. On a monthly basis, I met with other participating groups at our Business Education Alliance (BEA) to share information about the program.

4.4 Organization

4.4.1 Project Team

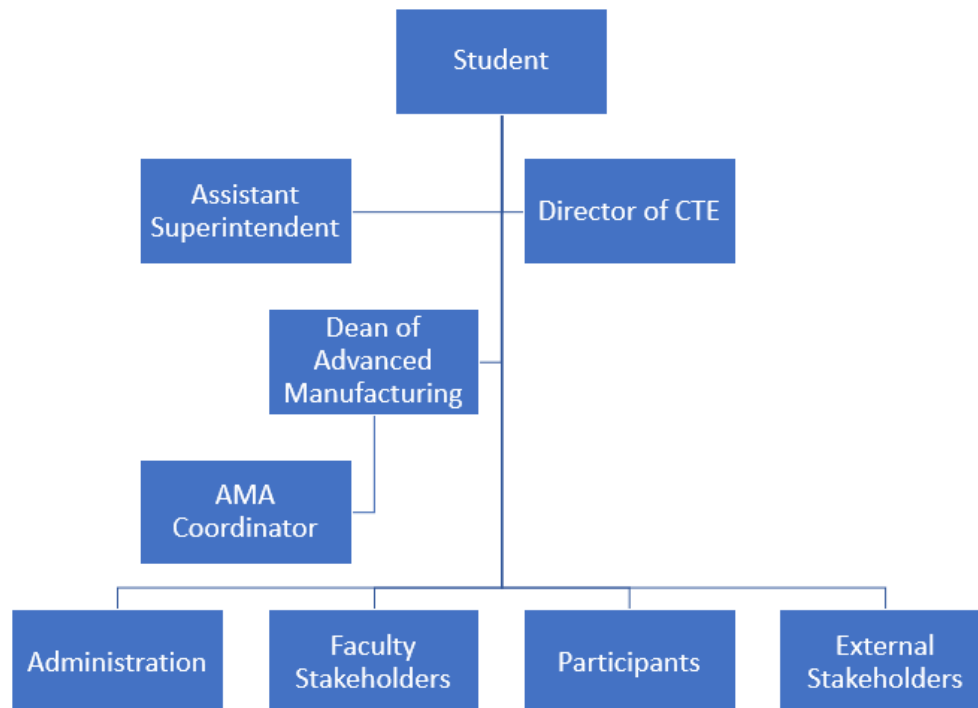
The project team consisted of the following:

- Student
- Director of CTE with CCS/Consultancy Project Advisor
- Advanced Manufacturing Academy (AMA) Coordinator

Additional members were consulted and utilized as collaborators and stakeholders by the core project team. These members are as follows:

- Director of Existing Industry Relations, CCEDP
- Chamber President, Cleveland County
- Workforce Development Strategic Planning Committee (WDSPC)

4.4.2 Mapping Between Cleveland County Schools and Student



5 Communications Plan

Stakeholders	Information Shared	Rationale	Timeline	Method of Delivery
Consultant, CCS and CCC Administration	Developed the goals and objectives of the program	Gain understanding and buy-in for the need of the program	Summer 2016-Ongoing	Presentation
Consultant, CCS and CCC Administration	Developed the pathways and course offerings of the program	Provide knowledge and awareness of the program	Fall 2016-Ongoing	Presentation
Consultant, Counselors, Teachers, Administration	Developed the selection criterion for the participants in the program	Understand the target population entering the workforce	Spring 2017-Ongoing	Presentation
CCS and CCC Administration AMA Coordinator	Developed the orientation and handbook for the program	Provide guidelines, expectations and policies for the program	Summer 2017-Ongoing	Handbook
Consultant, AMA Coordinator	Developed the outcomes of the work-based learning experience	Connect participant with employers	Fall 2018-Ongoing	Work-Based Learning Course

6 Work Plan

6.1 Work Breakdown Structure

Objective/Task	Resources Needed	Timeline
Presentation to interested parents/students	None	February 2017
Interview with students/parents	None	March 2017
Hire Advanced Manufacturing Coordinator	Funded by CCS and CCC	March 2017
Selection of students	None	April 2017
Summer Advanced Manufacturing Academy	Funded by CCC	June 2017
Orientation with students	Supplies for each participate funded by CCS	August 2017
First day of classes at CCC	None	August 2017
Industry field trip	Funded by CCS and CCC	September/October 2017
OSHA 10 credential	Funded by CCC	December 2017
Working Smart credential	Funded by CCC	May 2018
NCRC credential	Funded by CCS	November 2018
Work-based learning experience	None	January 2019
High School Diploma	None	May 2019
CCC credential	None	May 2019

6.2 Resources

Reference Section 6.1.

7 Milestones

Milestone Number	Title	Forecast date
1	Develop a detailed statement of purpose of the project including a clear and comprehensive problem statement as well as provide background information on the institution/environment including the context for the purpose of the project.	December 2017
2	Develop project objectives, expressed in terms that are measurable (SMART objectives). Develop a list of the deliverables that are expected as outputs of the consulting project.	May 2018
3	Develop the scope, boundaries, and organizations & systems impacted.	May 2018
4	Develop a summary of the business (financial, productivity impacts, etc.) benefits that are expected to flow from the consulting project.	August 2018
5	Develop a risk assessment based on the initial summary of the anticipated risks associated with the consulting project.	December 2018
6	Develop a detailed summary of the key assumptions upon which the consulting project will be planned and executed.	May 2019
7	Develop an outline of a project plan including detailed strategies, activities, timelines, responsibilities, expected outcomes and results (to date) for all phases of the project.	August 2019
8	Develop a preliminary estimate of the financial budget required to plan and deliver the consulting project objectives/benefits.	August 2019
9	Develop a quality assurance plan which includes actions to measure the effectiveness of project plan phases.	December 2019
10	Track and document overall plan performance.	May 2020

8 Metrics and Results

My consultancy project is a collaboration between CCS and CCC in an effort to meet the demands of the jobs in Cleveland County. In September 2017, Cleveland County's unemployment rate was at an all-time low of 4.3 percent. Doing this time, the county was in a growth mode with job creation. The county was also heavily recruiting industries with the need for a workforce to understand automated technology. According to CCEDP, the county was projecting over 1000 new jobs over the next 2-3 years. In an initiative to meet this demand, CCC teamed with CCS to develop the AMA. The program allowed high school juniors, who planned to enter the workforce immediately after graduation, an opportunity to dually enroll at CCC to complete their high school diplomas and receive a post-secondary credential from CCC. The duration of the program was 2 years. We selected 9 students to enroll in the first cohort, 2017, and 9 students to enroll in the second cohort, 2018. We had a total of 18 students in the pipeline during my study.

Goal 1	Key Assumptions	Constraints	Outcome
100% of the participants will receive a high school graduation diploma. n=18	10% of the participants will not graduate with a high school diploma.	CCS graduation rate is around 90%.	100% of the participants graduated from high school.

All 18 participants were awarded a high school diploma either as an AMA participant or at their traditional high school.

Goal 2	Key Assumptions	Constraints	Outcome
90% of the participants will receive a post-secondary credential from CCC. n=18	10% of the participants will return to their traditional high school.	CCS course delivery method is online.	72% of the participants received a post-secondary credential from CCC.

Thirteen out of 18 participants were awarded a post-secondary credential from CCC. One participant from the first cohort returned to their traditional high school. Four participants from the second cohort returned to their traditional high school.

Goal 3	Key Assumptions	Constraints	Outcome
80% of the participants will receive an industry-recognized credential by graduation. n=18	20% of the participants will not pass an industry-recognized credential.	Participants may not see value in the credential.	100% of the participants received an industry-recognized credential.

All participants in both cohorts were awarded an industry-recognized credential either at CCC or their traditional high schools. Participants who remained at CCC received OSHA 10, Working Smart and National Career Readiness Certificate (NCRC) as credentials. Participants who returned to their traditional high schools received the (NCRC), which is offered to all CTE Concentrators at CCS.

Goal 4	Key Assumptions	Constraints	Outcome
75% of the participants will participate in a work-based learning/OJT experience by graduation. n=18	25% of the participants will not participate in work-based learning.	Participants may be under the age of 18 during the time of the experience.	67% of the participants participated in a work-based learning experience.

Twelve out of 18 participated in a work-based learning experience. Five participants returned to their traditional high schools without the opportunity to participate in work-based learning. One participant was under the age of 18. We were not able to partner with an industry willing to hire a participant under the age of 18.

Goal 5	Key Assumptions	Constraints	Outcome
50% of the participants will be employed in their field of study within 6 months after completion of the program. n=18	50% of the participants will not be employed in their field of study.	Participants may not be interested in their field of study.	27% of the participants were employed in their field of study within 6 months after completing the program.

Five out of 18 participants are employed in their field of study. One out of eighteen turned down a job offer. One participant in the first cohort continued their education with CCC. Five out of 18 (second cohort) have not completed the program but are on track to gain employment. One of the five has been offered an apprenticeship.

9 Risks, Constraints, Assumptions

9.1 Risks

Risk Description	Mitigation Plan (what to do to avoid the risk occurring)	Contingency Plan (what to do if the risk occurs)	Impact (what the impact will be to the project if the risk occurs)	Likelihood of occurrence (e.g., %, or high, medium, low)
Transportation to the college	Selected participants who can provide their own transportation	Implement busing option to provide transportation	Increase the number of participants without transportation	High
Participants leaving their traditional high schools to attend CCC	Selected participants not involved in extra-curricular activities	Busing option allows participants to return to their traditional high school	Increase the number of participants playing sports and other activities	High
Participants taking high school classes online	Provided additional resources	Busing option allows participants to take their high school classes in the afternoon	Increase the number of participants	High
Participants providing their own lunch	Participants could eat lunch at Early College High School	Busing option allows participants to eat lunch at their traditional high school	Increase the number of participants since lunch is provided	High
Grade Point Average Requirement	Not allow participants in the program with a minimum GPA of 2.5	Allow for principal recommendation in lieu of GPA requirement	Increase the number of participants interested in the workforce after school	Medium

9.2 Constraints

Reference Sections 8 and 9.1.

9.3 Assumptions

Reference Sections 8 and 9.1.

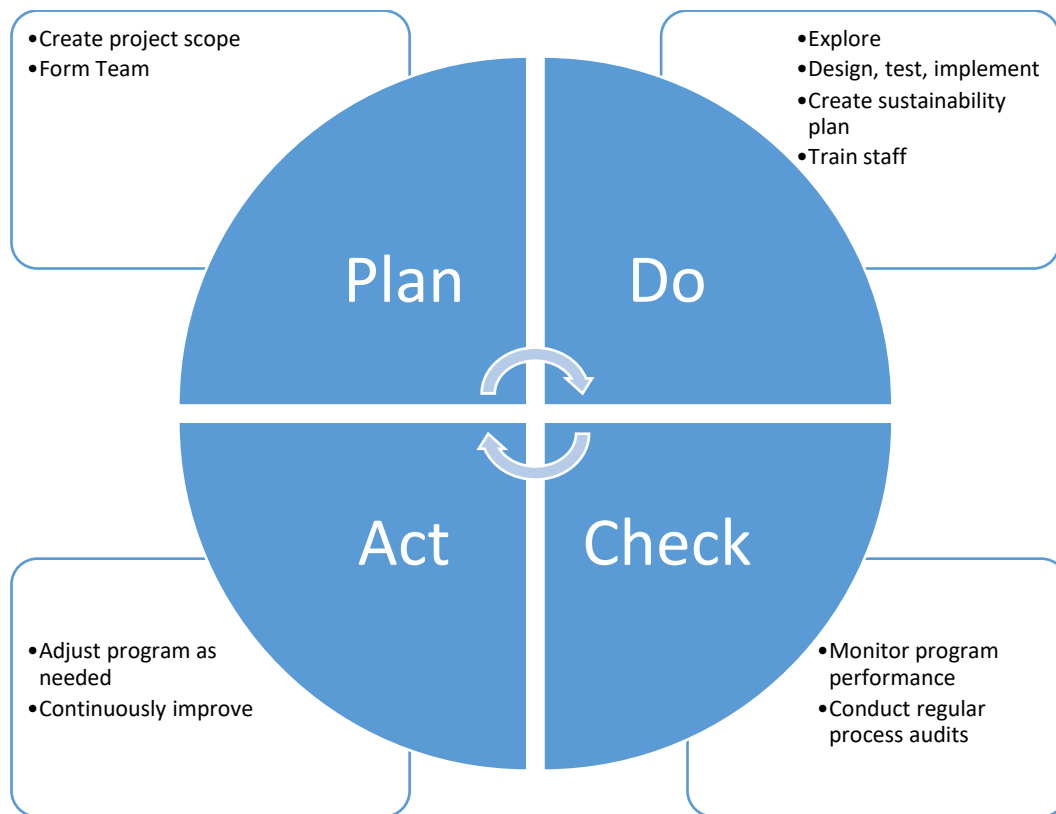
10 Financial Plan

The project scope of this consultancy project is program development and implementation. This program is a partnership between CCC and CCS. The purpose of the program is to transition high school graduates into the workforce immediately upon graduation. The duration of the program is 2 years. During these 2 years, all high school core courses (English, math, science and history) are completed virtually. This will allow the participants schedule to accommodate a mainstream entry to one of the six advanced manufacturing programs: Automation Engineering Technology, Computer-Integrated Machining, Facility Maintenance, Industrial Systems Technology, Mission Critical Operation, or Welding. Rising high school juniors focused on Career and Technical Education (CTE) are the target population. By the end of the 12th grade year, successful participants will have their high school diplomas, a post-secondary credential from CCC, an industry-recognized credential, and completed a work-based learning experience. An Advanced Manufacturing Academy Coordinator is hired for the program. This coordinator will provide recruitment, admissions, counseling, and assessment of related services to the program. The coordinator will work collaboratively with CCC and CCS personnel to deliver the program. CCC and CCS will split the salary and associated benefits of this full-time position. A part-time lab assistant is hired to help the participants with advanced manufacturing labs at the college level. This position is a split between CCC and CCS. The following fiscal year budgeting table reflects the allocated funds based on 18 students enrolled in the program.

Budget Item	CCS	CCC	Actuals
Direct Personnel Expenses			
AMA Coordinator Salary	\$25,502.00	\$25,502.00	\$51,004.00
AMA Benefits	\$9,376.80	\$9,376.80	\$18,753.60
Lab Assistant	\$10,000.00	\$10,000.00	\$20,000.00
<i>Sub-Total Personnel</i>	\$44,878.80	\$44,878.80	\$89,757.60
Other Direct Expenses			
Supplies/Books/Fees (Average Program \$600 x 25 students)	\$15,000.00		\$10,000.00
Advertising Programs		\$1,500.00	\$0.00
AMA Local Travel		\$54.50	\$350.00
Field Trip			\$150.00
Bus Driver	\$300.00		
Bus			
Whitewater Center (\$59 x 25)		\$1,475.00	\$1,100.00

<i>Sub-Total Other</i>	\$15,300.00	\$3,029.50	\$11,600.00
TOTAL DIRECT EXPENSES	\$60,178.80	\$47,908.30	\$101,357.60

11 Quality Assurance Plan



Quality Assurance Stage 1: Plan

The overall objective of the AMA program was to provide professional development experience in a college degree completion program so students can take advantage of previous career experience, information gained in a program of study, and professional readiness to best prepare students for the world of consulting.

Quality Assurance Stage 2: Do

For administrators, the expectation for the program was to provide a training program for staff on the components of workforce development. For students, the expectation was to create a workable plan to confirm the program meets the goals and objectives and reflects the mission of the organization.

Quality Assurance Stage 3: Check

Several opportunities for measurement were embedded throughout the AMA program. First, the program has built-in monitoring and process audits to ensure the structure of the program meets specific guidelines such as project learning objectives. Second, students must be specific objectives of the program within each course of study.

Quality Assurance Stage 4: Act

The program provides opportunities for feedback through surveys and questionnaires. This feedback is relevant in the fields of adult learning and professional development.

QA Stages	QA Objectives	QA Activities	QA Timeline
PLAN	Collaborated with CCS coordinators and administration to fully develop the program	Meetings, Presentations	Summer 2016
	Conducted research on comparable offerings and other Local Education Agencies (LEA) as well as review of relevant data	Website, Contacted other LEAs, Meetings	Fall 2016
	Consulted with CCC and CCS on the selection of the career pathways	Meetings, Presentations	Fall 2016
	Developed a selection criterion for the program	Meetings, NCDPI	Spring 2017
	Developed brochures, presentation, and handouts to inform external stakeholders about the program	Meetings, Presentations, Handouts	Spring 2017
DO	Conducted a summer camp for participants in the program	Meetings, Presentations, Handouts	Summer 2017
	Assisted CCC coordinator with participant's orientation	Presentations, Handouts	Fall 2017
	Reviewed and approved AMA participant's handbook	Handouts	Fall 2017
CHECK	Established what worked and what did not work	Meetings, Presentations	Spring 2018

	Gathered feedback from CCS coordinators and administration	Meetings, Presentations	Spring 2018
ACT	Reviewed the results of the program, and planned for sustainability	Research, Data Collection	Summer 2018
	Incorporated results not expected into the next cycle	Meetings, Presentations	Summer 2018
	Planned for the next cycle of improvement	Meetings, Presentations	Summer 2018

Appendix A

Organizational Facts

Cleveland County Schools Mission

The Cleveland County Schools will challenge each student with an exceptional educational experience that will lead them to become a productive global citizen and a lifelong learner by partnering with our community to provide quality learning opportunities. (*Cleveland County Schools, 2014*)

Cleveland County Schools Vision

To become one of the 10 best performing districts in the state by challenging each student with an exceptional educational experience.

Cleveland County Schools Core Values

- We will make student learning and development our primary focus.
- We will accomplish our work in a safe, orderly and caring environment.
- We will create partnerships that have meaning for our students and their education.
- We will support a community of learners.
- We will challenge students to reach their full potential.
- We will have high expectations for our students, parents, and staff.
- We will make decisions based on what is best for students.
- We will use data as a tool for decision making.

Cleveland County Schools Facts

- Licensed Employees: 1,395
- Classified Employees: 959
- Approximately 15,000 Students
- 29 Schools (1 Early College High School)
- Graduation Rate: 89.7%
- 3,611 CTE students enrolled in credential course
- 5,338 credentials earned

Appendix B

Program Facts

Program Development Facts

First Cohort enrollment 2018: 9

- Completed Junior Year at CCC: 8
- OSHA 10 Card: 9
- Working Smart Credential: 8
- National Career Readiness Certificate: 9
- Work-Based Learning: 7
- High School Graduate: 9
- Post-Secondary Credential: 8



Second Cohort enrollment 2019: 9

- Completed Junior Year at CCC: 5
- OSHA 10 Card: 9
- Working Smart Credential: 5
- National Career Readiness Certificate: 9
- Work-Based Learning: 5
- Expected Number of High School Graduates: 9
- Expected Number of Post-Secondary Recipients: 5

Appendix C

Marketing Flyer

Advanced Manufacturing Academy

OPEN to rising 11th graders who want to enter the workforce immediately following high school

EARN college credit free of charge

GAIN valuable work experience through on-the-job training



Graduate with a high school diploma

+ a **CERTIFICATE/DIPLOMA** in *ONE* of the following:

- Automation Engineering
- Computer-Integrated Machining
- Facility Maintenance
- Industrial Systems
- Mission Critical Operations
- Welding Technology



Students and parents **MUST** attend the mandatory information session/open house:

Thursday, February 8, 2018 at 6:00 PM
Cleveland Community College
 Hunt Campus Center, room 1140

Submit APPLICATION by March 1, 2018



For more information contact:
 High School Counselor or
 Career Development Coordinator



Appendix D

Program Options

Automation Engineering Technology

A course of study that prepares the students to use basic engineering principles and technical skills to develop, install, calibrate, modify and maintain automated systems. Includes instruction in computer systems; electronics and instrumentation; programmable logic controllers (PLCs); electric, hydraulic and pneumatic control systems; actuator and sensor systems; process control; robotics; applications to specific industrial tasks. The graduates of this curriculum will be prepared for employment in industries that utilize control systems, computer hardware and software, electrical, mechanical and electromechanical devices in their automation systems.

CURRICULUM BY SEMESTER					
		Hours Per Week			
Course No.	Course Title	Class	Lab	Credits	Contact
Fall Semester 1 (11th)					19
ACA-115	Success & Study Skills	0	2	1	2
ATR-112	Intro to Automation	2	3	3	5
EGR-131	Intro to Electronics Tech	1	2	2	3
ELC-131	Circuit Analysis I	3	3	4	6
COM-120	Intro Interpersonal Com	3	0	3	3
Spring Semester 1 (11th)					20
EGR-111	Eng Comp and Careers	2	2	3	4
ELC-117	Motors and Controls	2	6	4	8
ELC-133	Circuit Analysis II	3	3	4	6
ISC-112	Industrial Safety	2	0	2	2
Fall Semester 2 (12th)					13
ELC-128	Intro to PLC	2	3	3	5
ATR-215	Sensors and Transducers	2	3	3	5
Spring Semester 2 (12th)					29
ATR-211	Robot Progming	2	3	3	5
MAT-121	Algebra/Trig I	2	2	3	4
WBL-112	Work-Based Learning I	0	20	2	20

Computer Integrated Machining

The Computer-Integrated Machining curriculum prepares students with the analytical, creative and innovative skills necessary to take a production idea from an initial concept through design, development and production, resulting in a finished product.

Coursework may include manual machining, computer applications, engineering design, computer-aided drafting (CAD), computer-aided machining (CAM), blueprint interpretation, advanced computerized numeric control (CNC) equipment, basic and advanced machining operations, precision measurement and high-speed multi-axis machining. Graduates should qualify for employment as machining technicians in high-tech manufacturing, rapid-prototyping and rapid-manufacturing industries, specialty machine shops, fabrication industries, and high-tech or emerging industries such as aerospace, aviation, medical, and renewable energy, and to sit for machining certification examinations.

CURRICULUM BY SEMESTER					
		Hours Per Week			
Course No.	Course Title	Class	Lab	Credits	Contact
Fall Semester 1 (11th)					22
ACA-115	Success & Study Skills	0	2	1	2
BPR-111	Print Reading	1	2	2	3
MAC-111	Mach Tech I	2	12	6	14
COM-120	Intro Interpersonal Com	3	0	3	3
Spring Semester 1 (11th)					21
DFT-119	Basic CAD	1	2	2	3
ISC-112	Industrial Safety	2	0	2	2
MAC-112	Mach Tech II	2	12	6	14
MAC-121	Intro to CNC	2	0	2	2
Fall Semester 2 (12th)					24
MAC-113	Mach Tech III	2	12	6	14
MAC-124	CNC Milling	1	3	2	4
MAC-151	Mach Calculations	1	2	2	3
MEC-110	Intro to CAD/CAM	1	2	2	3
Spring Semester 2 (12th)					28
MAT-121	Algebra/Trig I	2	2	3	4
MAC-122	CNC Turning	1	3	2	4
WBL-112	Work-Based Learning I	0	20	2	20

Facility Maintenance Technology

This curriculum prepares individuals to repair and maintain electrical and mechanical systems and physical structures of commercial and industrial institutions. Emphasis is on multi-disciplined systems maintenance, troubleshooting, and problem resolution.

Course work includes carpentry, interior and exterior finishes, plumbing, electrical, masonry, air conditioning, heating, welding, machining, blueprint reading, building codes, and OSHA regulations, as well as computer applications.

Graduates should qualify for positions as general building mechanics and maintenance technicians.

CURRICULUM BY SEMESTER					
		Hours Per Week			
Course No.	Course Title	Class	Lab	Credits	Contact
Fall Semester 1 (11th)					21
ACA-115	Success & Study Skills	0	2	1	2
ELC-111	Intro to Electricity	2	2	3	4
ELC-113	Residential Wiring	2	6	4	8
MNT-110	Intro to Maint Proc	1	3	2	4
COM-120	Intro Interpersonal Com	3	0	3	3
Spring Semester 1 (11th)					19
AHR-112	Heating Technology	2	4	4	6
BPR-130	Print Reading:Constr	3	0	3	3
ISC-112	Industrial Safety	2	0	2	2
PLU-115	Basic Plumbing	2	6	4	8
Fall Semester 2 (12th)					18
AHR-120	HVACR Maint	1	3	2	4
CAR-111	Carpentry I	3	15	8	18
Spring Semester 2 (12th)					32
MEC-111	Machine Proc I	1	4	3	5
MAT-121	Algebra/Trig I	2	2	3	4
MNT-222	Ind Sys Schematics	1	2	2	3
WBL-112	Work-Based Learning I	0	20	2	20

Industrial Systems Technology

The Industrial Systems Technology curriculum is designed to prepare or upgrade individuals to service, maintain, repair, or install equipment for a wide range of industries. Instruction includes theory and skill training needed for inspecting, testing, troubleshooting, and diagnosing industrial equipment and physical facilities.

Students will learn technical skills in blueprint reading, electricity, hydraulics/pneumatics, machining, welding, and various maintenance procedures. Practical application in these industrial systems will be emphasized and additional advanced course work may be offered.

Upon completion of any of the various levels of this curriculum, graduates should gain the necessary practical skills and related information to qualify for employment or advancement in the various areas of industrial maintenance technology.

CURRICULUM BY SEMESTER					
		Hours Per Week			
Course No.	Course Title	Class	Lab	Credits	Contact
Fall Semester 1 (11th)					9
ACA-115	Success & Study Skills	0	2	1	2
ELC-111	Intro to Electricity	2	2	3	4
COM-120	Intro Interpersonal Com	3	0	3	3
MNT-110	Intro to Maint Proc	1	3	2	4
Spring Semester 1 (11th)					23
EGR-111	Eng Comp and Careers	2	2	3	4
ELC-117	Motors and Controls	2	6	4	8
MEC-111	Machine Proc I	1	4	3	5
WLD-112	Basic WLD Proc	1	3	2	4
ISC-112	Industrial Safety	2	0	2	2
Fall Semester 2 (12th)					8
BPR-111	Print Reading	1	2	2	3
HYD-110	Hyd/Pneumatic s I	2	3	3	5
Spring Semester 2 (12th)					35
ELC-213	Instrumentation	3	2	4	5
PCI-173	Progmable Systems	3	3	4	6

MAT-121	Algebra/Trig I	2	2	3	4
WBL-112	Work-Based Learning I	0	20	2	20

Mission Critical Operations - OT

The Mission Critical Operations curriculum prepares graduates for employment in a wide range of positions in information technology (IT), operations technology (OT), and maintenance. Course work includes the development of a student's ability to maintain technically sophisticated systems for business continuity and near continuous uptime using engineering, information technology, industrial management and maintenance skills. The course work emphasizes analytical and problem-solving skills required to sustain high availability national security interests and includes instruction in electromechanical systems, networking, automation, cybersecurity, emergency management and systems integration. The program will incorporate the competencies of an industry-recognized certification exam.

CURRICULUM BY SEMESTER					
		Hours Per Week			
Course No.	Course Title	Class	Lab	Credits	Contact
Fall Semester 1 (11th)					10
ACA-115	Success & Study Skills	0	2	1	2
ATR-112	Intro to Automation	2	3	3	5
COM-120	Intro Interpersonal Com	3	0	3	3
Spring Semester 1 (11th)					18
ISC-112	Industrial Safety	2	0	2	2
EGR-111	Eng Comp and Careers	2	2	3	4
EGR-131	Intro to Electronics Tech	1	2	2	3
NET-125	Networking Basics	1	4	3	5
SEC-110	Security Concepts	2	2	3	4
Fall Semester 2 (12th)					12
MCO-110	Intro to MCO	2	2	3	4
MCO-115	MCO Infrastructure	2	2	3	4

BAT-111	Bldg Automation Systems	1	3	2	4
Spring Semester 2 (12th)					31
MNT-222	Ind Sys Schematics	1	2	2	3
MCO-210	Critical Site Operations	2	2	3	4
MAT-121	Algebra/Trig I	2	2	3	4
WBL-112	Work-Based Learning I	0	20	2	20

Welding Technology

The Welding Technology curriculum provides students with a sound understanding of the science, technology, and applications essential for successful employment in the welding and metal industry.

Instruction includes consumable and non-consumable electrode welding and cutting processes. Courses in math, blueprint reading, metallurgy, welding inspection, and destructive and non-destructive testing provide the student with industry-standard skills developed through classroom training and practical application.

Successful graduates of the Welding Technology curriculum may be employed as entry level technicians in welding and metal working industries. Career opportunities also exist in construction, manufacturing, fabrication, sales, quality control, supervision, and welding-related self-employment.

CURRICULUM BY SEMESTER					
		Hours Per Week			
Course No.	Course Title	Class	Lab	Credits	Contact
Fall Semester 1 (11th)					20
ACA-115	Success & Study Skills	0	2	1	2
WLD-110	Cutting Proc	1	3	2	4
WLD-115	SMAW (stick) Plate	2	9	5	11
COM-120	Intro Interpersonal Com	3	0	3	3
Spring Semester 1 (11th)					16
ISC-112	Industrial Safety	2	0	2	2
WLD-141	Symbols & Specifications	2	2	3	4
WLD-117	Ind SMAW	1	4	3	5

WOL-110	Basic Constr Skills	2	3	3	5
Fall Semester 2 (12th)					19
BPR-111	Print Reading	1	2	2	3
WLD-121	GMAW (MIG) FCAW/Plate	2	6	4	8
WLD-131	GTAW (TIG) Plate	2	6	4	8
Spring Semester 2 (12th)					38
MAT-121	Algebra/Trig I	2	2	3	4
WLD-122	GMAW (MIG) Plate/Pipe	1	6	3	7
WLD-132	GTAW (TIG) Plate/Pipe	1	6	3	7
WBL-112	Work-Based Learning I	0	20	2	20

Appendix E

School Calendar

July

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

August

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

September

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

October

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

November

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

December

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Cleveland
Early College
High School

Advanced Manufacturing Academy

2017-2018
Calendar

First day for students.....	August 14
Early Release.....	August 9-16
Labor Day Holiday.....	September 4
Progress Reports.....	September 11
Fall Break.....	October 2
Early Release.....	October 3-6
End of 1st Quarter.....	October 12
Report Cards Distributed.....	October 18
Veteran's Day Holiday.....	November 10
Progress Reports.....	November 15
Thanksgiving Break.....	November 22-24
December Graduation.....	December 19
End 1st Semester.....	December 20
Christmas Break.....	December 21-January 1
Staff Workday.....	January 2
Early Release.....	January 3-5
Report Cards Distributed.....	January 8
Martin Luther King Holiday.....	January 15
Progress Reports.....	February 5
End of 3rd Quarter.....	March 7
Report Cards Distributed.....	March 13
Spring Break.....	April 2-6
Progress Reports.....	April 16
Early Release.....	May 8-15
CCC Graduation.....	May 9
Last Day for Students & CECHS Graduation.....	May 16
Staff Workdays.....	May 17-24
Mandatory Workdays.....	May 17, 18, and 21
Mail Report Cards.....	May 22
Annual Leave Day.....	May 25

Calendar Key

■	Staff Workday
□	Early Release
□	Mandatory Day
■	Holiday
■	Annual Leave Day
□	Report Cards Distributed
○	Progress Reports
⌈	End of 9 Wks

Please note students do NOT attend school on days that are shaded.

Report Card and Progress Report dates are subject to change because of days missed due to inclement weather.

January

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

February

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

March

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

April

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

May

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

June

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

Appendix F

AMA Handout

2017 - 2018 Advanced Manufacturing Academy



Parent & Student Handbook

Advanced Manufacturing Academy Contacts

Primary Contact:

Amy Dulin, Advanced Manufacturing Academy and Work-Based Learning Coordinator
Cleveland Community College, B Building, Office 1040F
dulin@clelandcc.edu
704-669-4114 (office)
980-285-7842

Bruce Mack, Dean of Advanced Manufacturing and Public Services
Cleveland Community College, Academic Programs Office
mack@clelandcc.edu
704-669-4117

Tony Fogleman, Career and Technical Education Director
Cleveland County Schools
tfogleman@clevelandcountyschools.org
704-476-8035

Titus Hopper, CECHS Principal
Cleveland Early College High School, LeGrand Center
thopper@clevelandcountyschools.org
704-669-4711

Cleveland Virtual Academy (online high school courses):

Jason Lineberger, Digital Learning Coordinator
Cleveland County Schools
jlineberger@clevelandcountyschools.org
704-476-6192

Other Contact:

Academic Programs (located across from the **Kester** Auditorium in the Hunt Campus Center)
Cleveland Community College
704-669-4162

Appendix G

Orientation

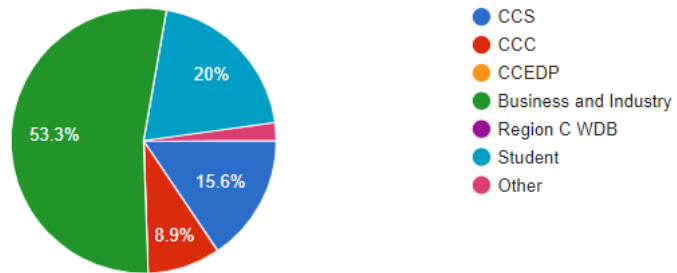


Appendix H

SWOT Analysis

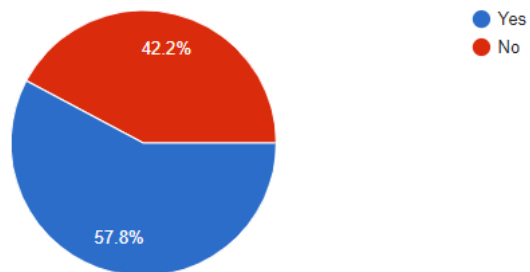
Identify your affiliation.

45 responses



Are you familiar with the Advanced Manufacturing Academy offered as a partnership between CCC and CCS? If not, do not answer the following questions.

45 responses



List some strengths of the AMA. (Up to three)

24 responses

Allows students to earn credentials that would be difficult to obtain if only taking classes in the evenings.

Connections for students.

Pre qualified candidates for industry

Exposure for students
Exposure for businesses

Give the kids exposure to many types of manufacturing

Good instructors and administrators

Great opportunity to get ahead in life, free college courses and credit

List some weaknesses of the AMA. (Up to three)

22 responses

Online high school classes for students who like hands on programs.

Online courses

Fewer industries

I don't know the program in enough detail to comment

Ineffective math teacher

No physical highschool classes
Some online teachers can take up to a week to respond to emails and sometimes not at all.
The OSHA class is rushed, and this caused some students to fail, so they had to retake it.

List some opportunities of the AMA. (Up to three)

24 responses

Work experience, job right out of graduation

connects the students with employers through the college

They help you with your resume, find a summer job, and get an associates degree in whatever you want to do.

You get 2 years of college education, you learn skills needed on the job, the program helps you develop a resume to use for job shadowing and possible job offers.

Provides students real work opportunities. Provides students the time to focus on their true interests and get more hands on training. Hopefully motivates students to go the next step with their education at CCC.

Investigate the "middle college" model of part day in traditional high school and part day in the AMA
Use an aptitude test to determine the skills and interests of potential students
Visit successful programs and enhance the current model

List some threats of the AMA. (Up to three)

21 responses

Not enough interest.

Location
Funding

Attracting qualified and interested students into the program.

N/A

Immense pressure to pass all classes the first time.

A lot more people could join and compete for spots.

To graduate, you need to pass all high school classes.

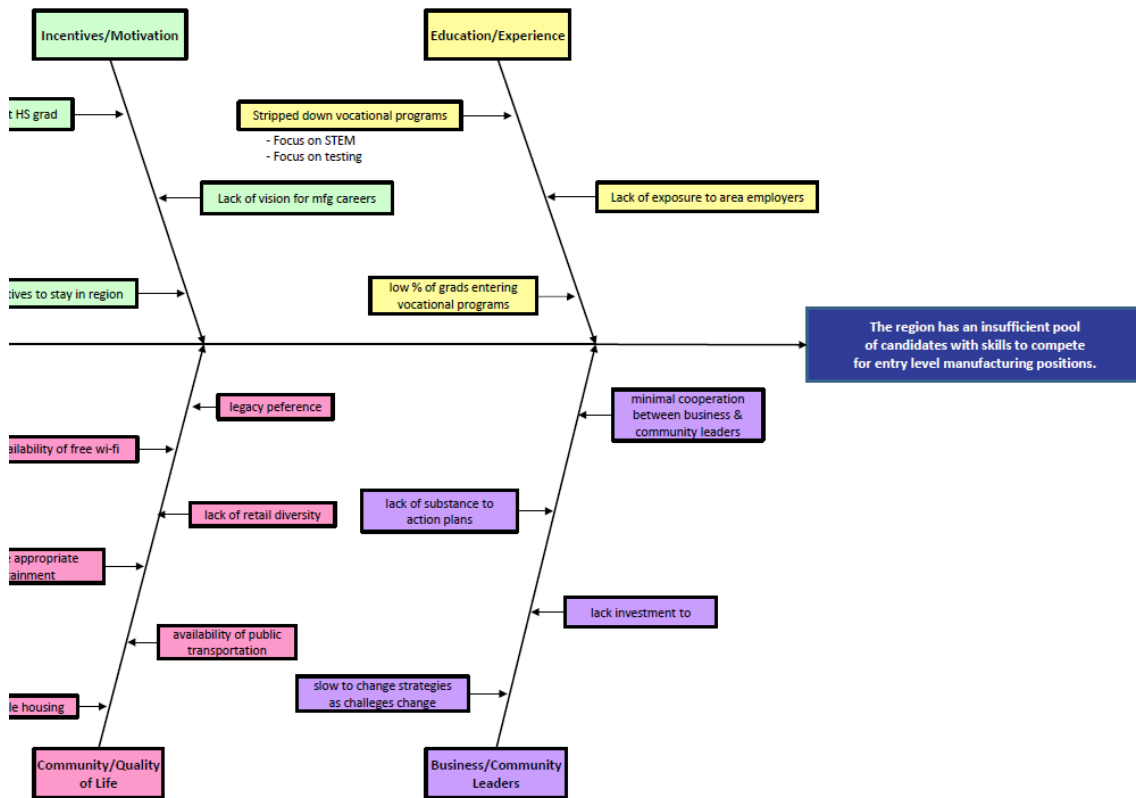
Are the on-line classes effective and students successful? Are the students motivated to stay on track with course load? Are the businesses involved enough and providing the apprenticeship opportunities needed to interest the students?

Appendix I

Fishbone Diagram



Workforce Development Strategy - High School



Appendix J

Professional Literature Review



WORKFORCE DEVELOPMENT IN THE 21ST CENTURY FOR HIGH SCHOOL STUDENTS

Dual Enrollment between High
School and Community College

Bruce Edward Mack

What is required to create a successful workforce development program for high school students entering the workforce immediately after graduation? Workforce development is a vital component to this new economy and economic development. This new economy in the twenty-first century requires a highly skilled workforce because industries have automated their processes to remain competitive in this global economy. The past decade has been the most challenging in fifty years for young people seeking to navigate the transition to adulthood, earn a degree, get a job and stand on their own financially. Unemployment rates for ages 16 to 19 averaged in the double digits and rates for ages 20 to 24 has increased (Statistics, 2020). In September 2017, Cleveland County's unemployment rate was at an all-time low, 4.3 percent (Cleveland County, 2019). Highly skilled workers were employed, and the labor pool was limited. A Workforce Development Strategy Team was formed to address the current challenge of labor shortage in Cleveland County. The team defined the problem as "the region has an insufficient pool of candidates with skills to compete for entry level manufacturing positions." One initiative recommended by the team was to develop a workforce development training program to target high school juniors and seniors looking to enter the workforce immediately after high school graduation. Through my research, I discovered three common themes to have a successful workforce development program: Soft Skills, Industry-recognized credentials and work-related experience.

Soft skills are generally recognized as the interpersonal skills or characteristics that help a worker function effectively in the workplace (Eyster, 2013). In a study provided by The Conference Board, Corporate Voices for Working Families, the Partnership for 21st Century Skills, and the Society for Human Resource Management, a

workforce readiness report card provided a snapshot of the basic knowledge and soft skills that are important to the respondent. For respondents with a high school diploma, soft skills superseded subjects taught in high school. The top five skills out of twenty were: Professionalism/Work Ethic, Teamwork/Collaboration, Oral Communications, Ethics/Social Responsibility and Reading Comprehension (Board, 2006). Soft skills are an essential set of skills, competencies, behaviors, attitudes, and personal qualities that enable people to effectively navigate their environment, work well with others, perform well, and achieve their goals (Lippman, 2015).

Industry-recognized certifications are credentials that are based on a third-party assessment, using the standards that are set by industry (The Manufacturing Institute). A skilled workforce is one of the most critical components of innovation and success, but it is the hardest asset for manufacturers to acquire. The hardest jobs to fill are those that have the biggest impact on performance. Over 82 percent of manufacturers have reported moderate to serious skills shortages of skilled talent (The Manufacturing Institute). With the advancement in technology, manufacturers can no longer afford to wait to educate and train the next generation of manufacturing talent. Over 80 percent of manufacturers will have a hiring challenge with skilled production workers during the next 3-5 years (Deloitte). Research has shown that industry-recognized credentials will result in more job-ready candidates, shorter training times, improved safety and quality, reduction in turnover, better promotion decisions and increased productivity (The Manufacturing Institute).

The final theme for the success of a workforce development program is work-related experience. Work-related experience will include forms of Experiential Learning

(EL). EL in the twenty-first century includes, but not limited to, internships, work-based learning (WBL), co-operative education (Co-op), and apprenticeships. This type of learning has been practiced for centuries and has become an integral part of our educational systems in more industrialized countries (Alfeld, 2015). EL is an important way for students to gain the necessary skills employers are pursuing and it provides a pathway for the student to determine whether they are interested in the career, as well as learning on-the-job skills, applying academics and employability skills. EL is a proven method for transferring knowledge from the classroom to the jobsite. Although EL's meaning is open to interpretation, experts generally agree that it includes on and off-campus workplace education, on-the-job training (OJT) and service learning, which focus on learning by doing, rather than teaching (Jacobson, 2015). There is an increasing interest across the country to embed EL opportunities into academic curriculum to provide a parallel track between learning in the classroom and learning on the job. Beyond its positive effects on student achievement and engagement, EL also benefits local industries, who gain access to a qualified highly skilled workforce and new talent for short and long-term training needs. EL opportunities will better prepare the student with the skills needed in the twenty-first century (Jacobson, 2015).

Based on the research provided by each article, a workforce development training program is needed to provide the skills needed in twenty-first century manufacturing. Traditional classroom education will not give the skills needed to compete in this new economy. The articles helped me determine common themes needed to have a successful workforce development training program for high school juniors and seniors entering the

workforce immediately after graduation. Soft skills, industry-recognized credentials and work-related experience are key components in this training program.

References

- Alfeld, C. (2015). Building high-quality work-based learning programs for high school students. *Techniques*, 24-28.
- Board, T. C. (2006). Are They Really Ready to Work? *The Conference Board*, 21.
- Bureau, U. S. (2018). *Sex By Age By Employment Status for the Population 16 Years and Over*. Retrieved from B23001: Sex By Age By Employment Status for the Population 16 Years and Over.
- Business Dictionary. (2020). *Champion*. Retrieved from Business Dictionary:
<http://www.businessdictionary.com/definition/champion.html>
- Cleveland County, N. U. (2019, September). *Homefacts*. Retrieved from Homefacts:
<https://www.homefacts.com/unemployment/North-Carolina/Cleveland-County.html>
- Cleveland County Schools. (2014). *Cleveland County Schools*. Retrieved from Cleveland County Schools: <http://www.clevelandcountyschools.org/about-us>
- Deloitte. (n.d.). Boiling Point? The Skills Gap in U.S. Manufacturing. *Manufacturing Institute*.
- Dubrin, A. (2013). Leadership, research findings, practice, and skills. *Cengage Learning*, 420.
- Eyster, L., Anderson, T., & Durham, C. (2013). Innovations and Future Directions for Workforce Development in the Post-Recession Era. *Urban Institute*, 8.
- Haralson, L. E. (2010, April 1). *What is Workforce Development?* Retrieved from Federal Reserve Bank of St. Louis: <https://www.stlouisfed.org/publications/bridges/spring-2010/what-is-workforce-development>

Jacobson, K. (2015). Powerful Work-Based Learning. *Techniques*, 14-19.

Lippman, L.H. (2015). Key "Soft Skills" That Foster Youth Workforce Success.

Workforce Connections, 1.

The Manufacturing Institute. (n.d.). Developing Skilled Workers. *The Manufacturing Institute*.

Statistics, U. B. (2020, March). *United States Department of Labor*. Retrieved from U.S.

Bureau of Labor Statistics: <https://www.bls.gov/web/empst/cpseea10.htm>