

Aligning Applied Technical Degrees with Engineering Education: Lessons from the Transfer Summit

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Transfer Summit: A Unique Model for Pathway Alignment Between Technical Degrees and a BS in Mechanical Engineering

For students earning applied technical associates degrees—such as those in mechanical design, mechatronics, or manufacturing technology—the pathway to a four-year engineering degree is often unclear and fragmented. Traditional models of credit evaluation rely on course-by-course comparisons, which fail to account for program models that are focused on a specific applied area within a technical program often resulting in similar learning outcomes. This approach frequently results in limited credit transfer, repeated coursework, and a discouraging experience for motivated students seeking to advance their education [1], [2].

At the same time, workforce demand for engineering graduates with applied skills continues to grow, making the case for improved alignment between technical programs and Bachelor of Science (BS) degrees in engineering more urgent. In response to this challenge, the University of Wisconsin-Platteville (UW-Platteville) launched a collaborative initiative known as the Transfer Summit. This effort sought to rethink transfer practices by evaluating an entire technical program, not just individual courses—creating an opportunity for broader articulation, more meaningful curricular alignment, and a student-centered vision for engineering transfer.

This paper presents a case study of the Transfer Summit’s design, implementation, and outcomes. It offers insight into the barriers that typically hinder technical-to-engineering transfer, and how a whole-program approach—anchored in institutional collaboration and mutual understanding—can lead to transformative results.

Institutional and Program Context

UW-Platteville is a comprehensive four-year university with a rich and established engineering history. The campus was founded as a mining school and has evolved into an ABET-accredited engineering school with eight engineering disciplines.

In addition to its rich history within engineering, UW-Platteville is an access institution reaching students at various academic preparation levels as well as various socio-economic backgrounds. As part of the mission, UW-Platteville strives to provide access to all individuals seeking an engineering degree. In addition to the on-campus presence, the university also offers three engineering programs—mechanical, electrical, and industrial and systems—at a distance. Students complete the lab requirements by attending limited in-person lab sessions while the course’s respective lectures are online.

Originally, the distance engineering model was developed to rely on partner campuses to offer the general education, math and science requirements that the university was not able to offer. UW-Platteville can now offer these course requirements; however, the partnerships that were formed are vital to ensuring future growth within the distance engineering programs.

The partner institutions vary from other four-year schools to Wisconsin Technical College System (WTCS) schools. Each partner brings to the table strengths that aid students in obtaining their engineering degree. For our four-year school partners, the students are often completing an

Associate of Science degree which fulfills the general education, in addition to some of the math and science requirements; some schools offer general engineering courses, such as statics and dynamics. The technical colleges offer a variety of programs from specific applied technical degrees to the Associate of Science degree. These partner institutions assist UW-Platteville in its access mission by allowing a variety of on-ramps into engineering.

For the purpose of the Transfer Summit, UW-Platteville worked with the WTCS schools and one specific applied technical program, the Associate of Applied Science in Mechanical Design Technology (MDT). The WTCS approves programs centrally in such that the programs share program learning outcomes but that each individual school offering the program determines the courses and curriculum needed to meet those programmatic outcomes. This means the programs have variance within their curricula. The MDT program is offered by 11 technical colleges with nine of the technical colleges participating in the Transfer Summit.

The Transfer Summit Design – A Four-Phase Collaborative Model

The Transfer Summit unfolded through a four-phase process designed to align technical associate degrees, specifically the Associate of Applied Science in MDT, with the requirements of a BS in Mechanical Engineering (ME). Each phase intentionally balanced relationship-building, technological support, and structured follow-through—resulting in deeper alignment and more actionable outcomes than traditional course-by-course transfer efforts.

Phase 1: In-Person Workshop – Building Trust and Shared Vision

To start the process, a Transfer Summit workshop was developed. The workshop had several key goals that were staggered throughout a day's worth of activities. Faculty and transfer staff from the technical colleges offering the MDT program as well as the faculty from the BS in ME program were invited to participate in the full-day workshop.

The main goal of the Transfer Summit was relationship building. However, additional goals included building rapport across institutions, gaining a better understanding of each programs' structure and intent, and creating a shared vision for the next phases of the process.

To achieve these goals, the workshop provided a structured approach. The first activities of the day included introductions. Additionally, senior university leadership were asked to provide a foundation about the importance of this work for the students and institution. University leadership also stressed the importance of this endeavor being a collaborative effort in which all parties would have an active voice in the process.

After introductions, each of the technical colleges was asked to speak about its program. Each technical college was asked to share how its program was different from its peers, what audience of students the program served, and what strengths the program provided. Additionally, the technical colleges were asked to share about its instructional structure and program faculty. The university was also asked to share about its program, students, and curriculum.

For many of the faculty in the ME program, this Transfer Summit was their first interaction with faculty and staff from a technical college program. And, while most technical college faculty and staff interact regularly with universities, many had only limited interactions with UW-Platteville. The goal of the sharing was to ensure all parties had a similar understanding of each other's programs.

It became evident during the conversation that the technical college programs were designed to meet industry needs. Also revealed was how unique each of the technical college's programs were even though they shared system-wide approved learning outcomes. This factored into the future phases of the project.

One aspect of the technical college's programs that is unique is the use of a course outcome summary. This document provides detailed learning outcomes of each course often providing hundreds of learning outcomes. While syllabi are used by the technical colleges, these do not necessarily provide the level of depth required by the university to make meaningful transfer decisions.

After establishing shared understanding of the various programs, the participants actively answered six questions to guide future discussions. Participants were asked to spend about 10 minutes at each question in small groups with the goal to mix up groups every move. The activity resembled a world café approach but was modified in that there was no table leader. It was observed that each question had a mix of faculty and staff from the technical colleges and the university at the same time which led to enhanced conversation and understanding.

The questions that participants were asked to ponder and answer included:

1. What criteria should be used when evaluating courses for transfer?
2. What would a seamless and supportive transfer experience look like for an MDT student?
3. MDT programs cover topics such as Design/Mechanics, Materials, and Manufacturing Processes. Which topics are more applied? Which ones require more theoretical background? Why?
4. What elements are needed in a partnership to help students transfer from an MDT program to ME?
5. How does a background in hands-on (or applied) design vs. theoretical analysis influence how a student approaches solving a problem?
6. How can we best support a student transitioning academically and professionally?

Most of the questions were derived to focus on the student and transfers; however, one question was about programmatic similarities and differences. Some themes did arise from these conversations including:

- People and relationships are necessary for the student to transition successfully between institutions.
- Reviewing of courses, programs, and outcomes needs to be more holistic rather than a reliance on the syllabi or course outcomes summary.
- The student's best interest and success should be the primary focus of an articulation agreement.

The question about programmatic similarities and differences was answered with more questions than answers.

During the conversations, it became evident that the MDT program aligned with the ME program's design, manufacturing, and materials area. The courses that were identified as options to fulfill with the MDT degrees included:

- Engineering Modeling and Design – 3 credits
- Statics – 3 credits
- Mechanics of Materials – 4 credits
- Engineering Materials – 3 credits
- Manufacturing Processes – 3 credits
- Design of Machine Elements – 3 credits
- Mechanisms and Machines – 3 credits

Additionally, most MDT programs also satisfied 12-15 credits of General Education courses required by the university. This meant a potential to transfer 34-37 credits of an Associate of Applied Science in MDT to a BS in ME.

At the end of the day, an overview of the next anticipated phases was given with a chance for all parties to contribute to the conversation. Before everyone left, the technical colleges were given one week to opt in or out. For programs opting in, syllabi and course outcomes summaries for all courses within the curriculum were requested. All syllabi and course outcomes summaries for institutions, including the university, were shared in a Microsoft Teams site that all stakeholders had access to.

Phase 2: AI-Enhanced Curriculum Mapping – Surfacing Alignment

Phase 2 involved the use of AI, specifically ChatGPT and CoPilot, to perform an initial review of the curricula for alignment, streamlining traditional manual reviews which are inconsistent and time consuming. Since GPT's rely on large language models, they are great tools for identifying language in existing documents. Syllabi and course outcomes summaries from each technical college were combined into one file. These files were then shared with AI.

Each combined document was then compared to each of the seven identified university courses. The main prompt use was: Please find the following learning outcomes in the attached document. AI returned where in the document the learning outcomes appeared often with additional information. During the initial review using AI it was determined that the assumption that university outcomes were often found in multiple courses was proven to be correct. The mapping supported the conversations of block transfers rather than course-to-course transfers.

One of the main advantages of the AI mapping was the reduced burden on faculty, from both the university and the technical colleges, to find and document each learning outcome. Instead, each faculty was provided with an analysis to show which specific courses needed to be reviewed for which learning outcomes. While this did reduce the faculty workload, AI was also not perfect. AI did fail occasionally. Failures included not identifying all areas that a learning outcome appeared

in and sometimes falsifying information found within documents. These failures did encourage human reviews to be completed prior to sharing with faculty.

AI was also asked to highlight any shortcomings of the courses in relation to the learning outcomes of the university courses. Additionally, it was encouraged to provide options to make alignment better. These aspects were not used in the review as AI was not reliable.

Upon completion of the AI review, each of the seven course areas were combined into one document; for example, each technical college's review for Engineering Modeling and Design course was placed into one document. Additionally, a grid showing where outcomes for each course could be found was created for each technical college program. All documents created for the course mapping were again shared for all stakeholders to see.

Phase 3: Rebuttal & Resolution Meeting – Collaborative Clarification

With the AI mapping complete and shared, all stakeholders were asked to review the mappings and provide "rebuttals" to the mappings; the rebuttals included questions, requests for information, and statements of clarification by both sides. These rebuttals were requested to help guide the conversations at a future resolution meeting.

From the university side, faculty were asked to determine if the university course outcomes were met to satisfy a transfer. The university had guiding principles to adhere to from the college which included acknowledging that the courses may not be identical, that pedagogy would not be considered and that a focus on student success was essential. As faculty reviewed the courses with these guidelines in consideration, they did determine that some courses would transfer without additional questions, some courses had common questions among the programs, and some would need more information. The questions and requests for more information were shared with the technical colleges prior to the meeting. At the same time, technical colleges were reviewing the mappings. Some technical colleges provided additional information and statements to help document the conversations. However, this was not necessarily consistent among all technical colleges. Again, all information was placed on a shared site that all could access.

After all rebuttals were shared, stakeholders from all organizations were invited to participate in a second all-day conversation. The goal of this conversation was to resolve any questions and make final decisions about what may or may not transfer. The first half of the day was focused on the questions that were similar among all the programs, specifically about the Statics and Mechanics of Materials courses. Additionally, during the first half of the day, the university was able to share that one course would not be discussed as it was agreed that MDT graduates would satisfy the Engineering Modeling and Design course as MDT graduates often had more hours as well as more advanced coursework in Modeling and Design than the university required.

Once the common questions were discussed in detail, the conversations became more individualized to each technical college program and university course. To accommodate this, each of the technical college's faculty visited with the university faculty from the various course areas. The reason for the individualized approach was that the technical college programs varied greatly. For instance, university faculty who specialized in manufacturing processes visited with

each of the technical college's faculty to discuss their manufacturing courses in more nuanced details. During these conversations, the university faculty were seeking clarification on curriculum, while the technical college's faculty were advocating for their courses to transfer.

The conversations throughout the entire day continued to build on the relationships that were developed during the first phase. All stakeholders benefited from the conversations as we learned about the institutions as well as their instructional quality. At the end of the day, the university had made many go/no go decisions about how courses would transfer.

While not all decisions were finalized, the vast majority were. When faculty could not make a go/no go decision, the Dean of the college was consulted. The consultation resulted in a learning session with a decision being made at the end.

Phase 4: Drafting & Finalization – Documenting Agreement

Once all go/no go decisions were made, formal articulation agreements were drafted using the standard template provided by the university. The agreements included three parts: the formal articulation language, a table showing how transferred credits fit into the program, and a five-year plan to achieve a BS in ME using the articulation agreement. These agreements were then negotiated by each institution as it was determined that one shared agreement would not work.

The articulation agreements did have a few unique qualities. First, student success was an important aspect of the collaboration. With that in mind, the agreements, while written for five years, had an annual review period where all stakeholders will meet to ensure students are successful. Success criteria, while not finalized, will look at how students are performing in the BS program overall as well as specific courses where the pre-requisites were met by course transfers from the various programs. Degree completion, time to completion, retention, and other factors are likely to be considered; however, these students tend to be nontraditional, working professionals so these criteria may not be the best indicators of student success.

Additionally, the agreements included the opportunity to continue to refine curriculum at the technical college to increase its transferability each year. The university agreed to continue to have conversations about curriculum with each technical college with the goal to align curriculum. The university has been willing to have university faculty aid faculty at the technical colleges by providing sample lab manuals or other requested material.

Once both institutions agreed to the criteria, articulation agreements were signed. Of the nine original participating technical colleges, three have officially signed agreements with several others still in negotiation phases for various reasons.

Challenges and Lessons Learned – A Transparent Reflection

No collaborative articulation effort is without its friction points—particularly when spanning multiple institutions, philosophies, and program structures. While the Transfer Summit was successful in achieving deeper alignment and greater credit transfer, the process revealed a range of logistical, procedural, and interpersonal challenges.

AI Limitations: Automated mapping by AI helped with initial review of the curriculum to find alignment. However, human interaction was still required for validation as sometimes AI missed details or created details that did not exist. Additionally, not all AI models are created equally; therefore, experimenting with various models to determine which model will provide the most accurate results was needed. This included experimenting with how to input data into AI. Asking AI to compare two documents was not as beneficial as asking it to find certain text in a large document.

Free AI tools also have limitations on how many documents may be uploaded each day or month or how many words can be entered into a conversation. Investing in a business license of an AI tool is beneficial for a project similar to this. The license may also protect the data that is being entered which an institution may require. Prior to using AI, it is recommended to check institutional policies associated with AI to ensure that the information being shared with AI is permissible to upload to AI. The use of AI was relatively new for this project which has resulted in many learning opportunities associated with AI.

Curriculum Interpretation and Mismatch: While initial mapping may show learning outcomes in each document, the mapping did not unmask differences in expectations or rigor. For instance, in Statics courses, all topics may have been met, but how calculations were performed may be different (i.e., calculus-based compared to algebraic). These were uncovered through conversations.

The university also found that two faculty teaching the same course may have different expectations to the student learning. In one case, a university faculty member was requiring six labs to be performed while another university faculty member was only requiring four. This created friction as transfer decisions were being made. University faculty also had different expectations as to what mastery of the learning outcomes meant. Many conversations were necessary to come to consensus on these topics.

The technical colleges had detailed course outcome summaries which aided the conversation. The outcomes were aligned from lesson to course to program level. The university had learning outcomes for each course that are aligned to the program; however, the level of detail was not sufficient to align the courses as there was not lesson-level outcomes. The lesson-level outcomes would provide more detail. The university faculty were essential to the lesson-level outcome conversations. In some cases, lecture notes were consulted as resources. However, this lack of documentation created tension with the technical college partners as the course-level learning outcomes appeared to have been met, but maybe not to the depth that was needed by the university.

Prior to mapping, encouraging conversations with university subject matter experts to ensure a shared understanding of the course and lesson learning outcomes that need to be met would be beneficial. Additionally, having those elements well documented for all stakeholders would allow for increased transparency. The university faculty also need to be ready to articulate why a course(s) will or will not transfer to all stakeholders, many of whom are administrators, not technical experts.

Clear Stakeholders and Roles: Early in the conversations, appropriate stakeholders from all institutions need to be identified. Each institution should involve the following stakeholders:

- Faculty of the program. Faculty, from both the university and the technical colleges, are essential to the conversations about the curriculum and even the students. Often, missing faculty caused delays or additional conversations. Additionally, both the university and technical colleges should ensure that the faculty involved with the conversation are the faculty who have knowledge of the topic areas. In several cases, faculty were present, but not necessarily the correct faculty. When the faculty are unavailable, it is essential for the other institutional stakeholders to consult with appropriate faculty prior to large in-person meetings to discuss the documents.
- Transfer personnel. Each institution has different processes regarding transfer agreements. Some institutions involved their transfer agreement personnel each phase of the process while others did not. Having the transfer agreement personnel present or at least an understanding of the transfer agreement process from each institution will alleviate delays and misunderstandings later in the process.
- Decision makers. While the university faculty were primarily making the decisions about transfer, there are decision makers at all institutions that need to be involved. From the university's perspective, the final decision maker regarding transfer decisions should be determined at the start and articulated to all stakeholders. Additionally, each technical college has decision makers. Those individuals may be the transfer personnel or faculty; regardless, they need to be included in the conversation early.

Timeline Drift: This project was encouraged to have a tight timeline to ensure that the project was completed. This tight timeline encouraged decisions to be made. Additionally, the tight timeline had a goal to have this implemented by the start of an academic year for students to learn about and use. For the most part, the timeline was sufficient; however, there was a bit of drift as we were working with many institutions and stakeholders. Navigating the schedules did provide a challenge.

While navigating many schedules was a challenge, drift in the schedule occurred to try to maximize stakeholder involvement. Additionally, drift occurred as we waited on emails to arrive with necessary information. The recommendation is to set clear expectations of the timeline but also to have a buffer built in.

Summer was also a factor that delayed the project. Ensuring that all stakeholders who need to be involved are on contract or are permitted to perform work during the summer is a key conversation to have. Summer is a unique time for academics.

Changing Mindset: One of the greatest challenges was the changing of mindsets by all stakeholder for a variety of reasons. All parties had pre-determine perceptions of their counterparts—some negative and some positive. While laying a common framework for moving forward was a necessity to help overcome the existing mindsets, work still needs to be done on the changing of the mindsets.

For many of the university faculty, there was a perception about the nature of the technical degree programs that these are workforce training programs rather than education programs. This perception led to many questions about depth of knowledge. Similarly, the technical college faculty seemed to perceive the university faculty as inflexible and rigid. Gauthier found through research on faculty perceptions that often faculty are ambivalent about programs unless they have direct experience with the program; thus, their perceptions are pre-conditioned [3]. None of the stakeholders were fully inaccurate in their perceptions, rather all stakeholders needed to have better understanding as to why these perceptions are in place.

The technical colleges do have a mission to support workforce needs within their districts. They tend to be more adaptable and responsive to immediate industry need. The university tends to be more rigid due to accreditation, such as ABET; additionally, the goals of the university program are more than just an engineering degree due to the general education requirements. This creates some inflexibility.

One aspect that did help with the mindset shift was noting that all of the institutions (that is, the technical colleges and the university) are governed by the same regionally accrediting body. This became an important foundational point of the conversations as all institutions are peers. This foundation allowed for the conversations to be pursued more openly with mindset shifting as the institutions learned about each other. Was mindset completely changed? No, but a shift was started.

Lessons Learned

Challenges created great opportunity for learning and improvement. Some key elements that need to be considered are transparency and documentation, sharing a vision, and involving the correct stakeholders.

While transparency was not a challenge in this case, it did become evident how necessary it was to be transparent. Along with transparency was the importance of documentation. Many conversations occurred with many stakeholders often about similar topics. This created confusion at times. Documentation that was specific was necessary. When documenting, having shared decisions documented is also essential.

While building a shared vision was done throughout the project, the vision may not have been fully shared or that one party understood the vision differently than another. This may also have occurred due to not having all the stakeholders involved at every phase.

Having conversations and building relationships helped to overcome the resistance of transferring the MDT into a BS in ME. While university faculty had a better understanding of the faculty and courses at the technical colleges, the resistance to transfer came more from depth of knowledge rather than the type of institution. Not all resistance was eliminated; university faculty are still concerned, rightfully, about student success. This resistance will take time to overcome, and student success will need to be demonstrated with data.

Outcomes and Impact

The Transfer Summit resulted in gains across three key areas: academic alignment, institutional partnerships, and student recruitment.

Increased credit transfer: The main goal of the Transfer Summit was to increase transferability of a technical program into an engineering degree. This was accomplished. In most instances, the university was able to increase the number of overall credits transferring. Generally, this increase was from 12 credits transferring to 30 credits transferring. However, this did vary by institution. The university did learn that some of the technical college programs were able to substitute some coursework, such as Calculus for Technical Math. In these cases, total credit transfer from the technical colleges was greater.

It is important to note that the credits transferring post Transfer Summit were courses that were within the ME program and not only the general education requirements. This increased transfer showed the alignment between the technical program and the engineering degree that students had historically acknowledged.

New institutional relationships: The university had defined relationships with three of the technical colleges participating in the Transfer Summit prior to the start. Of the remaining six technical colleges, the university had existing relationships with three. The Transfer Summit strengthened the relationships with faculty at the technical colleges. Faculty from the technical colleges saw this as providing opportunities to students in their programs. However, administrators from those same technical colleges did not always share that viewpoint. This did create some relationship challenges which is why ensuring all stakeholders are invited to participate in the various stages of the process is essential.

At the end of the project, three agreements were formally signed of which one was a new relationship. An additional five institutions are in the pending phase; however, two of those five have defined relationships with the university. One of those two defined will have their relationship post-Transfer Summit in a different agreement.

The relationships are what drove this project to success as the conversation and collaboration was essential. Continued conversation is essential for the transfer agreements to best support transfer students. As noted earlier, the agreements will be continually reviewed. Additionally, student success will be monitored annually. In addition to the curricular and data elements, the relationships between the institutions is key for recruitment of students and excellence in the student transfer experience. Students benefit by having two institutions partnering to support their transfer process, for example having access to advising at both institutions, through clear pathways [2].

Enhanced Student Opportunities: Students benefit from this work as the curricular review, monitoring of student success, and the transfer agreements provide clear pathways for students. Students know prior to transfer what coursework will transfer; additionally, student success data will aid the students in their decision-making opportunities.

Additionally, the students, in this case non-traditional students who tend to be place-bound due to family and work obligations, have opportunities to pursue education that may previously have been unattainable due to the location restrictions. Students will be able to transfer a technical program into an engineering degree that is offered at a distance. While these students had the ability to enroll in a distance engineering program prior to this project, the Transfer Summit brought awareness (in addition to increased transfer) about the available opportunity.

Discussion – Scaling the Model and Future Directions

The success of the Transfer Summit has prompted considerations for broader implementation and future development by both the university and the technical colleges.

Expand to Other Programs. This model did result in more credits transferring from an applied technical program. The Transfer Summit provided framework for course review that demonstrated that the learning objectives were being met but not in the same way as that of a four-year program. In reviewing the technical college programs, there are many potential engineering technology programs to expand to.

While each program could result in a similar Transfer Summit, time needs to be considered. A minimum of three to four months was needed to perform the work in full. Thus, prior to expanding into all programs, the feasibility of transfer should be reviewed. The university has been looking at criteria to use to determine which programs should be reviewed in the future.

The current metrics for initial feasibility include:

- The number of technical colleges offering the program;
- The number of graduates from the technical program annually;
- The curricular alignment of the technical program into one of the engineering disciplines;
- The capacity of the university program to accept the students; and
- The historic number of students transferring with a particular applied technical degree.

Track Student Success. The university needs to determine the effectiveness of the Transfer Summit with longitudinal student data. While knowing the immediate transfer rates is a starting point, student success is more vital since one of the founding guidelines was rooted in student success. Both parties agree that student success metrics need to be determined as the agreements move into implementation.

Some anticipated data tracking points include grades in courses in which the pre-requisite coursework was transferred, graduation rates, and more. Future conversations are being planned between the university and the technical colleges to ensure that all parties have a shared understanding of what data should be tracked to demonstrate student success.

Additionally, the university needs to be able to identify these students for tracking. While a system of student groups within the Student Information System (SIS) is currently in place, expansion into other programs could complicate this tracking. The university is working internally to better track these students for easier determination of student success. Currently, the admissions team is looking at using field of study within the admissions data in the SIS.

Revisit Agreements. All parties agreed that regular check-ins and updates should be implemented as part of the process. The collaboration will keep the pathways current and responsive as they will include curricular reviews and agreement updates. However, these revisits will take time and coordination. To ensure a successful revisit, the following elements will need to be considered:

- Determination of the agenda items to ensure all needed stakeholders are present;
- Clear and agreed upon understanding of the goals of the revisit; and
- Requested data or other elements to ensure that decision making is possible.

As more programs are reviewed for increased transfer through similar processes, it is essential for the revisits to encourage scalability. For instance, a meeting per program may not be the best methodology. Similarly, an annual meeting may also not be necessary. These determinations will occur as the number of programs increases.

Conclusion

The Transfer Summit demonstrates that transformative articulation between technical programs and four-year engineering degrees is not only possible but impactful when approached through collaboration, transparency, and innovation. By moving beyond traditional course-by-course evaluations to a holistic, program-level framework, this initiative achieved significant outcomes: increased transferable credits, strengthened institutional partnerships, and expanded educational access for nontraditional, place-bound students. These results underscore the importance of designing transfer processes that prioritize student success while meeting workforce demands for applied skills.

A key differentiator of this model was its integration of technology and human expertise. AI-assisted curriculum mapping accelerated the identification of alignment opportunities, reducing faculty workload and enabling data-driven decisions. However, the process reaffirmed that technology cannot replace faculty judgment; rather, it serves as a powerful complement when paired with structured dialogue. This balance of innovation and human insight is essential for scaling similar efforts across disciplines.

The Transfer Summit also revealed critical lessons for future initiatives. Challenges such as mindset shifts, documentation gaps, and timeline coordination highlight the need for early stakeholder engagement, clear role definition, and robust communication strategies. Building trust among institutions—and dismantling misconceptions about program rigor—proved foundational to success. These lessons should inform future articulation efforts, ensuring that collaboration remains at the heart of transfer reform.

Ultimately, the Transfer Summit signals a paradigm shift in how institutions can collaborate to create equitable, efficient, and empowering pathways for students. By embracing innovation, cultivating trust, and committing to continuous improvement, higher education can bridge the gap between applied technical training and advanced engineering education—meeting both student aspirations and industry needs.

References

- [1] *The Engineering Mindset Report: A Vision for Change in Undergraduate Engineering and Engineering Technology Education*, Final Draft, American Society for Engineering Education and National Academy of Engineering, Washington, DC, USA, May 14, 2024.
- [2] X. Wang, *On My Own: The Challenge and Promise of Building Equitable STEM Transfer Pathways*. Cambridge, MA, USA: Harvard Education Press, Apr. 21, 2020.
- [3] T. Gauthier, "A survey of faculty perceptions of community college career and technical education," *Journal of Research in Technical Careers*, vol. 5, no. 2, 2021. [Online]. Available: <https://doi.org/10.9741/2578-2118.1106>