**BACKGROUND INFORMATION**

1. Program of study name: Engineering Technology
2. Point of Contact
 Name: Marcus Million

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Phone Number: 816-604-5298
Address: 1775 Universal Avenue, Kansas City, MO 64120-2429

1. Applicant’s School/College: Metropolitan Community College – Business & Technology
2. State: Missouri
3. Type of institution (click the box to check)

 ☐ Area technical center

☐ Career academy

 ☐ Comprehensive high school

  Community college

 ☐ Technical college

Other (please specify)

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1. Career Cluster in which your program of study should be considered (Follow this link for a further explanation of each Career Cluster [careertech.org/career-clusters](http://careertech.org/career-clusters)) **(Select only ONE):**

 ☐ Agriculture, Food & Natural Resources Career Cluster

 ☐ Architecture & Construction Career Cluster

 ☐ Arts, A/V Technology & Communications Career Cluster

 ☐ Business Management & Administration Career Cluster

 ☐ Education & Training Career Cluster

 ☐ Finance Career Cluster

 ☐ Government & Public Administration Career Cluster

 ☐ Health Sciences Career Cluster

 ☐ Hospitality & Tourism Career Cluster

 ☐ Human Services Career Cluster

 ☐ Information Technology Career Cluster

 ☐ Law, Public Safety, Corrections & Security Career Cluster

 ☐ Manufacturing Career Cluster

 ☐ Marketing Career Cluster

 Science, Technology, Engineering & Mathematics Career Cluster

 ☐ Transportation, Distribution & Logistics Career Cluster

1. In three sentences or less, describe your program of study, including the secondary and postsecondary components and how long the program of study has been in place.

The current program of study was first developed in 2010 and has been reevaluated on an annual base. Four area school districts were included in the design of the Program of Study, along with area career centers, 3 universities, 2 non-profits and 10 business. The program advisory board has evaluated the program of study and up-dated the plan on an annual base.

1. Please check the geographical and demographic setting for your program of study and describe the geographic and economic conditions of the region served by the school.

  Urban

 Suburban

 Rural

☐ Other

Metropolitan Community College serves west central Missouri in the Greater Kansas City Area including; Jackson, Clay, Platte, Clinton, Buchanan, Ray, Lafayette, Cass, and Bates counties.   Jackson County is Urban and Suburban, Clay, Platte, Buchanan are suburban and rural. Clinton, Ray, Lafayette, Cass and Bates counties are rural.

State data indicates there are about 1.4 million people that live in these 9 counties, 51.4% are woman and 48.6% are men. The racial demographics are 81.4% white, 15.3% black, 4.7% Hispanic, 0.5% Asian, and 3.1% other. About 54% of the population is labor force and currently has a 3.7% unemployment rate. This is the lowest unemployment rate in region in the last 16 years. Job openings exceed job hires for the region. This information comes from Missouri Economic Research and Information Center, and Mid-America Regional Council.

1. Please describe how your program of study was developed and how it ensures learners are academically and technically prepared for both postsecondary education and careers. Please also address the following:
	1. How were employers involved in the development and continue to be involved in the maintenance of your program of study?

Employers were involved in the development of the program of study at a variety of different points in the development. Many of the employers were included in the task force that developed the original plan. The task force that developed the plan then created a list of not only current business partners, but also business partners the college should be partnering with. The task force then developed a list of questions to ask those business partners in the development of the program of study.

The program of study is evaluated and updated on an annual basis through the program advisory board. These program advisory boards are primarily made up of business and industry partners, but also include non-profit groups, secondary schools and 4 year transfer schools.

* 1. How does this program of study meet the economic needs of your community?

This program of study meets the business and economic needs of the Kansas City region by addressing a skills gap for needed workers with the specialized skills. By increasing the workforce, it is our belief that we will support the economy of the area in two ways. The first area will be providing individuals with higher waged positions, which will allow better lives for the individuals, their families and the community. It will also support the ongoing economic development by providing the city with individuals with increase skills.

* 1. How does this program prepare learners for postsecondary education? (if applicable)

Metropolitan Community College is a post-secondary educational institution. This doesn't mean that we don't help students prepare for higher education after they leave the Community College. Many people in the task force that worked on the development of the program of study work with universities in the area. Metropolitan Community College has a commitment to the transferability of credits and works with these area institutions to ensure that classes will transfer. We have worked with our secondary sending schools and the local universities to insure our developed paths give the students not only the skills, but also the courses they need to be successful.

* 1. How were both secondary and postsecondary educators involved in the development and/or maintenance of the program of study? (500 word limit)

The task force that created this program of study and the advisory boards that continue to update it include numbers from area secondary schools, school districts and area career and technical centers that make up the feeder institutions for this program. Also included are partners at four-year institutions that graduate from the program can transfer to complete bachelor level and higher degrees.

# **LEARNER POPULATION & DATA**

1. Please describe your program of study’s demographic and outcome data for the most recent academic year(s). It is our strong preference to have data from both secondary and postsecondary levels. If this is not available, please provide an explanation as to why the data from the other learner level is not available. Applications that do not include data to support positive impact on learner achievement will not be eligible for consideration. (100 word limit)

The college unfortunately cannot provide data from secondary sending schools. The number of schools in our service area is just too great from which to collect data. The college considers high school students taking courses to be the same as college students, therefore we do not delineate the difference in those learners in the below data.

The information on the demographics of our program can be found below. It is the goal of the program to increase the number of individuals from underserved populations over time. We have realigned our recruitment and outreach procedures to help us improve these numbers.

**NOTE**: Please specify if and when you are using a percentage with a different denominator (e.g., seniors) than the one listed.

**When completing the data section, please only use percentages and include data that is from your program of study. Additionally, only include data where learners are eligible to participate (e.g., only seniors in high school will be eligible for the section asking for percent of seniors who graduated high school, so only seniors should be included in that data; if your work-based learning only occurs within a specific grade level, only include them in your data for that category.)**

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| --- | --- | --- | --- |
| SCHOOL YEAR | 2015-16 | 2016-17 | 2017-18 |
| **POSTSECONDARY-LEVEL DATA** |
| **What is the total number of learners served by your school/institution?**  | 25,521 | 25,339 | 24,011 |
| What is the total number of minority learners served by your school/institution? | 8,928 | 8,930 | 8,680 |
| What is the total number of low-income learners served by your school/institution? | 7,388 | 7,097 | 6,945 |
| What is the total number of learners with disabilities served by your school/institution?  | 667 | 684 | 727 |
| What is the total number of English language learners served by your school/institution?  | 295 | 324 | 348 |
| **Total number of learners served by your program of study**  | 221 | 198 | 236 |
| % male learners in program of study  | 86% | 85% | 79% |
| % female learners in program of study  | 14% | 15% | 21% |
| % minority learners in program of study  | 26% | 30% | 32% |
| % low-income learners in program of study  | 23% | 18% | 20% |
| % learners with disabilities in program of study  | 0% | 2% | 1% |
| % English language learners in program of study  | N/A | N/A | N/A |
| **Other relevant *demographic* data from your program of study**  |  |  |  |
| % of learners in program of study who completed postsecondary/earned a degree or certificate (who were eligible)  | 9% | 26% | 10% |
| % of learners in program of study who earned an industry-recognized credential (who were eligible)  | 51% | 57% | 52% |
| % of graduates in program of study who entered the workplace and/or military (who were eligible)  | 25% | 60% | Not yet Available |
| % of graduates in program of study who transitioned to further postsecondary education (who were eligible) | 38% | 27% | Not yet Available |

1. Provide links to the source of the above data. If the links are not publicly accessible, please explain the source of the data. If you are missing any data, please explain why and how you measure success.

The information provided in this section was provided by the colleges Institutional Research department because the college doesn’t make it available publically. We have no way of collecting data on all the seniors at every sending school in our 9 county service area.

1. How does your school or institution ensure equitable access for learners with diverse backgrounds? (150 word limit)

Metropolitan Community College actively seeks out diverse learners through targeted events and opportunities for students from diverse backgrounds. The institution regularly holds open houses and programming targeted toward women in STEM careers, under-represented populations in the Kansas City metropolitan area, and maintains close relationships with area school districts and career centers. A mobile demonstration trailer is used to take CTE programs into the community and to increase the visibility of programs at schools, centers, libraries, or any other event citywide. MCC admissions works very closely with advising and financial aid to ensure students are pursuing the best plan of study to meet their goals and to have the financial supports in place to help make it a reality.

1. How do you ensure learner success, especially of those who from diverse backgrounds? Please provide examples of what supports you offer learners. (150 word limit)

Metropolitan Community College strives to help students from diverse backgrounds gain access and remain successful through multiple strategies. MCC operates the Allied Language Institute to support non-Native speakers gain proficiency with English, as well as a robust developmental education course structure. MCC similarly provides support resources for students to develop peer networks and relationships with staff, faculty, and administrators through various clubs and organizations (i.e. Men of Color, LGBT+, Latinx). The institution also works closely with specific community organizations to provide resources and support to these students throughout their educational careers (i.e. KSMODA, Black Chamber, Hispanic Chamber, SWE).

1. Is your program of study associated with a Career Technical Student Organization (CTSO)? If so, which one(s) and in what way(s)? (Check the [approved list](http://www.ctsos.org/ctsos/) of CTSOs) (50 word limit)

The Engineering Technology program is not associated with a CTSO on the approved list. The organization has a campus student organization called Inventors Club where students can participate. In addition, students are involved in the National Technical Honor Society.

1. Describe how career guidance/advisement is integrated into your program of study to support learners’ completion of the program of study and entry into additional education/training and/or a successful career. Describe how you recruit students into CTE programs. Where applicable, describe the tools (individual career and academic plans, career exploration websites, etc.) that are provided to learners and how they are used. (200 word limit)

Career services is an integral part of our CTE programs.  The coordinator, working directly with program coordinators, schedules program specific training sessions (resume writing, interview prep, networking, use of social media) to help students develop their personal “toolbox” of employability skills. Business partners are invited on campus frequently, through a variety of programs such as Working Wednesdays and Employer Panels so that students have the opportunity to develop relationships and build both their personal and professional networks. We have bypassed traditional job fair events and replaced them with speed interviews for multiple programs. This interaction between employers and students allows for a more in-depth, although shorter, interview but gives the employer a better sense of who the student is, making it much easier to offer full-time employment following graduation.  In addition, MCC has an online job-posting portal, Career Central, which directly connects employers to students. The system offers a wide range of resources related to careers, including resume/cover letter builders and a career exploration assessment that is tied directly to O\*Net.

1. Which technical, academic and/or employability standards does your program of study incorporate at the secondary and/or postsecondary level and how? (Please list the standards you use and be specific regarding how your program uses industry, national, state and/or locally-developed standards) (250 word limit)

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| **Standard Types**  | **Please list the standards your program of study uses and how it uses them below:**  |
| Academic Standards | **MCC placement standards.**  |
| Career Cluster or Technical Standards | **Missouri career paths standards** |
| Employability Standards  | **Career Readiness Standards as defined by NACE** |
| Other |  |

The career services department incorporates the Career Readiness Standards and Competencies as defined by the National Association of Colleges and Employers. By working collaboratively with Campus Life and Leadership offices, students who want to grow their leadership and professional skills can participate in the MCC LEADS Academy.  LEADS stands for Leadership+Education+Achievement+Diversity=Success.  The program is designed to provide students with opportunities to become more engaged on their campuses (such as through student employment) while at the same time developing the skills that will help them be successful throughout their college experience and beyond as they develop their careers.  LEADS focuses on critical thinking/problem solving, teamwork/collaboration, professionalism/work ethic, leadership, and global/intercultural fluency.

# **SEQUENCE OF COURSES & CREDIT TRANSFER**

1. Please fill out the chart below, and describe your program of study’s course sequence by grade level, including the relevant or required academic and technical courses, as well as other required activities.

**Make sure to highlight the course sequence that bridges secondary and postsecondary education.** Explain how your program of study ensures learners gain the broader Career Cluster-level knowledge/skills and, over time, gain the more specific occupation-level knowledge/skills as they progress through the program of study. You can also include graphics or [plans of study](https://cte.careertech.org/sites/default/files/PlanPathways-CareerCluster-AG-AgribusinessSystem.pdf) of the course sequence in lieu of filling out the chart below.

Please see attached.

1. How do you ensure that CTE instruction and coursework is integrated with core academics? Please provide one, specific example.

CTE instruction is integrated with core academics in a variety of different ways. It's important that CTE instructors work with general education faculty so that what each teaches complement each other. One example of how we do this is through embedded learning. Using embedded learning, a math class will be reviewing measurements and fractions the same time a blueprint reading class will be teaching the same measurements in fractions. In this manner, they complement each other. In addition, in technical writing, students write about a project that they are learning in a CTE class. By pairing these programs together, we not only compliment learning, but also reinforce what students need to know.

1. List the opportunities for learners to earn articulate and/or transcript dual enrollment credit across K-12 and postsecondary, such as AP/IB, dual and concurrent enrollment, capstone experiences and/or transcripted credit articulation agreements. (250 word limit)

As this institution is a college, all of our students are receiving college credit for their work within Engineering Technology Program. We do offer opportunities for students still in high school to receive college credit through a number of different programs. We offer dual credit to area high schools and career centers. The program also offers credit for prior learning for students who successfully complete Project Lead the Way courses while students are still in high school.

In addition, there are opportunities for high school students to participate in our Early College Academy. The Early College Academy offers students in their Junior and Senior years an opportunity to spend half their day at the college in a college classroom. This is not traditional dual-credit where students are at a high school learning from a high school teacher, but dual or concurrent enrollment where the student is at college learning from a college professor in a college environment but also receiving high school credit for their work. We've had several students graduate with High School diplomas and with level 1 and 2 College certificates at the same time.

While some of our students go right to the workforce after completing their course work, all students have the opportunity to transfer their work from the college to a four-year institution. These students have the opportunity to work on a bachelor's degree and hopefully an advanced degree as well. The college maintains relationships with several institutions so that students have the opportunity to make the best choice for their circumstance.

1. Please provide information on **at least three partnerships** with *education institutions and groups* your program of study has, and describe how these partnerships have been built, maintained and sustained over time. Use this space to specifically address the secondary and postsecondary partners that contribute to and maintain this program of study.

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| **Education Partnership Name** | **What role does this partner have in directly supporting your program of study?** | **How many years has this partnership been active, and how was this partnership developed?** |
| Kansas City Regional School Dsitricts (North Kansas City, Independence, Hickman Mills, Lee’s Summit. . .) | Many area school districts partner with the program to send students to our Early College Academy. They also provide the base for some of the dual credit offered.  | 12 Years |
| Kansas City Regional Career and Technical Centers (Cass Career Center, Excelsior Springs Career Center, Northland Career Center . . .) | The area career centers provide skills-based learning opportunities to areas the college might not normally reach. Their training makes up much of the dual credit offered.  | 12 Years |
| Kansas City STEM Alliance  | The Alliance is a network of educators, business partners and affiliates that inspire interest in STEM careers and support the program in its efforts.  | 5 Years |
| SITE -KC | Social Impact Technology & Engineering has worked with the program to expose students from underserved populations to career fields supported by the program.  | 3 year |

# **ALIGNMENT WITH INDUSTRY AND BUSINESS NEEDS**

1. Describe how your program of study is aligned with the needs of the workforce and industry in your community. Make sure to include information on how the program of study helps meet workforce demand identified by business and industry. What labor market data does your program of study use to align to workforce needs? (250 word limit)

The engineering technology program of study is aligned with the needs of the workforce in the greater Kansas City area as exemplified by the high number of students who received jobs in their career, or transfer onto a 4-year institution to complete a bachelor's degree. This is also exemplified by the large number of businesses that the program works with. Our graduates are in demand fields and that we are working with these businesses & industries to meet their needs.

One of the largest issues the program faces revolves around the competencies desired by the businesses in the area. Many hard discussions are made determining and trying to decide which competencies will serve the student most. It is also important to determine where those competencies belong within the program curriculum.

The program collects labor market data for a variety of different areas to ensure that they are in line with the workforce needs. Those groups include the Missouri Economic Report (MERIC), Mid-America Regional Council (MARC), the Kansas City Missouri Bureau of Labor Statistics, Federal Reserve information, Missouri Department of Labor, the Kansas City Manufacturing Network (KCMN), the Kansas City Industrial Council (KCIC), as well as others.

1. Are ALL learners in the program of study required to participate in a work-based learning opportunity? Please describe the work-based learning opportunities available to learners who participate in this program of study. (250 word limit)

The engineering technology program does not require all students to participate in work based learning. It does incorporate many work-based learning concepts and opportunities as a part of the program. Most importantly, students have the option to complete a field experience or internship in place of their final project. Students who elect not to take the internship opportunity have to complete a capstone class. Projects and concepts involved in that capstone course are real world challenges that local businesses and organizations face.

Engineering technology business partners do more than serve on a program advisory board. Throughout the program, industries from the local area provide students an opportunity to visit their facilities. They also have individuals that come and speak as a part of program’s courses. During these visits and tours, industry partners present real-world problems to our students to ensure that they are ready when they join the workforce. To ensure that students have the correct college experience to prepare them for the real world, some local businesses have supplied labs in our facility. These labs are equipped with instruments and tools in computer software that the companies use on a daily basis to contact their day-to-day operations.

1. Please list the industry-recognized credentials/certifications/licenses offered/required. If your program of study does not include industry-based credentials/certifications, please explain why. (200 word limit)

|  |  |
| --- | --- |
| **Offered** | **Required**  |
| Revit Autodesk | OSHA 10 hour for General Industry |
| AutoCAD | OSHA Machining Guard Safety  |
| CSWA Certified SOLIDWORKS Associate |  |

1. Please provide information **at least three** *business, industry and/or labor* partnerships your program of study has, and describe how these partnerships have been built, maintained and sustained over time.

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| --- | --- | --- |
| **Business/Industry Name** | **What role does this partner have in directly supporting your program of study?** | **How many years has this partnership been active, and how was this partnership developed?** |
| Burns & McDonnell | This company has supported the partnerships by; donating a new lab, hiring students for internships, hiring students for positions, providing speakers, providing site tours, serving on an advisory board, and serving on the plan of study team  | 13 years |
| Power Engineers (Formally Sega Inc.) | This company has supported the partnerships by; donating a new lab, hiring students for internships, hiring students for positions, providing speakers, providing site tours, serving on an advisory board, and serving on the plan of study team  | 13 years |
| Akin, Gordon & Cowger | This company has supported the partnerships by; hiring student for internships, hiring students for positions, providing speakers, providing site tours, serving on an advisory board, and serving on the plan of study team  | 9 years |
| Thyssen Krupp Access | This company has supported the partnerships by; hiring students for positions, providing speakers, providing site tours, serving on an advisory board, and serving on the plan of study team  | 11 years |
| General Elevator & Hydraulic | This company has supported the partnerships by; hiring students for position, providing speakers, providing site tours, serving on an advisory board, and serving on the plan of study team  | 10 years |

\*See more in appendix

1. Please feel free to use the space below to share any other information or evidence of success of your program of study and the learners who participate. (Optional)

We just want to take the time to express our thanks to the committee for reviewing the application, and appreciation for all that the Review Committee does as a part of this process.

If you like, you can see a video about our program at

<https://www.youtube.com/watch?v=_fHsaoFaoWE&list=PL3PqceVmp0cC2i5tce7X6Ru3YfRiLTv7_&index=4&t=0s>

We would like to share some stories about the program and videos that go along with them.

The Invention Club helped a blind grandfather experience the sonogram of his granddaughter through a 3D printed relief of the sonogram.

The Engineering Technology Department and a student, David Valdez, helped young boy missing a hand by creating the bike handle bar prosthetic and the story was picked up by national news.

<https://blogs.mcckc.edu/newsroom/2016/07/12/mcc-business-technology-student-instructors-help-boy-ride-his-first-bike/>

Engineering Technology students used the 3D prototype lab helped Meili by creating a prosthetic so she could pick up a ball easier.

<https://blogs.mcckc.edu/newsroom/2015/03/24/100-years-100-stories/>

Below is the MCC story about the opening of the Burns & McDonnell Innovation lab.

<https://blogs.mcckc.edu/newsroom/2017/10/05/grand-opening-for-burns-mcdonnell-design-innovation-lab/>

1. If applicable, please provide more detail on any partnerships your program of study has that have not been mentioned already. This includes community groups, non-profits, volunteer organizations, etc. Describe how these partnerships have been built, maintained and sustained over time. (Optional)

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| --- | --- | --- |
| **Additional Partnerships** | **What role does this partner have in directly supporting your program of study?** | **How many years has this partnership been active, and how was this partnership developed?** |
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