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| **PROGRAM NAME:** CADD | **AUTHORING TEAM CONTACT:** MATTHEW RUSSELL |
| **PHONE:** (972)553-1299 | **EMAIL:** MARUSSELL@COLLIN.EDU |

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| GUIDELINESTime Frames1. Scope:

The time frame of program review is five years, including the year of the review. Data being reviewed for any item should go back the previous four years, unless not available. 1. Deadline Dates:

January 15th – Program Review Document due to Department Dean for review (Deans may require submissions at their own, earlier due date)February 1st – Program Review Document due to Program Review Steering Committee1. Years:

Years 1 & 3 – Implement Action Plan of (CIP) and collect dataYears 2 & 4 – Analyze data and findings, Update Action PlanYear 5 – Write Program Review of past 5 years; Write Continuous Improvement Plan (CIP) and create new Action PlanLENGTH OF RESPONSES: Information provided to each question may vary but should be generally kept in the range of 1-2 pages or 500-1,000 words.**EVIDENCE GUIDELINES**: In the following sections, you will be asked to provide evidence for assertions made. 1. Sources: This evidence may come from various sources including professional accreditation reviews, THECB, Texas Workforce Commission’s CREWS, Institutional Research Office (IRO), National Student Clearinghouse, IPEDS, JobsEQ, EMSI Career Coach, and may be quantitative and/or qualitative. If you are unfamiliar with any of these information sources, contact the Institutional Research Office at: effectiveness@collin.edu. Use of additional reliable and valid data sources of which you are aware is encouraged.
2. Examples of Evidence Statements:
3. Poor example: Core values are integrated into coursework. (Not verifiable)
4. Good example: Core values are integrated into coursework through written reflections. (Verifiable, but general)
5. Better example: Core values are integrating into coursework through written reflections asking the student to describe how s/he will demonstrate each of the core values in his or her professional life and demonstrated through service learning opportunities. (Replicable, Verifiable)

**FOR MORE INFORMATION:** The Program Review Portal can be found at <http://inside.collin.edu/institutionaleffect/Program_Review_Process.html>*.* Any further questions regarding Program Review should be addressed to the Institutional Research Office (effectiveness@collin.edu, 972.599.3102). |

**Introduction/Preface**

[ ] EXECUTIVE SUMMARY

**Briefly summarize the topics that are addressed in this self-study, including areas of strengths and areas of concern. (Information to address this Executive Summary may come from later sections of this document; therefore, this summary may be written after these sections have been completed.)** Please do not include information in this section that is not already provided elsewhere in this submission. Using the questions in the template as headings in the Executive Summary can provide structure to the overview document (see below for suggested format).

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| **Executive Summary (suggested sections/format-not required format)**What does our program do?Why do we do the things we do: Program relationship to the College Mission & Strategic Plan. Why we do the things we do? Program relationship to student demand.Why we do the things we do? Program relationship to market demand.How effective is our curriculum and how do we know?How effectively do we communicate, and how do we know? How well are we leveraging partnership resources and building relationships, and how do we know?How have past Continuous Improvement Plans contributed to success?How will we evaluate our success? |

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| **Complete the Executive Summary below after you have completed your review.**Computer-Aided Design and Drafting (CADD), also known as Computer-Aided Design (CAD), is the process of using specialized computer software to create, modify, analyze, and optimize a design. CAD is used in numerous applications including automotive, prosthetics, architectural design, and more. According to the National Center for Education Statistics (NCES), there are about 35 colleges in Texas that have an Associate’s program in Drafting and Design. This program review will evaluate the CADD program at Collin College by discussing the following topics.Collin’s CADD program has developed a robust strategy to meet program objectives and maintain success. First, the CADD program continuously improves the curriculum so that it is current, well-managed, and meets Collin’s standards. A fundamental component of sustaining a dynamic and competitive program is implementing technological trends, industry insights, and curriculum recommendations given by the program’s industry-based Advisory Committee. The program has identified curricular barriers and has worked with the Advisory Committee to modify the curriculum. In summary, the revised curriculum removes electives and adds important CADD courses to the degree plan in order to minimize class cancellation due to low enrollment and better meet future industry needs for architectural and civil drafting. The program plans have implemented the new curriculum in the Fall 2023. Second, the program has a strong communication strategy. The program utilizes a departmental website and brochure to provide current, concise information to internal and external audiences. This strategy has proven effective; however, a need for adding more career information to the website and creating a social media platform to showcase student projects has been identified. Third, the program maintains a large list of local industry partners that provide and promote job opportunities to students, loan equipment, give presentations during class, serve on the Advisory Committee, and more. Lastly, the department has a variety of equipment (i.e. 3D printers/scanners, augmented/virtual reality, and laser printers) and integrates this technology into the curriculum. Not only does this give students a marketable advantage, it challenges students to develop skills that are still being researched and implemented in industry. Over the past 5 years, the program has primarily used the Continuous Improvement Plan (CIP) as a methodology to identify important learning outcomes and ensure students are mastering the respective topics. If not, the program develops an approach to improve student success. In the previous CIP, all targets were met suggesting that students were successful in CIP learning outcomes. After summarizing program strengths and weaknesses discussed throughout this program review, a new CIP was created. The expected outcomes are: (1) students are able to demonstrate entry level competence in creating construction documentation for residential buildings, (2) students are able to analyze technical documentation and planning requirements with attention to detail to produce drawings for a commercial building, (3) students will be able to prepare technical drawings used in manufacturing 4) students will be able to create a site plan including topography using Civil 3D software. |

Section I. *Are We Doing the Right Things?*

[ ] **1. WHAT DOES OUR PROGRAM DO?**
 **What is the program and its context?**This section is used to provide an overview description of the program, its relationship to the college and the community it serves. **Keep in mind the reviewer may not be familiar with your area**. Therefore, provide adequate explanation as needed to ensure understanding.

*Suggested points to consider:*

* *Program’s purpose (Include the program’s purpose/mission statement if one exists.)*
* *Program learning outcomes or marketable skills*
* *Brief explanation of the industry/industries the program serves*
* *Career paths and/or degree paths it prepares graduates to enter*
* *What regulatory standards must the program meet (THECB, Workforce, external accreditation)*

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| The Computer-Aided Drafting and Design (CADD) program at Collin College prepares students for employment utilizing Computer-Aided Design and Drafting (CADD), also known as Computer-Aided Design (CAD). CAD is the process of using specialized computer software to create, modify, analyze, and optimize a design. CAD is used in numerous applications including automotive, aerospace, prosthetics, architectural design, and more. The department’s mission statement is ‘To provide students with marketable skills that can lead to employment in several industries’. The CADD department’s overarching goal is to help students gain employment in CADD during and/or after program completion. The CADD department serves multiple degree paths and career opportunities. CADD courses are required in different degrees/awards outside of the CADD department such as engineering, interior design, and more. However, most students enrolled in CADD courses pursue an award in the program. The CADD program is designed to prepare students for employment as a CADD drafter, also known as a CADD technician or operator. Drafters collaborate with engineers and architects to convert designs into technical drawings. Then, these computerized drawings can be tested by CAD simulation tools to analyze a design without physical testing. The main areas of specialization for a CADD drafter are architectural, civil, electrical, electronics, and mechanical drafting. Examples of work for each specialization stated by the US Department of Labor (<https://www.bls.gov/ooh/architecture-and-engineering/drafters.htm#tab-2>) are:* **Architectural Drafter** - draw structural features and details for buildings and other construction projects. These workers may specialize in a type of building, such as residential or commercial. They may also specialize by the materials used, such as steel, wood, or reinforced concrete.
* **Civil Drafter** - prepare topographical maps used in construction and civil engineering projects, such as highways, bridges, and dams.
* **Electrical drafters** - prepare wiring diagrams that construction workers use to install and repair electrical equipment and wiring in power plants, electrical distribution systems, and residential and commercial buildings.
* **Electronics drafters** - produce wiring diagrams, assembly diagrams for circuit boards, and layout drawings used in manufacturing and in installing and repairing electronic devices and components.
* **Mechanical Drafter** - prepare layouts that show the details for a variety of machinery and mechanical tools and devices, such as medical equipment. These layouts indicate dimensions, fastening methods, and other requirements for assembly. Mechanical drafters sometimes create production molds.

The CADD department at Collin College offers multiple awards: an AAS (60 credit hours), an OSA in AutoCAD (9 credit hours), a Certificate Level 1 in Computer-Aided Drafting and Design (21 credit hours), and a Certificate Level 2 Computer-Aided Drafting and Design (45 credit hours). The AAS prepares students for employment as a CAD drafter. The core curriculum provides students with hands-on training in the most popular CADD software used in various industries. Then, students can emphasize in architectural, civil, or mechanical by taking an elective course. The OSA prepares students to design and draft in 2D and 3D and teaches software customization that can enhance productivity in industry. The two Certificate awards prepare students to take certification exams or to be better prepared for employment by establishing a broader portfolio of coursework. The main difference between the two Certificates is that the Certificate Level 2 CAD includes additional courses in 3D drawing and dimensioning. The CADD program has defined five marketable skills that are valued by local employers. These skills were created in Fall 2019 with the help of the department’s advisory committee. The marketable skills will be communicated and reiterated throughout curriculum, so students are well-rounded and more marketable after program completion. The marketable skills are listed below. 1. Prepare technical drawings and plans used in manufacturing and construction.
2. Experience using computer-aided design (CAD) software
3. Analyze codes, requirements, and other technical documentation and perform design calculations with attention to detail
4. Communicate effectively and professionally
5. Proactive and self-motivated

The CADD program at Collin meets the requirements of THECB for workforce. These requirements can be found on pages 14 through 32 at <http://www.thecb.state.tx.us/DocID/pdf/0394.pdf> and are summarized below.1. **Program Demand** - There is national, state, and local demand for CADD drafters. Please see question 3 for more information.
2. **Effective Use of Advisory Committees** - The CADD advisory committee meets with faculty twice a year and significantly influences program decisions and curriculum. Please see Question 5 for more information.
3. **Identification of Program Competencies** - The academic and workforce skills integrated in the curriculum are identified by the advisory committee (program experts) as stated above.
4. **Selection of Program Courses** - All courses in the CADD curriculum are selected from WECM approved courses.
5. **Recruitment, Retention, and Program Completion by students** - All CADD courses use Canvas, a learning management system that allows students to see all course material, assignment feedback, and grades throughout the semester. CADD faculty also provide resources for counseling, career coaches, and other tools for student success on course Canvas sites.
6. **Establishment of Program Linkages** - The program provides dual credit opportunities for local high school students (secondary school).
7. **Verification of Workforce Competencies** - Students completing AAS in CADD are required to complete a capstone course verifying entry-level workplace competencies.
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[ ] **2. WHY DO WE DO THE THINGS WE DO: PROGRAM RELATIONSHIP TO THE COLLEGE MISSION & STRATEGIC PLAN.**

* **Provide program-specific evidence of actions that document how the program supports the College’s** [**mission statement**](https://www.collin.edu/aboutus/)**:** “*Collin County Community College District is a student and community-centered institution committed to developing skills, strengthening character, and challenging the intellect.”*
* **Provide program-specific evidence that documents how the program supports the College’s strategic plan (2020-2025 Strategic Plan)**: <https://www.collin.edu/aboutus/strategic_goals.html>.

*Suggested/possible points to consider:*

* *What evidence is there to support assertions made regarding how the program relates to the mission and strategic plan?*
* *Think broadly-increasing completion, articulation agreements, pathways from high schools, etc.*
* *Analyze the evidence you provide. What does it show about the program?*

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| **Developing Skills.**Throughout the CADD program, students learn a variety of technical skills and professional standards required in the workplace. Below are examples of different skills students learn throughout the program.During the first year of the program, specifically in DFTG 1302, DFTG 1309, DFTG 1372 and DFTG 2328 students are introduced to CADD terminology/principles and learn how (and when) to use different professional software (i.e. AutoCAD, Revit, Solidworks, Inventor, SketchUp) In conjunction with CADD specific courses, students develop math and science skills necessary for performing calculations in the software. During the second year of the program, students reinforce first year learning outcomes in combination with developing advanced skills utilizing CADD software. It’s important to note that soft skills are also taught in the curriculum. Industry has expressed a need for strong communication skills, so student’s take coursework outside of the department to develop verbal and written communication. Then, these communication competencies are enhanced in CADD courses through reports and presentations. Additionally, faculty meets with an industry-based advisory committee to ensure the skills, knowledge, and behaviors taught in the curriculum meet the needs of business and industry. The program has worked with the Advisory Committee to establish five marketable skills that are reiterated throughout the curriculum, so students are well-rounded and can easily express the skillset learned in the program. **Strengthening Character.**Working effectively with others is a key component of the CADD program. Team-based learning is used to develop leadership and support abilities, create student relationships, and understand how to effectively work with different personalities. The department also strives to create a small community where students are encouraged to collaborate and foster ideas with each other. For example, it is common for students to bring in 3D printed projects created outside the classroom or share a YouTube video with the class that is relevant to CADD. During lab, students are allowed (and encouraged) to help each other when needed. This sense of community allows students to learn how to help one another and share knowledge in a diverse learning environment, which delivers much more value than simply completing the requirements of the course. **Challenging Intellect.** The technical nature of the program ensures students are regularly challenged throughout the curriculum. Most CADD courses use final projects to verify student competencies. The department commonly partners with local businesses to create these projects so that students use creative and out-of-the thinking and understand the hardships of real-world limitations. For example, Boyd Connected Services, a local company contracted to install fiber optical and networking cable, contacted the program for help designing a device that lowers heavy ladders and conduit from company vans. In Spring 2019, this project was assigned to students in Solidworks Essentials (DFTG 1372). The project allowed students to reinforce CADD skills and challenged students to create a device under real world constraints. The students also had to present technical designs to upper level management and non-technical employees. Additionally, the department integrates the use of new technologies into the curriculum such as 3D printers/scanners, augmented/virtual reality, and laser printers. Not only does this give students a marketable advantage, it challenges students to develop skills that are still being researched and implemented in industry. * **Provide program-specific evidence that documents how the program supports the College’s strategic plan**: (2020-2025 Stratetgic Plan) <https://www.collin.edu/aboutus/strategic_goals.html>.

*Suggested/possible points to consider:** + *What evidence is there to support assertions made regarding how the program relates to the mission, and strategic plan?*
	+ *Think broadly-increasing completion, articulation agreements, pathways from high schools, etc.*
	+ *Analyze the evidence you provide. What does it show about the program?*
	1. **Develop a coordinated and systematic approach to engage external stakeholders.**

The CADD program engages stakeholders in several ways. 1. Our industry partners are invited to participate in our annual career fair where they can interact with our students, share career advice and coordinate interviews. Our industry partners also participate extensively as guest lecturers and speakers both in the classrooms and at special events. * 1. **Finalize and Execute a Comprehensive Plan that Facilitates the Safety of Students, Faculty and Staff at Collin College.**

Providing a safe environment for students to learn has been an organizational effort at Collin College. The CADD faculty support this initiative to maintain a safe learning environment by providing students with Collin resources and personal resources (i.e. Collin’s student handbook and [student resources website](https://www.collin.edu/studentresources/personal/index.html)) at the beginning of the semester. Program faculty also take the time to learn Collin’s Police initiatives so that the correct actions are taken during emergencies.Additionally, the program has a variety of large, state-of-art equipment. When using equipment, the faculty ensure students use safe practices expressed in equipment literature. For example, the department purchased a compact filter to use with the laser printer, which minimizes risk of fire and inhalation of harmful odors. The compact filter must be turned on when using the laser printer. 1. **Increase Outreach and Create Streamlined Pathways from High School.**

The CADD program currently partners with Allen and Plano ISD to provide dual credit opportunities for high school students. The forecasted demand is high, and the department is preparing to teach two blocks, a morning and afternoon block, for Allen HS students. The department has hired a new full-time faculty member to accommodate increased enrollment from new dual credit opportunities. 1. **Emphasize Student Achievement and Streamline Pathways to Four Year College and Universities.**

The CADD department is a workforce program. Thus, it prepares students for employment directly after program completion unlike academic departments who prepare students for transfer to four-year colleges. However, the CADD program does offer a seamless transition into any BAAS (Bachelor of Applied Science) in multiple pathways depending on what the University offers. 1. **Expand Career and Technical Programs and Training Offerings in Alignment with current and future Regional Labor Market Demand and Become the Customized Training Provider of Choice for Additional Employers.**

The CADD program is committed to adapting to the needs of industry. This keeps the program current and ensures Collin is a place where companies recruit. In order to maintain a current curriculum and battle rapidly changing technology, the program works closely with an industry-based Advisory Committee. Over the past year, the program has worked with the committee to revise the curriculum so that coursework better aligns with projected local demand and meets the new requirements of local businesses. The revised curriculum has been approved by the Advisory Committee in Fall 2022 and has been approved by Collin’s Curriculum Advisory Board (CAB). Additionally, it is important to note that the Advisory Committee heavily influences the program’s equipment. For example, in Fall of 2020, the Advisory Committee expressed increased use of virtual reality (VR) in business. Then, in Fall 2021, the department used grant funds to purchase VR equipment to meet new industry demands, and in the Fall of 2022 we purchased the software for students to use with their projects. 1. **Promote Innovation and Diversify Revenue Streams.**

Promoting innovation and implementing near future technologies is a fundamental component of the CADD program. The program utilizes the Perkins Grant to purchase new technologies that the Advisory Committee recommends. In order to support external funding and ensure funds are value-added, the program integrates these technologies into the curriculum to supplement student learning outcomes. For example, in Fall 2022 the department purchased 3D printers. The printers are now used in the Basic CADD (DFTG 1309) to manufacture designs in 3D and again in Advanced CADD (DFTG 2432), students use the 3D printers to manufacture more complex 3D designs. These hand-on activities show the differences between 2 axis and 3 axis machining and supplements course learning outcomes of drawing in 2D and printing in 3D. 1. **Create an Increasingly Welcoming Environment for Students, Community Members, Faculty and Staff.**

The CADD program provides an inviting and supportive learning environment for students. As stated above, the program strives to build a sense of community in the classroom where students are encouraged to share ideas and knowledge. Program faculty also maintain constant communication with students throughout the program and are available to help students outside of the classroom (i.e. helping with resumes or career planning). Additionally, the program has started an Excellence Fund dedicated to supporting students financially. Funds are provided by industry and will only be used for student tuition. In other words, if a student is having trouble completing the program due to financial instability, the department will help the student with tuition using the Excellence Fund. The CADD department is also committed to providing support to the local community and Collin employees. It is common that local businesses and Collin employees will ask the department to support product design efforts. Hiring consultants can be too expensive for small businesses and entrepreneurs. Therefore, program faculty will help when applicable. 1. **Expand the Physical Footprint of Collin College to Meet Emerging Programmatic Needs; Improve Facilities as Necessary and Implement the Maintenance Plan to Elevate Services to Our Students.**

The CADD department has worked together in laying out the new CADD facilities so that the classrooms meet the program’s educational needs. We have moved the printers into a larger room to hold equipment so that the space can be utilized by an entire class and observed through a series of windows. The new print room also has a glass wall which can help inspire students in the program and promote the program to potential students that can witness our 3D printers in action on a daily basis. **Improve student outcomes to meet or exceed local, state, and regional accreditation thresholds and goals.**In addition to our 4 Program Learning Outcomes, the CADD program ensures additional learning outcomes are distributed throughout the program’s curricular offerings to reinforce and ensure students mastery of basic CADD concepts and skills as it relates to industry specific employability skills. The outcomes are attached to specific assessment tools, and are tracked each semester. Concepts and skills are generally introduced in the lower-level courses and reinforced through practice in the upper-level courses. In some courses where concepts are practiced, students are assessed for both achievements of course objectives and proficiency in selected student learning outcomes. The student learning outcomes include:1. Apply effective communications, both orally and in writing.
2. Apply proper dimensioning techniques.
3. Apply the commands necessary to complete a basic drafting and design project.
4. Apply current software technology related to the CADD industry for specific project types.
5. Apply the interpretation of construction documents (details, specifications, and drawings) used in design-build project.
6. Apply basic principles of floor plan and elevation layouts.
7. Understand basic minimum standards for codes and regulation that govern a design-build project.
8. Understand the fundamentals of contracts, codes, and regulations that govern a construction project.
9. Understand basic construction methods and materials.
10. Understand the basic principles of structural design.
11. Understand the basic principles of mechanical, electrical and plumbing systems.
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[ ] **3. Why we do the things we do: Program relationship to student demand**

**Make a case with evidence to show that students want the certificate. Discuss whether or not there appears to be any disproportionate enrollment by gender, race, and ethnicity (compared to Collin College’s overall student demographic distributions** [**http://inside.collin.edu/iro/programreview/prfilehostpage.html**](http://inside.collin.edu/iro/programreview/prfilehostpage.html)**). If any differences exist discuss possible reasons why the gap exists, and plans to address these issues to close gaps in enrollment rates between groups of students (refer to the Program Review portal for Enrollment Reports and Average Section Size data files for your program** **<http://inside.collin.edu/institutionaleffect/Program_Review_Process.html>).**

*Suggested/possible points to consider:*

* *What is the enrollment pattern? Declining, flat, growing, not exhibiting a stable pattern, please explain. For required program courses where there is a pattern of low enrollment (fewer than 15 students), explain your plan to grow enrollment and/or revise the curriculum.*
* *What are the implications for the next 5 years if the enrollment pattern for the past 5 years continues?*
* *Describe any actions taken to identify and support students enrolled in program-required courses early in the degree plan. If no actions are taken at the present, please develop* *and describe a plan to do so.*
* *How does your program support (or plan) to support attraction of a diverse student population?*
* *Check with Institutional effectiveness for Data Reports -names of reports*
* *Analyze the evidence you provide. What does it show about the program?*

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| The future of Collin’s CADD program is promising when analyzing the program’s current and forecasted student demand. Since the inception of the CADD Program at the Technical Campus beginning in the Fall 2020, the program has shown a steady increase in enrollment of an average of 10% per year which has taken our enrollment to over 335 students for this past academic year including Fall, Spring and Summer enrollment. See Appendix A.The implications over the next 5 years if the pattern continues, the CADD program should increase to approximately 400 students for the 2029-2030 academic year. Furthermore, the CADD program is projected to grow more than previously expressed due to our new course sequence. In conclusion, the future of the CADD program is encouraging. The program has steadily grown over the past 5 years and is expected to grow significantly in 2025 due to new course sequence at Collin’s Technical Campus. Additionally, the department has formulated an improved curriculum in hopes of increasing the number of AAS completers. The department is in the process of hiring new faculty to accommodate the forecasted growth in student enrollment. The CADD program is active in marketing to a diverse learner population through social media, job fairs, open houses and public-school presentations. |
| **Actions Taken to Identify and Support Students**Identifying and supporting students early in the Construction Management program is an additional way to increase enrollment and completion. Some different methods the program uses to identify and support students include:- The faculty promote advising to first year students during class, and provide contact information for our career coach on Canvas courses. - Our career coach meets with all incoming students to help them identify courses they will need for their specific educational goals, and to set up an educational plan for coursework.- Our career coach visits classrooms at the beginning of each semester to remind students about deadlines, degree plans, next steps, etc.- Our career coach works closely with faculty and program management, where information and updates are shared both ways to ensure all are supporting students in the same manner. The career coach also checks in frequently with instructors to obtain information about students who may need extra help, either academically or financially, and the coach works directly with instructors to make sure students who need it are supported similarly in all their classes in the program. Our career coach additionally does an audit for all second-year students to ensure all graduation requirements have been identified and addressed, and students know what steps they need to take to graduate.- Our faculty are approachable, and all maintain an open-door policy, so students can feel comfortable communicating issues before they escalate. Most professors arrive early and stay late before and after class to give individual help to students.- Faculty promote collaboration in coursework so students can connect with each other and become useful resources.**Program Demographics** **Student Enrollment by Gender 2019-2023 Student Enrollment by Ethnicity 2019-2023** The CADD program has a very diverse population of Female, Male, Hispanic, and Non-Hispanic students. The program has a very similar trend as the surrounding cities in the Community that the College is in proximity to. |

[ ] **4. Why we do the things we do: Program relationship to market demand**

**Make a case with evidence to show that employers need and hire the program’s graduates. Some resources to utilize for information could be: JobsEQ** [**http://inside.collin.edu/iro/programreview/202021/ProgramLaborMarketInfo\_2020-21AY.pdf**](http://inside.collin.edu/iro/programreview/202021/ProgramLaborMarketInfo_2020-21AY.pdf)**, Burning Glass, O-Net** [**https://www.onetonline.org**](https://www.onetonline.org)**, Texas Labor Market Information** [**https://www.twc.texas.gov/businesses/labor-market-information**](https://www.twc.texas.gov/businesses/labor-market-information)**.**

*Suggested/possible points to consider:*

* *How many program-related jobs are available in the DFW Metroplex for program graduates? If the majority of related jobs in the DFW Metroplex require a baccalaureate degree, provide evidence that you have a current signed articulation agreement with one or more transfer institutions or that you plan to develop one.*
* *What proportion of the program’s graduates (seeking employment) found related employment within six months of graduation?*
* *What changes are anticipated in market demand in the next 5 years? Do program completers meet, exceed, or fall short of local employment demand? How will the program address under- or over-supply?*
* *Identify and discuss the program’s strengths and weaknesses related to market demand.*

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| Drafting and design degree programs are intended for careers in manufacturing, engineering, architecture, and construction. A few schools in Texas offer bachelor’s degrees in drafting and design. However, most programs offer an associate degree(s) or certificate(s) according to the National Center for Education Statistics (NCES). The typical entry-level education requirement for a CADD drafter in DFW and the United States is an associate degree according to JobsEQ and the Bureau of Labor Statistics, respectively. Refer to Appendix E (Employment Data)Additionally, salary for all degree types is relatively the same. Salaries by degree level for an entry-level CAD drafter (CAD 1 Drafter) in DFW. The salary range increases the higher the degree; however, the change in salary is minimal. For example, the lower bound for HS or Technical Certificate is approximately $46K, and the lower bound for a PhD is $47K. Refer to Appendix E (Employment Data)Furthermore, historical data on the total number of entry-level jobs advertised for a CAD drafter or designer in the DFW area is limited. In November 2019, Indeed advertised 38 entry-level, full-time CAD designer/drafter jobs. LinkedIn advertised 7 entry-level jobs, and 3 companies contacted Collin’s CADD department with entry-level job opportunities, which were posted on the department’s website. The historical data on job advertisements for all levels of experience is more available. DFW has the most opportunities in Architectural and Civil specialties due to increased construction. Mechanical has a slightly smaller demand, and electrical/electronics and all other drafters have a considerably smaller demand. Overall, this data suggests that there is local demand for program completers. Refer to Appendix E (Employment Data) Unfortunately, the CADD program has limited data on student employment after graduation. The only source of employment feedback is through word of mouth. Therefore, it is unclear whether a Technical Certificate or Associate Degree is more advantageous for program completers. Students with both degree types are employed by local industry partners; thus, it appears students completing both award types find local employment. The department plans on brainstorming a better methodology to track this information. Furthermore, the demand for each drafting specialty varies across the US because drafter demand is dependent on local industry needs. For example, mechanical drafter opportunities will be higher in large manufacturing hubs. Texas employs a substantial number of drafters for all specialties when compared to other US states. According to the Bureau of Labor Statistics, Texas is ranked 1rst for employing the most mechanical drafters, 1rst for all other drafters, 2nd for architectural and civil drafters, and 2nd for electrical and electronic drafters. DFW also ranks high for employing the largest number of drafters when compared to other US cities. DFW ranks 3rd in the US for employing the most architectural and civil drafters, 4th for electrical and electronics drafters, 4th for all other drafters, and 8th for mechanical drafters. Refer to Appendix E (Employment Data) The job outlook for drafters will also depend on location. The US sees a small increase in demand for all specialties (increase 2-4%) except in mechanical (decrease 7%). Texas sees a large increase in demand change for all specialties (increase 17-20%), and all specialties have comparable increases in demand. Architectural and civil has the largest demand change with an increase of 20%, and electrical and electronic has the smallest demand change with an increase of 17%. DFW has a smaller projected demand increase (increase 10.5-13.3%) than the state of Texas (increase 17-20%). However, like Texas, all specialties in DFW have comparable projected demand changes with architectural/civil being the largest (increase 13.3%) and electrical/electronic being the smallest (increase 12.6%). Refer to Appendix E (Employment Data) **STRENGTHS** The data suggests that pursuing a CADD education at a 2-year institution has many advantages when compared to a 4-year institution. First, the majority of the CADD drafter workforce is made up of employees with an associate’s degree or “some college, no degree” (OSA or Certificate). According to careeronestop 62% of the workforce is made up of people with an associate degree or “some college, no degree.” This suggests that program completers at Collin are marketable without a higher-level degree. Second, the cost of training at Collin is less than competing programs, so students can graduate faster at a much lower cost. Lastly, all degree levels have comparable salaries. According to data above, AAS completers make approximately 1K less than PhD completers for entry-level drafting jobs in DFW.  Refer to Appendix E (Employment Data) Employment Data – BLS Data  Furthermore, the program’s curriculum aligns with local demand needs. Based on data above, 91% of the online ads for an entry-level position in DFW during November 2020 were positions in architectural, civil, and mechanical specialties. Additionally, the data suggests that 75% of drafters in DFW are categorized in these specialties. The program offers coursework in architectural, civil, and mechanical drafting specialties. Courses with a heavier focus on mechanical drafting are shown in red. Courses with a heavier focus on architectural and civil drafting are shown in green, and courses that serve both specialties are shown in black. This confirms that the program’s focus is on architectural, civil, and mechanical specialties. Refer to Appendix E (Employment Data) **WEAKNESSES**The CADD Program’s weaknesses in reflecting market demand back in 2019 have all been addressed and approve unanimously by our Advisory Committee and CAB Committee. The weaknesses in the curriculum, texts and marketability for employer demand have been addressed, voted upon, and approved over the past 4 years.Lastly, another weakness of the program was the lack of methodology to track student employment after graduation. Being able to identify what type of companies are hiring program completers would allow the program to make improved curriculum decisions. Also, the department would be able to better advise students on what award types to pursue based on career goals. The CADD program plans on brainstorming a better process to track this information. This weakness is being addressed this semester and should be completed by the Fall of 2024.   |

Section II. *Are We Doing Things Right?*

[ ] **5. How effective is our curriculum, and how do we know?**

**A. Make a case with evidence that there are no curricular barriers to program completion. Review data related to course enrollments, course completion rates, course success rates, and the frequency with which courses are scheduled to identify barriers to program completion.**

*Suggested/possible points to consider:*

* *Number of students who completed the program awards in each of the last 4 years? If the number of graduates does not average 5 or more per year, describe your plan to increase completions and address this issue in the Continuous Improvement Plan (CIP).*
* *At what point(s) are substantive percentages of students dropping out of the program? Use data in the “Program-Based Course Performance” tool to examine enrollment flow through the program curriculum. Does the data suggest any curricular barriers to completion? Address problems in the CIP.*
* *Analyze the course success rates and the course completion rates of each course in your program. Address problems in the CIP.*

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| Throughout the United States, community colleges have faced problems related to low completion rates. Specifically, fewer than 40% of community college students earn a certificate or degree within six years of enrollment (<https://www.brookings.edu/research/community-college-completion-rates-structural-and-motivational-barriers/> ). There are different factors that contribute to this problem such as financial barriers, academic preparation, structural barriers, and motivational barriers. Academic preparation is outside the scope of this program review, and state and organizational initiatives have focused on financial barriers. Collin College is 66% cheaper than the average Texas in-district tuition for 2-year colleges. Additionally, in Fall 2019 the department has started an Excellence Fund financed by industry where all funds will be used for student’s tuition in the CADD program. Therefore, this discussion will focus on structural barriers that will help students navigate their college degree plan. Motivational barriers (through communication) will be discussed in question 6. Appendix E (Employment Data) shows the number of completed CADD awards for the last 5 years. The average number of completers for all award types for the last 5 years is 45 graduates. Although this meets Collin’s standard, the program aims to increase the number of program completers (particularly AAS completers) which was an average of 8 students per year. That number is increasing currently in 2023 and 2024. In order to identify barriers in the curriculum, the Program-Based Course Performance Tool is explored. Enrollment numbers for CADD specific courses are discussed as the other courses include a collection of students outside the CADD program and will bias the analysis. The enrollment numbers highlighted in yellow are CADD specific courses. It appears that most students are leaving the program in year 2. This agrees with the completion data above. Most students are completing the OSA and Certificate, which are all year 1 courses in the degree plans. Thus, based on this data, there is no obvious barrier stopping students from pursuing the AAS degree.Next, retention rates are reviewed. According to Collin’s Institutional Research Office, one measure that Collin uses to determine retention is the course completion rate, which is defined as “the proportion of students enrolled in classes on census day who are still enrolled on the last class day. [3]” The completion percentages for all courses in the AAS degree are above Collin’s standard of 78%.  Furthermore, the success percentages are analyzed Collin defines success as a grade greater than 70%. In other words, a letter score of C and up. For completion rates see Appendix B (Grade Distribution Data) (Completion Rates) |

**B. Show evidence that the institutional standards listed below have been met. For any standard not met, describe the plan for bringing the program into compliance.**

1. **Completers Standard: Average 25 completers over the last five years or an average of at least five completers per year.**
Number of completers: 114 total and 23 on average (AAS and Certificates) in last five years.
If below the state standard, attach a plan for raising the number of completers by addressing barriers to completion and/or by increasing the number of students enrolled in the program. Definition of completer—Student has met the requirements for a degree or certificate (Level I or II)
2. **Licensure Standard: 93% of test takers pass licensure exams.**If applicable, include the licensure pass rate: Not Applicable
For any pass rate below 93% (Collin College’s standard), describe a plan for raising the pass rate.
3. **Retention Standard: 78% of students enrolled in program courses on the census date should still be enrolled on the last class day (grades of A through F).**Include the retention rate: 95% on average from FY 2017-2021
If the retention rate is below 78%, describe a plan for raising the course completion rate.

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| See Appendix B (Grade Distribution Data) for Completion and Retention Data. |

**C. Make a case with evidence that the program curriculum is current.**

*Suggested/possible points to consider:*

* *How does the program curriculum compare to curricula at other schools? Review programs at two or more comparable colleges. Discuss what was learned and what new ideas for improvement were gained.*
* *How does the program curriculum align with any professional association standards or guidelines that may exist?*
* *Is the curriculum subject to external accreditation? If so, list the accrediting body and the most recent accreditation for your program.*

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| *If the program curriculum differs significantly from these benchmarks, explain how the Collin College curriculum benefits students and other college constituents.*According to the National Center for Education Statistics (NCES), there are about 35 colleges in Texas that have an Associate’s program in drafting and design. Of the 35 schools, below is a list of colleges that offer a CADD AAS degree within 50 miles of Collin’s Technical Campus. In this discussion 2 colleges from the list will be compared to Collin’s program. 1. Eastfield College – 25.7 miles
2. Mountain View College – 30.4 miles
3. North Central Texas College – 37.2 miles
4. Grayson College – 42.1 miles
5. Tarrant Count College District – 42.5 miles

It is important to note that there are no professional standards that these CADD program have to align with. Also, the curriculums are not subject to external accreditation. **COLLIN VERSUS DALLAS COUNTY COMMUNITY COLLEGE**First, Collin’s CADD program will be compared to Eastfield College and Mountain View College. These two colleges will be grouped as one college because both programs belong to Dallas County Community College and share the same curriculum. For simplicity, the colleges will be referred as Dallas County Community College (DCCCD). DCCCD offers 4 certificates (Architectural Drafting, CAD/CAM-CNC, Computer-Aided Design Advanced Operator, and Computer-Aided Design Operator) and 1 AAS degree (Computer-Aided Design and Drafting). Other than the Architectural Drafting Certificate, the certificates focus on machining, which is categorized as mechanical and electrical/electronic drafting. This differs from Collin as the program does not offer any electrical/electronic specific courses. The degree plan for the AAS at DCCCD is shown in the table also compares the curriculum to Collin’s AAS curriculum. The cell(s) highlighted in green represent courses that both Collin and DCCCD have in common. The cell(s) highlighted in blue represent courses that are similar to a course at Collin, and cell(s) highlighted in red represent courses that Collin does not have. The technical electives can be found at the following website: <https://www1.dcccd.edu/catalog/programs/degree.cfm?degree=cadd_cadd_aas&loc=EFC>The AAS curriculum at Collin and DCCCD share a lot of the same courses. Also, students in both programs can specialize in a CADD discipline (Mechanical, Civil, etc.) by taking electives. However, at DCCCD students specialize by completing 3 elective courses compared to only 1 elective at Collin. It makes sense for students to specialize by completing 3 electives instead of 1. However, with the large number of electives (46 electives total) offered at DCCCD, the CADD program would need to grow substantially in order to run 46 electives each year. Collin’s program is currently facing cancelled courses due to low enrollment with only 10 electives. Therefore, it is not feasible for the program to add more electives to the curriculum until the program is larger. Additionally, students have difficulties managing the degree plan with too many electives, and Collin’s CADD program has identified this as a barrier. Once the program grows, the program will implement specialized degree plans. The program’s vision is that students will specialize by completing 3 technical electives (like DCCCD). However, the 3 electives will be the same for every student in the specialty. For example, if a student plans on emphasizing in Civil Drafting, the student will take Civil Drafting, Topographical Drafting, and Special Topics in Civil Drafting. They will not be able to choose from a list of Civil Drafting electives in order to minimize cancelled courses. Furthermore, the biggest difference between the two programs is that DCCCD has an emphasis in machining (mechanical drafting) and circuit board design (electrical/electronic drafting). Collin plans on adding more architectural and civil drafting courses while maintaining the current number of mechanical drafting courses. Collin does not offer any circuit board design courses, which could be a weakness of the program. However, the future of the program is in architectural, civil, and mechanical drafting specialties. This decision was made based on local demand data and recommendations from the program’s advisory committee.Lastly, DCCCD’s degree plan has a smaller number of courses than Collin’s degree plan. This is because there are more 4-credit hour courses in DCCCD’s curriculum. Collin’s program wants to maximize the number of CADD courses in the curriculum so that students are marketable to various industries, which is the mission of the program. **COLLIN VERSUS NORTH CENTRAL TEXAS COLLEGE**Next, Collin’s CADD program is compared to the Engineering Technology program at North Central Texas College (NCTC). Although, the department names differ, the programs have similar goals. For example, after program completion at NCTC, students will be able to “apply engineering practices to CAD drawings using multiple industry examples.” Both colleges’ main focus is for students to gain knowledge in a variety of industries. Additionally, the Engineering Technology Program has 1 general AAS degree like Collin, and it has 1 Certificate (Level 1). The Certificate’s curriculum at NCTC includes architectural and mechanical drafting courses, which is the same as Collin. The degree plan for the AAS at NCTC is at: <https://www.nctc.edu/engineering-technology> NCTC and Collin have comparable curriculums. 13 courses are the same or similar, and 7 courses are different. Of the courses that are different there are two courses that appear value-added for industry and are worth investigating. First, DFTG 1302 (Introduction to Technical Animation and Rendering) is worth exploring because graphic rendering is extremely useful in industry. However, the question is whether this material should be taught in a single course or should the material be integrated into a course already in the curriculum? Second, DFTG 1358 (Electrical/electronic drafting) is worth considering because the curriculum offers no electrical/electronic drafting courses. The question here is whether one course will be enough for students to pursue a career in electrical/electronic drafting. The department will discuss this with the advisory committee in 2020. Additionally, the program at NCTC does not include any elective courses. Instead, the AAS degree includes courses in all CADD specialties. Based on student feedback, the department has learned that electives make the degree plan difficult to manage. Therefore, the proposed curriculum waiting on approval by CAB removes all electives. Lastly, an advantage of Collin’s program over NCTC’s program is that the courses related to architectural/civil drafting are more practical for a career in the respective CADD specialties. For example, the curriculum does not include blueprint reading or construction methods and materials. These courses were highly recommended by the program’s advisory committee. **CONCLUSIONS**After comparing Collin’s curriculum to two local colleges, the CADD curriculum at Collin is current. The core CADD courses at Collin are almost identical to DCCCD’s core courses. The differences between the program are the available electives. DCCCD includes more electives in the curriculum, and the electives have a heavy focus on electrical/electronic drafting and machining. Based on local demand and advisory committee recommendations, the department does not want to put a heavy focus on electrical/electronic drafting and machining. Further, NCTC has the same overarching goal of providing students’ knowledge in a variety of industries. NCTC’s curriculum offers courses in all specialties (including electrical/electronic drafting which Collin does not). However, based on industry feedback, the coursework offered at Collin is more beneficial if a student wants to pursue a career in architectural/civil drafting.  |

**D. Present evidence from advisory committee minutes, attendance, and composition that the advisory committee includes employers who are actively engaged on the committee and who are representative of area employers.**

1. How many employers does your advisory committee have? 15

2. How many employers attended the last two meetings? 9

3. How has the advisory committee impacted the program over the last five years (including latest trends, directions, and insights into latest technologies)?

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| **1. How many employers does your advisory committee have?** \_\_\_15 employers as of Fall 2019 advisory committee meeting\_\_\_\_\_Below is a list of companies represented:

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| 1. Simpson Strong-Tie
 | 1. Halff Associates
 | 1. Epsilon Land Development
 |
| 1. Childress Engineering Svcs.
 | 1. Spiars Engineering
 | 1. CobbFendley
 |
| 1. Lockwood, Andrews & Newman, Inc.
 |  | 1. Cole
 |
| 1. True Net Communications
 | 1. Raytheon
 | 1. EFCO
 |
| 1. Syska Hennesy
 | 1. TDIndustries
 | 1. Palm Harbor Homes
 |

**2. How many employers attended the last two meetings?**  \_\_Spring 2021: 7 employers Fall 2020:\_9 employers\_\_\_\_\_\_\_\_\_\_**3. How has the advisory committee impacted the program over the last five years (including latest trends, and insights into latest technologies)?**  A fundamental component of maintaining a current program is implementing technological trends and industry insight given by the advisory committee. The following are examples of the committee’s recommendations and how the program was impacted.1. The advisory committee (AC) shared that interest in 3D printing has increased. Thus, the program has purchased new 3D printers so that students have experience using this technology in the program.
2. In Spring 2020 the advisory committee expressed that Virtual Reality (VR) is being used in industry. Thus, in Fall 2021 the program purchased VR Software, and this was integrated into the curriculum starting in the Spring of 2022.
3. Teamwork using cloud based services is popular in industry. Thus, some assignments in the program are submitted using Autodesk cloud services.
4. The advisory committee expressed that students need exposure on how/when different CADD software is used in industry. Thus, industry members have been invited by program faculty to speak to individual classes and show some company projects / software used.
5. Industry uses parametric modeling software instead of AutoCAD when drawing in 3D. Therefore, parametric modeling software is used in the program when modeling in 3D.
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4. Briefly summarize the curriculum recommendations made by the advisory committee over the last five years.

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| The CADD Advisory Committee plays a large role in developing the curriculum. Below are examples of curriculum recommendations made by the advisory committee. 1. In Fall 2020 the committee expressed that students should learn a 3D software earlier in the curriculum. Thus, SketchUp was added to the curriculum in the beginning CAD (DFTG 1309) and Intermediate CAD (DFTG 2319) courses.
2. The advisory committee recommended removing 3D modeling in AutoCAD and using parametric modeling software instead. Therefore, in Intermediate CAD (DFTG 2319), drawing in 3D using AutoCAD is only in 1 module so that students can see the difference between traditional modeling and parametric modeling. AutoCAD and SketchUp is primarily used in Intermediate CAD (DFTG 2319), so students gain needed parametric modeling skills. Additionally, in Fall 2020 the committee shared that Autodesk is investing a lot of capital in Inventor; therefore, the department will continue to use this software over competing software in DFTG 2319 only for Engineering based drawings (non-architectural).
3. The committee recommended adding a DFTG course where students learn how to read drawings using and putting their blueprint reading skills into a VR software so they decided on SketchUp 3D Modeling being incorporated into our (DFTG 1315) course ‘Architectural Blueprint Reading’. They also expressed that programming is a desired skill in industry for CADD drafters. Therefore, the program added an Advanced CAD (DFTG 2432) course where students learn how to code in different AutoCAD and Solidworks environments.
4. The Advisory Committee advised that the capstone should be a project based course. Thus, the program changed the capstone to a course titled Final Project – Advanced Drafting (DFTG 2338). This will allow students to complete a semester long project to verifying skills needed for workforce. The program change was approved by the CAB Committee.
5. The advisory committee has expressed a need for students to learn Civil 3D software. Therefore, the program has added DFTG 2330 (Civil Drafting) where students can learn Civil 3D. The program has been approved by CAB.

In conclusion, the program is heavily influenced by the industry-based advisory committee. The program is responsive to committee recommendations and implements committee suggestions in an efficient manner. This dynamic approach has maintained a strong advisory committee because members can see that the program is receptive to industry feedback. Additionally, a strong partnership with the advisory committee allows the program to stay current and meet local demand.  |

**E**. **Make a case with evidence that the program is well managed.**

*Suggested/possible points to consider (Data can be found at* [**http://inside.collin.edu/institutionaleffect/Program\_Review\_Process.html**](http://inside.collin.edu/institutionaleffect/Program_Review_Process.html)**):**

* *Average class size*
* *Grade distributions*
* *Contact hours taught by full-time and part-time faculty*
* *Identify all courses that have a success rate below 75%. If any of these are core courses, visit with the discipline lead for the course(s) in question to determine whether or not the content of the course(s) is appropriate to the workforce program learning outcomes. Using assessment evidence and instructor observations, identify the student learning outcomes that are the greatest challenges for students in courses with low success rates. Explain what instructional and other intervention(s) might improve success rates for each identified course.*
* *How well are general education requirements integrated with the technical coursework?*
* *Student satisfaction: What evidence do you have that students are satisfied with the program? What kinds of complaints are made to the associate dean/director by program students?*

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|  Overall, Collin’s CADD program is well-managed. Although the program has identified opportunities for improvement, a plan to manage and resolve the acknowledged bottlenecks have been developed. More specifically, the program review will now discuss average class size, enrollment data, grade distributions, faculty contact hours, course success rate, and student satisfaction in order to provide evidence that the program is well-managed. ***Average Section Size***Refer to Appendix C (Average Section Size)As referenced in Appendix C, for the total of 104 DFTG classes, the average class size for the Computer Aided Drafting and Design (CADD) program is **17.7students per class section.** Our student cap has varied for the courses depending on the number of computers we have in each lab.***Grade Distributions***Refer to Appendix B (Grade Distribution Data)Per the grade distribution information presented there are no CADD courses that have a success rate below 73%. The Compiled Success and Completion Rates, the average success rate for Computer Aided Drafting and Design (CADD) courses is 90% and the average completion rate is 96%. This success is partly credited to the full-time faculty and adjunct instructors’ dedication to our students. Since the majority of our professors and instructors hold employment either full or part time in the construction industry, they are able to successfully coach and mentor the CADD students with real-world problem examples and class exercises. Additionally, as our faculty members have extensive knowledge and experience in all aspects of Computer Aided Drafting and Design (CADD), they are able to coach and mentor students in subjects other than what they may be teaching in any given semester. This ensures that students are always able to ask any faculty member for help in another course, and the opportunities for individual coaching are plentiful. ***Contact Hours taught by full or part time faculty***Refer to Appendix I (Faculty Contact Hours)Per the information gathered, the CADD program as of Fall 2022 provided 85% of our contact hours with full-time faculty, and 15% with adjunct faculty. We have identified this as a strength of the program and this school year (2023-24) we have added a new full-time faculty member to further enhance our program. We anticipate we will need to hire another full-time faculty to keep up with growing enrollment.***Identify courses that have a success rate below 75%***All CADD - DFTG course success rates are above 75% except for our first course in the program which is our DFTG 1309 – Basic CADD course that had a 74% success rate.***How well are general educational requirements integrated with technical coursework***The AAS degree requires 15 credit hours of general education coursework. These minimum requirements are as follows:* + 3 credit hours of humanities / fine arts
	+ 3 credit hours social / behavioral sciences
	+ 3 credit hours from natural sciences / mathematics

During the first semester of the CADD program, students take College Algebra (MATH 1314). Understanding college-level mathematics is vital for student success in upper level CADD courses. Therefore, students fulfill the mathematics requirement at the beginning of the program. (SPCH 1321) or an optional Business Communication course is also taken during the first semester. During the spring of the first year, students take any social/behavioral sciences course. Lastly, during the final semester (second year, second semester), students will take a Communications Course. The course is added to the schedule so that it does not interfere with other course’s pre-requisites.***Student Satisfaction*** Refer to Appendix H (Student Satisfaction Survey of the CADD Program and DFTG Courses)Overall, the students that responded to the survey we show over 95% of the students either strongly agree or agree that they were satisfied with the courses. Please refer to Appendix H in our attached files to see a complete program survey. |

[ ] **6. How effectively do we communicate, and how do we know?**

**A. Make a case with evidence that the program literature and electronic sites are current, provide an accurate representation of the program, and support the program’s recruitment plan, retention plan and completion plan.**

*Suggested/possible points to consider:*

* *Demonstrate how the unit solicits student feedback regarding its website and literature and how it incorporates that feedback to make improvements.*
* *How does the program ensure that students are informed/aware of program literature? Is program literature made accessible to all students (i.e. can they obtain the information they need)?*
* *Designate who is responsible for monitoring and maintaining the unit’s website, and describe processes in place to ensure that information is current, accurate, relevant, and available.*

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| The CADD program has a strong strategy to communicate with prospective, current, and former students. The main source of information comes from the department’s website. The website provides information on the program’s mission, available awards and degree offered, program updates, scholarship opportunities, job opportunities, career events, and contact information. The CADD website can be found at <https://www.collin.edu/academics/programs/CADD_AAS.html>The first half of the website (mission statement and program degree plans) is maintained by Collin’s Curriculum Office, allowing the site to updated whenever changes are made to the college catalog for this program. The Curriculum Office also maintains Collin course descriptions and the associated student learning outcomes. This information is formally established at the statewide level or (in the case of local needs courses) must be submitted to the Texas higher Education Coordinating Board to be approved for formula funding. The second half of the website (under Resources) is updated by program faculty. The “Job Opportunities/Career Events” link is updated by faculty on a regular basis. Companies reach out to the department with job postings frequently. Then, the faculty will add job postings to this section of the website. Additionally, the career coaches ensure career events are added to the link. Furthermore, the students have voiced that the job opportunities/career event link is the most useful resource on the website. One improvement recommended by the students would be to add more detail on the benefits of each award, so they know what career path to pursue. For example, express that the AAS is the most common degree pursuing a career as a drafter. Additionally, the students would like to know more information on the different industries they can pursue (i.e. architecture, mechanical, and civil). The flyer includes content on the program’s mission and general information on a career in CADD (i.e. career pathways, salary, etc.). The flyer’s content reflects general aspects of the program so that the brochure does not need to be updated regularly. Collin’s Marketing department make changes annually to the template and career statistics such as salary and demand. The program’s director or discipline lead updates content related to program goals and contact information. If there isn’t a big change in the program, then the flyer is updated annually. <https://www.collin.edu/academics/info/CADDInfoSheet.pdf>The construction management career coach is currently creating a student survey system to gather information on employment, internships, students’ experiences, etc. This information will be used to keep our website current and relevant, as well as to integrate feedback into program improvement. |

**B. In the following Program Literature Review Table, document that the elements of information listed on the website and in brochures (current academic calendars, grading policies, course syllabi, program handouts, program tuition costs and additional fees, description of articulation agreements, availability of courses and awards, and local job demand in related fields) were verified for currency, accuracy, relevance, and are readily available to students and the public. Please fill out the table only for this prompt (B.), no analysis is necessary here.**

**Program Literature Review Table**

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| --- | --- | --- | --- | --- |
| Title | Type (i.e. URL, brochure, handout, etc.) | Date of Last Review/Update |  | Responsible Party |
| CADD Program Flyer | Flyer<https://www.collin.edu/academics/info/CADDInfoSheet.pdf> | 8/28/2023 | [x] Current[x] Accurate[x] Relevant[x] Available | Template: Collin’s Marketing DepartmentProgram Goals and Contact Information: Director, Craig Johnson |
| CADD Program Website | Website<https://www.collin.edu/academics/programs/CADD_AAS.html> | 8/28/2023 | [x] Current[x] Accurate[x] Relevant[x] Available | Course Descriptions and Degree Plans: Collin’s Curriculum OfficeProgram Resources: Faculty, Frank Wang |
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[ ] **7. How well are we leveraging partnership resources and building relationships, and how do we know?**

**Partnership Resources: On the table below, list any business, industry, government, college, university, community, and/or consultant partnerships, including internal Collin departments, to advance the program outcomes.**

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**Partnership Resources Table\*\***

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| Partner/Organization | Description | Formal Agreement Duration, if any. | How is it Valuable to the Program? |
| TD Industries | Ask the Experts | Click or tap here to enter text. | Serve on CADD Advisory Committee |
| Raytheon | Ask the Experts | Click or tap here to enter text. | Serve on CADD Advisory Committee |
| Halff | Ask the Experts | Click or tap here to enter text. | Serve on CADD Advisory Committee |
| Childress Engineering Svcs. | Ask the Experts | Click or tap here to enter text. | Serve on CADD Advisory Committee |
| Spiars Engineering | Ask the Experts | Click or tap here to enter text. | Serve on CADD Advisory Committee |
| Palm Harbor Homes | Ask the Experts | Click or tap here to enter text. | Serve on CADD Advisory Committee |
| Simpson Strong-Tie | Ask the Experts | Click or tap here to enter text. | Serve on CADD Advisory Committee |
| Beck | Ask the Experts | Click or tap here to enter text. | Serve on CADD Advisory Committee. Provide co-op opportunities for CADD students |
| Enseo | Co-op opportunities | Click or tap here to enter text. | Provide co-op opportunities for CADD students |

[ ] **8. What professional developmental opportunities add value to your program?**

|  |
| --- |
| Value added professional development for our CADD program consists of a broad range of software specific training, building trades, construction science and technology, codes and specifications along with several entities that aide in keeping us current with trends and methods related to the CADD industry. |

**Provide a List of professional development activities employees have participated in since the last program review.**

 **Employee Resources Table\*\***

|  |  |  |  |
| --- | --- | --- | --- |
| Employee Name | Role in Unit | Professional Development Summary | How is it Valuable to the Unit? |
| Matthew Russell | Department LeadFull-Time Faculty(2020-Present) | AIBD-American Institute of Building Design – Art of Design 2020-2021AIBD-American Institute of Building Design – Minimizing Risk2022-2023AIBD-American Institute of Building Design – Building and Design Software Relevance in the Marketplace2023-2024 | 1. This conference keeps faculty informed on current legislation, pedagogy and current trend in your discipline.
2. Recognized for avoiding design issues in residential construction.
3. Proficient with software used professionally and teaching
 |
| Zhiqiang Wang | Full Time Faculty1. - present)
 | 1. Attended, Solidworks industrial training, Fall 2019
2. Attended, Solidworks industrial training, Fall 2020
3. Attended, Industrial Day training, Spring 2021
4. Attended, “Solidworks Essentials” class, Summer 2022
 | 1-11. These activities help the faculty up to date in the field and explore new teaching techniques to engage students. |
| Shela Crisler | Full Time Faculty2023-Present | 1. Attended, “Solidworks Essentials” class, Summer 2023
 | Click or tap here to enter text. |
| Christopher Picklesimer | Adjunct Faculty | 1. Master of Technology Management

Brigham Young University1. B.S. Design Engineering Technology

Brigham Young UniversityAutodesk University Attendee 2006, 2013-2019 | 1-3. Recognized for product mastery as user and .net developer |
| Craig Chappell | Adjunct Faculty | 1. B.S. Marine Engineering Systems, United States Merchant Marine Academy
2. Autodesk Certified Professional: Revit MEP Mechanical
3. MEP Force Conference
4. – Speaker/Attendee

 2018 - Attendee | 1. Foundation in Ship Engineering System Operations, Maintenance and Design (ABET accredited)
2. Proficient with software used professionally and teaching
3. National conference focused on MEP Design & Construction for networking and learning leading ideas.
 |
| Jacob Priego | Adjunct Faculty | B.S. Information Technology | Click or tap here to enter text. |
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 \*\*For convenience, if providing a listing of professional development activities, this list may be included in this document as an appendix.

[ ] **9. Are facilities, equipment, and funding sufficient to support the program? If not, please explain.**

**[OPTIONAL—Only respond to prompt 9 if you are requesting improved resources for your program. If current facilities and budget are adequate, please proceed to prompt 10.]**

**Make a case with evidence that current deficiencies or potential deficiencies related to facilities, equipment, maintenance, replacement, plans, or budgets pose important barriers to the program or student success.** As part of your response, complete the resource tables, below, to supportyour narrative.

*Possible points to consider:*

* *The useful life of structure, technologies and equipment*
* *Special structural requirements*
* *Anticipated technology changes impacting equipment sooner than usual*

|  |
| --- |
| The CADD program is currently supported with two labs (C137 and C139) in C Building on the Technical Campus. These rooms are equipped with a projector, projection screen, whiteboard, etc. These rooms also have 24 dual monitor computer stations for students and faculty to use during class. Overall, the rooms are functional. We have the latest and greatest computer’s and graphic cards for running virtual reality software. Fortunately, the program’s new location has allowed for an appropriate graphic card for VR software. Additionally, the two labs are connected by a large print room. This room stores most of the program’s equipment (listed below). Over the years, the program has purchased large equipment, so the room is not functional for class projects. The CADD department is now supported by two larger print rooms at the Technical campus to resolve previous space limitations.  |

**Facilities Resources Table\*\***

|  |  |  |  |
| --- | --- | --- | --- |
| Significant Pieces of Equipment | Description (i.e. Special Characteristics) | Meets Needs (Y or N):Current For Next 5 Years | Analysis of Equipment Utilization |
| Stratasys 3D Printer (Model: Uprint SE Plus) | - 25 w x 26 d x 37 h in., 206 lbs- Build size: 8 x 6 x 6 in.- Model material: ABSplus- Support material: SR-30 soluble- Software used: Catalyst EX | Yes | Yes | * Dissolves soluble material when using Stratasys 3D printer

Located in the Chemistry lab due to OSHA regulations |
| Support Cleaning Apparatus | -uses ultrasonic technology -110 VAC | Yes | Yes | * Dissolves soluble material when using Stratasys 3D printer
 |
| 3D Platform 3D Printer (Model: 300 Series Workbench Pro) | - 58" w x 90" d x 83" h, 540 lbs- Build size: 1 m x 1 m x 0.7 m- Model material: multiple- Support material: none- Software used: Simplify3D | Yes | Yes | Same as above 3D printer but use this printer when precision isn’t as important and for larger parts |
| Structure 3D Scanner (Model: Structure Sensor) | - 109mm L x 18mm H x 24mm W, 65g- Depth range: .3m-.5m- Indoor and outdoor- Depth resolution 1280 x 960- Software used: Skanect | Yes | Yes | * Supplement 3D printer

Learn how to reverse engineer a device and display device as a CAD model (faculty is currently learning how to use equipment so it can be integrated in curriculum) |
| Glowforge Laser Printer (Model: Glowforge Plus) | - 38″ d x 20.75″ w x 8.25″ h- Cutting area: 11” d x 19.5 “ w x 2” h- Cut/engrave material: see below <https://glowforge.com/tech-specs> - Software: Glowforge software | Yes | Yes | * Utilized in Basic CADD (DFTG 1309) to support learning in manufacturing in 2D before moving to 3D designs
* Students can learn machining without a large learning curve
* Create customized parts for Robotics club (i.e. gears, robotic arm, etc.)

Create signage, displays, and “swag” for Collin |
| Glowforge Compact Filter | - L410×W265×H430mm, 22 kg- Filtering efficiency: 0.3μm 99.97% - Noise: ＜70dB  | Yes | Yes | * Adds increased safety when using Glowforge laser printer

Removes smoke and fumes from Glowforge unit and return clean and filtered air to the room |
| Dell Laptop (Model: 7400 Business) | - Display: 14”-Processor: 8th Generation Intel® Core™ i7-8665U Processor- OS: Windows 10 Pro 64bit English- Graphics Card: Integrated Intel® UHD 620 Graphics for i7-8665U Processor- Memory: 16 GB | Yes | Yes | * Software all faculty can use to generate toolpaths for 3D printers
* Software all faculty can use for 3D scanners
 |
| iPad Equipment | - iPad Pro Wi-Fi 32GB - Space Gray Part Number: ML1F2LL/AQuantity: 25- Apple Pencil for iPad ProPart Number MK0C2AM/AQuantity: 25- Logitech CREATE Backlit Keyboard Case for iPad Pro – BlackPart Number HJDW2VC/AQuantity: 25- Bretford PowerSync Cart 30 for iPad with Retina display (Lightning)Part Number HB716LL/AQuantity: 2533.5"x26"x44.5", 178 lb | Yes | Yes | * Provides students with experience using CADD programs on tablet
	+ Utilized in Architectural Drafting (DFTG 2328) to upload and share files to cloud

Supplement students during class (i.e. taking notes, reviewing lectures and lab instructions, etc) |
| Measuring Equipment | - 4 Westward 35’ measuring tapes- 4 Bosch laser measures (model GLM 50)- 5 Martin Sports 100’, closed reel measuring tapes (model CR100)- 6 General Tools digital fractional caliper (item # 147) - 20 Alvin 12” triangular architect scale rulers (model 240P)- 1 STRAIGHT-LINE 50’ sonic laser tape (model 6041401) | Yes | Yes | Used in Architectural Drafting courses (DFTG 2328 and DFTG 1317) to measure facilities then draft using Revit software |

**Equipment/Technology Table ($5,000 or more) \*\***

|  |  |  |  |
| --- | --- | --- | --- |
| Current Equipment Item or Budget Amount | Description | Meets Needs (Y or N):Current For Next 5 Years | For any “N”, justify needed equipment or budget change |
| HP Designjet 510 24-in Printer | -Print Resolution: 2400 x 1200 optimized dpi-Technology: HP Thermal Inkjet | Yes | Yes | Used in all courses to learn plotting and sharing technical drawings (i.e. blueprints, orthographic views of 3D part, assembly view of design, etc.) |
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**Financial Resources Table\*\***

|  |  |  |  |
| --- | --- | --- | --- |
| Source of Funds(i.e. college budget, grant, etc.) | Meets Needs (Y or N):Current For Next 5 Years | For any “N”, explain why | For any “N”, identify expected source of additional funds if needed |
| College Budget | Yes | Yes | Click or tap here to enter text. | Click or tap here to enter text. |
| Innovation Challenge | Yes | Yes | Click or tap here to enter text. | Click or tap here to enter text. |
| Perkins Grant | Yes | Yes | Click or tap here to enter text. | Click or tap here to enter text. |
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Section III.Continuous Improvement Plan (CIP)

[ ] **10. How have past Continuous Improvement Plans contributed to success?**

Program Review at Collin College takes place for each unit or program every five years. During the last (fifth) year, the program evaluates the data collected during the CIP process.

**Please describe how you have used your Continuous Improvement Plan (CIP) to make the following improvements to your program over the past 4 years (your last program review can be found on the Program Review Portal):**

* 1. **Program Learning Outcomes/Program Competencies**
	2. **Overall improvements to your program**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Over the past 4 years, the program has primarily used the Continuous Improvement Plan (CIP) as a methodology to identify important learning outcomes in the curriculum and ensure students are mastering these respective topics. If not, the program develops and implements an approach to improve student success. The department has adjusted the expected outcomes over the past 4 years because improvements and changes were made to our program and courses were added along with curriculum changes. Lastly, the CIP has also helped make improvements to the program. Once we met our goals for all four learning outcomes, we adjusted the targeted rates to further increase student success to. Although the learning outcomes have remained the same over the past four years, we have targeted areas to enhance the curriculum to allow students to benefit by bringing their overall success rate up 10% to 15%.

|  |
| --- |
| Program-Level Learning Outcomes |
| Program Learning Outcome 1: | Students will be able to demonstrate entry level competence in creating construction documentation for residential buildings**.** |
| Program Learning Outcome 2: | Students will be able to analyze technical documentation and planning requirements with attention to detail to produce drawings for a commercial building. |
| Program Learning Outcome 3: | Students will be able to prepare technical drawings used in manufacturing. |
| Program Learning Outcome 4: | Students will be able to create a site plan including topography using Civil 3D software.  |

In the past our level of success among the 4 outcomes was based on projected data from our course final project success data. We have increased our expectations for our students in the CADD Program in these areas because of the continued growth within the outcomes to show improvement going from 80% of the students achieving a 70% success rate or higher in the outcomes for the program to 90% of the students achieving 90% or 100% in the outcomes. What once were areas of weaknesses, have been successfully addressed and will continue to be improved through thoughtful planning and discussion within our faculty and advisory committee meetings. Our past CIP Data Tables and our current CIP Data Tables attached (below) reflect our continued growth and goals for improvement.Past CIP Data Table:

|  |  |  |
| --- | --- | --- |
| Program-Level Learning Outcome (e.g. Students will describe the impact of various cultures on American cuisine.) | Assessment Measure(s) and Where Implemented in Curriculum – Description of Instrument(s)/ process(es) used to measure results and indication of where the assessment will be collected in curriculum. (e.g. Essay on Cultural influences on American cuisine in CUIS 1300.) | Targets- Level of Success Expected(e.g. 80% of students score 2.5 or better on rubric for essay on cultures and cuisine.) |
| PLO #1Students will be able to demonstrate entry level competence in creating construction documentation for residential buildings. | Final project for DFTG 2319 - Intermediate Computer-Aided Drafting will require students to produce:1. Architectural drawings of a residential building based on the international building codes, and
2. A 3D CAD model based on the drawings they produced.
 | 80% of the students will score a 70% or higher on the final project for DFTG 2319 - Intermediate Computer-Aided Drafting.  |
| PLO#2Students will be able to analyze technical documentation and planning requirements with attention to detail to produce drawings for a commercial building. | Final Project for DFTG 2328-Architectural Drafting – Commercial will require students to read and analyze technical requirements (including technical drawings and blueprints) given for a commercial building project and to:1. Produce architectural drawings based on the International Building Codes that incorporate required components/systems,
2. Generate a 3D CAD model from the student’s architectural drawings using Building Information Modelling (BIM) software to confirm required clearances, tolerances, placements, etc.
 | 80% of the students will score a 70% or higher on the final project for DFTG 2328 - Architectural Drafting - Commercial. |
| PLO#3Students will be able to prepare technical drawings and plans used in manufacturing. | Final project for DFTG 1372 - SOLIDWORKS Essentials will require students to create technical drawings for 3-D parts and components used in the manufacturing industry. Students will understand the requirements to produce accurate mechanical drawings based on American National Standards Institute (ANSI) standards. Students will utilize building information modeling software to complete their projects. | 80% of the students will score a 70% or higher on the final project for DFTG 1372 -SOLIDWORKS Essentials. |
| PLO#4 Students will be able to create a site plan including topography using Civil 3D software.  | Final project for DFTG 1330 – Civil Drafting will require students to create a site plan drawing that includes topography using Civil 3D software technology. Students will analyze site planning data to create accurate site plans showing contour data as it relates to geographic coordinates. | 80% of the students will score a 70% or higher on the final project for DFTG 1330 - Civil Drafting. |

Current CIP Data Table:

|  |  |  |
| --- | --- | --- |
| Program-Level Learning Outcome (e.g. Students will describe the impact of various cultures on American cuisine.) | Assessment Measure(s) and Where Implemented in Curriculum – Description of Instrument(s)/ process(es) used to measure results and indication of where the assessment will be collected in curriculum. (e.g. Essay on Cultural influences on American cuisine in CUIS 1300.) | Targets- Level of Success Expected(e.g. 80% of students score 2.5 or better on rubric for essay on cultures and cuisine.) |
| PLO #1Students will be able to demonstrate entry level competence in creating construction documentation for residential buildings. | Final project for DFTG 2319 - Intermediate Computer-Aided Drafting will require students to produce:1. Architectural drawings of a residential building based on the international building codes, and
2. A 3D CAD model based on the drawings they produced.
 | 90% of the students will score a 95% or higher on the final project for DFTG 2319 - Intermediate Computer-Aided Drafting.  |
| PLO#2Students will be able to analyze technical documentation and planning requirements with attention to detail to produce drawings for a commercial building. | Final Project for DFTG 2328-Architectural Drafting – Commercial will require students to read and analyze technical requirements (including technical drawings and blueprints) given for a commercial building project and to:1. Produce architectural drawings based on the International Building Codes that incorporate required components/systems,
2. Generate a 3D CAD model from the student’s architectural drawings using Building Information Modelling (BIM) software to confirm required clearances, tolerances, placements, etc.
 | 90% of the students will score a 100% or higher on the final project for DFTG 2328 - Architectural Drafting - Commercial. |
| PLO#3Students will be able to prepare technical drawings and plans used in manufacturing. | Final project for DFTG 1372 - SOLIDWORKS Essentials will require students to create technical drawings for 3-D parts and components used in the manufacturing industry. Students will understand the requirements to produce accurate mechanical drawings based on American National Standards Institute (ANSI) standards. Students will utilize building information modeling software to complete their projects. | 90% of the students will score a 90% or higher on the final project for DFTG 1372 -SOLIDWORKS Essentials. |
| PLO#4 Students will be able to create a site plan including topography using Civil 3D software.  | Final project for DFTG 1330 – Civil Drafting will require students to create a site plan drawing that includes topography using Civil 3D software technology. Students will analyze site planning data to create accurate site plans showing contour data as it relates to geographic coordinates. | 90% of the students will score a 90% or higher on the final project for DFTG 1330 - Civil Drafting. |

 |

[ ] **11. How will we evaluate our success?**

**NOTE: Please contact the institutional effectiveness office if you need assistance filling out the CIP tables.**

As part of the fifth year Program Review, the program should use the observations and data generated by this process along with data from other relevant assessment activities to develop the program’s CIP and an action plan for the next two years. At the conclusion of the first two years, data collected from the first year, plus any other relevant data that was collected in the interim, should be used to build on the accomplishments of those first two years by developing another two-year action plan for the CIP to help the program accomplish the expected outcomes established in its CIP or by implementing one of your other plans.

**Based on the information, analysis, and discussion that have been presented up to this point, summarize the strengths and weaknesses of this program. There should be no surprise issues here! This response should be based on information from prior sections of this document. Describe specific actions the faculty intends to take to capitalize on the strengths, mitigate the weaknesses, improve student success and program learning outcomes.** **Provide the rationale for the expected outcomes chosen for the CIP(s).**

|  |
| --- |
| Throughout this program review, strengths and weaknesses of Collin’s CADD program have been presented. The strengths include:* The program’s mission is to provide students with an education that can be used in many industries.
* The program is designed to prepare students for employment as a CADD drafter. There is national, state, and local demand for CADD drafters. More specifically, the curriculum focuses on architectural, civil, and mechanical specialties. These CADD specialties make up 75% of drafters in the DFW area suggesting Collin’s curriculum meets the needs of local demand.
* The program is dynamic and adapts to the needs of industry. A fundamental component of the program is implementing Advisory Committee recommendations in an efficient manner so that the program is current and meets local industry requirements. This keeps the program current and ensures Collin College is a place where companies recruit.
* Collin’s curriculum is current and competitive when compared to local CADD programs.
* The future of Collin’s CADD program is promising when accessing the program’s current and forecasted student demand. The program has steadily grown over the past 5 years and is expected to grow considerably in 2024 due to the new courses and new course sequence offered at Collin’s technology campus. Additionally, the total number of awards has significantly increased over the past 5 years.
* The program is committed to promoting innovation and integrating near future technologies in the curriculum (i.e. laser printers, 3D printers, Virtual Reality, etc.). Not only does this give students a marketable advantage, it challenges students to develop skills that are still being researched and implemented in industry.
* The department has established five marketable skills that are reiterated throughout the curriculum, so students are well-rounded and can easily express their skillset learned in the program.

One marketable skill of the program is for students to have experience using Computer-Aided Design (CAD) software. Therefore, the program plans on students being able to demonstrate entry level competence in creating construction documentation for residential buildings using AutoCAD software. At the end of semester in DFTG 2319, Intermediate CAD the final project results will determine whether students have mastered the CAD software, AutoCAD, used in DFTG 2319. Entry level competence in creating construction documentation for residential buildings using AutoCAD software will be CIP Expected Outcome #1. The program also has opportunities to for improvement. These opportunities include:* The program previously identified a need to add more of a variety of software used in the program and added REVIT software to be used in the DFTG 2328 course so that students would be proficient in producing commercial building plans using REVIT’s powerful BIM software technology and combine that with the Virtual Reality capabilities offered within multiple courses in the program.
* CIP Expected Outcome #2 is for students to be able to analyze technical documentation and planning requirements with attention to detail to produce drawings for a commercial building. This outcome was chosen for the DFTG 2328 course because the future direction of the program depends on this.
* In DFW there are approximately 3 times as many architectural and civil drafters than mechanical drafters. Previously, the curriculum had a heavier focus on mechanical drafting. The proposed curriculum will keep an element of mechanical drafting in a few courses that cover information on what is needed as a drafter and adds more detailed BIM style elements to the mechanical side using Solidworks software. The program CIP Expected Outcome #3 is that students will be able to prepare technical drawings and plans used in manufacturing in the DFTG 1372 course.
* Another marketable skill for the program is to analyze codes, requirements, and other technical documentation and perform design calculations with attention to detail. The program is adding Civil Drafting (DFTG 1330) as a required course in the AAS degree. Because Civil Drafting will be new to the curriculum and requires the understanding of many local government codes and requirements, the program will test the stated marketable skill in this course using the Final Project rubric. In other words, Expected Outcome #4 will be for students to create a site plan including topography using Civil 3-D software meeting specific code requirements related to industry.
* Additionally, there are no courses in the curriculum focusing on electrical/electronic drafting. This specialty makes up only 15% of drafters in DFW area.
* There is no current methodology to track student employment after graduation, but it is being implemented in 2024. Being able to identify what type of companies are hiring program completers would allow the program to make even better curriculum decisions. Also, the department would be able to better advise students on what awards/degrees to pursue based on their career goals. The CADD department will brainstorm a better process to track this information starting Spring 2024.
* There is opportunity for communication strategies to be improved on. First, the website needs more information on the benefits of each award and the different industries students can pursue (i.e. architecture, mechanical, and civil). The CADD department plans on adding this information to the website in Spring 2024.
* In conclusion, this program review has identified program strengths and weaknesses. The program will continue to provide a current, competitive, and innovative curriculum applicable to different industries and adapt to the needs of local business using recommendations from industry partners. This will ensure CADD program completers are marketable and proficient at skills required in the workplace. Additionally, the program has opportunities for improvement. Barriers in the curriculum and better communication strategies have been identified, and the program believes that mitigating these weaknesses will increase the number of AAS completers. These strengths and weaknesses were used to develop the CIP Expected Outcomes in the next question.
 |

[ ]  **12. Complete the Continuous Improvement Plan (CIP) tables that follow.**

Within the context of the information gleaned in this review process and any other relevant data, identify program priorities for the next two years, **including at least one program learning outcome (or program competency)**, and focus on these priorities to formulate your CIP. You may also add short-term administrative, technological, assessment, resource or professional development outcomes as needed.

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**Table 1. CIP Outcomes, Measures & Targets Table (focus on at least one for the next two years)**

|  |  |  |
| --- | --- | --- |
| **A. Expected Outcomes**Results expected in this unit(e.g. Authorization requests will be completed more quickly; Increase client satisfaction with our services) | **B. Measures**Instrument(s)/process(es) used to measure results(e.g. sign-in sheets, surveys, focus groups, etc.) | **C. Targets**Level of success expected(e.g. 80% approval rating, 10 day faster request turn-around time, etc.) |
| PLO #1Students will be able to demonstrate entry level competence in creating construction documentation for residential buildings. | Final project for DFTG 2319 - Intermediate Computer-Aided Drafting will require students to produce:1. Architectural drawings of a residential building based on the International building codes, and

A 3D CAD model based on the drawings they produced. | 90% of the students will score a 95% or higher on the final project for DFTG 2319 - Intermediate Computer-Aided Drafting. |
| PLO#2Students will be able to analyze technical documentation and planning requirements with attention to detail to produce drawings for a commercial building. | Final Project for DFTG 2328-Architectural Drafting – Commercial will require students to read and analyze technical requirements (including technical drawings and blueprints) given for a commercial building project and to:1. Produce architectural drawings based on the International Building Codes that incorporate required components/systems,

Generate a 3D CAD model from the student’s architectural drawings using Building Information Modelling (BIM) software to confirm required clearances, tolerances, placements, etc. | 90% of the students will score a 95% or higher on the final project for DFTG 2328 - Architectural Drafting - Commercial. |
| PLO#3Students will be able to prepare technical drawings and plans used in manufacturing. | Final project for DFTG 1372 - SOLIDWORKS Essentials will require students to create technical drawings for 3-D parts and components used in the manufacturing industry. Students will understand the requirements to produce accurate mechanical drawings based on American National Standards Institute (ANSI) standards. Students will utilize building information modeling software to complete their projects. | 90% of the students will score a 90% or higher on the final project for DFTG 1372 -SOLIDWORKS Essentials. |
| PLO#4 Students will be able to create a site plan including topography using Civil 3D software. | Final project for DFTG 1330 – Civil Drafting will require students to create a site plan drawing that includes topography using Civil 3D software technology. Students will analyze site planning data to create accurate site plans showing contour data as it relates to geographic coordinates. | 90% of the students will score a 90% or higher on the final project for DFTG 1330 - Civil Drafting. |

**Continuous Improvement Plan**

**Outcomes might not change from year to year. For example, if you have not met previous targets, you may wish to retain the same outcomes. *You must have at least one program learning outcome.* You may also add short-term administrative, technological, assessment, resource or professional development goals, as needed. Choose 1 to 2 outcomes from Table 1 above to focus on over the next two years.**

**A. Outcome(s)** -Results expected in this program (from column A on Table 1 above--e.g. Students will learn how to compare/contrast Conflict and Structural Functional theories; increase student retention in Nursing Program).

**B. Measure(s)** –Instrument(s)s/process(es) used to measure results (e.g. results of essay assignment, test item questions 6 & 7 from final exam, end of term retention rates, etc.).

**C. Target(s)** -Degree of success expected (e.g. 80% success rate, 25 graduates per year, increase retention by 2% etc.).

**D. Action Plan** -Implementation of the action plan will begin during the next academic year. Based on analysis, identify actions to be taken to accomplish outcome. What will you do?
**E. Results Summary** - Summarize the information and data collected in year 1.
**F. Findings** - Explain how the information and data has impacted the expected outcome and program success.
**G. Implementation of Findings** – Describe how you have used or will use your findings and analysis of the data to make program improvements.

 **Table 2. CIP Outcomes 1 & 2**

|  |
| --- |
| 1. **Outcome #1** Students will be able to demonstrate entry level competence in creating construction documentation for residential buildings.
 |
| 1. **Measure (Outcome #1)**

Assess the final construction documents for course DFTG 1309. | 1. **Target (Outcome #1)**

90% will score 95% or higher on their final project. |
| 1. **Action Plan (Outcome #1)**

Next steps would be to integrate the review and mark ups of the pre- submission plan set in DFTG 1309 by Fall 2024. Then, instructors will collect data on exam results.  |
| 1. **Results Summary (Outcome #1) TO BE FILLED OUT IN YEAR 2**
 |
| 1. **Findings (Outcome #1) TO BE FILLED OUT IN YEAR 2**
 |
| 1. **Implementation of Findings (Outcome #1) TO BE FILLED OUT IN YEAR 2**
 |

**Table 2. CIP Outcomes 1 & 2 (continued)**

|  |
| --- |
| 1. **Outcome #2** Click or tap here to enter text.
 |
| 1. **Measure (Outcome #2)**

Click or tap here to enter text. | 1. **Target (Outcome #2)**

Click or tap here to enter text. |
| 1. **Action Plan (Outcome #2)**

Click or tap here to enter text. |
| 1. **Results Summary (Outcome #2) TO BE FILLED OUT IN YEAR 2**
 |
| 1. **Findings (Outcome #2) TO BE FILLED OUT IN YEAR 2**
 |
| 1. **Implementation of Findings (Outcome #2) TO BE FILLED OUT IN YEAR 2**
 |

**What happens next? The Program Review Report Pathway**

1. **Following approval by the Steering Committee,**
* Program Review Reports will be evaluated by the Leadership Team;
* After Leadership Team review, the reports will be posted on the Intranet prior to fall semester;
* At any point prior to Intranet posting, reports may be sent back for additional development by the unit.
1. **Unit responses to the Program Review Steering Committee recommendations received before July 31st will be posted with the Program Review Report.**
2. **Leadership Team members will work with program supervisors to incorporate Program Review findings into planning and activity changes during the next five years.**

**Please make sure to go back and complete your Executive Summary at the start of the Review.**