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OFFICE OF THE PRESIDENT
Dr. Joe Schaffer

To: LCCC Board of Trustees
From: Joe Schaffer, President
Date: March 17, 2021
Subject: Approval of an Information Technology Pathway

This past fall we took three years of work on Guided Pathways to scale at LCCC. Although the COVID-19 Pandemic certainly impacted our ability to celebrate this milestone, we are still incredibly optimistic for the future and believe these changes are already having positive impacts on student success.

As part of this work, you approved the creation of seven Pathways at LCCC. One of those Pathways was titled “Tech and Trades” and encompassed our information technology and trades related programs offered by the College. For two reasons, I am recommending the splitting of these elements and the approval of a new Pathway at LCCC: the Information Technology Pathway.

First, part of the Guided Pathways framework is to allow students to enter a pathway and navigate early course offerings to explore careers and choose their program of choice without losing time or credits. These two programmatic areas (trades and technology) are not similar enough to effectively provide this opportunity for students.

Second, both of these areas are places LCCC is focusing on improving and expanding in the future, albeit more focused on the information technology area. Splitting these out will allow that focus to occur, as you can see in the memoranda from Dr. Brown-Herbst, Dean Koslosky and Computer Information Systems (CIS) Coordinator Troy Amick. Their memoranda provide significant detail regarding the new Pathway and compelling rationale for its creation.

Thus, I am advancing my recommendation to the Board of Trustees for your approval of a new pathway at LCCC titled Information Technology Pathway.

Staff Recommendation: That the Board of Trustees approves the creation of a new pathway at LCCC, to be titled the Information Technology Pathway, effective with the start of the 2021/2022 academic year.

MEMORANDUM

Date: March 14, 2021

To: Dr. Joe Schaffer, President

From: Dr. Kari Brown-Herbst, Interim Vice President, Academic Affairs

Cc: President's Cabinet

Re: Information Technology Pathway



The School of Business, Agriculture & Technical Studies has developed a proposal for a new pathway to be named Information Technology. I have reviewed the proposal in its entirety through multiple conversations with Dean Koslosky and Computer Information Systems (CIS) Coordinator Troy Amick. The Academic Standards Committee approved the Information Technology Pathway concept on Friday March 12. I support the introduction of Information Technology to our portfolio of Pathways; the following overview is provided for President's Cabinet consideration of their approval as well.

In our current course catalog there are two AAS degrees and three Credit Diplomas that serve interests in the Information Technology industry. These programs are housed in the Trades & Technical Studies Pathway. This pathway placement necessitates alignment of program sequencing among vastly different disciplines (the industrial trades versus computer information systems) in order to allow for the student exploration and attainable academic paths which are the foundational tenets of our Guided Pathways development. Such alignment will be difficult to maintain as the College responds to the anticipated rapid growth in information technology and develops new credentials to meet the demands that already pressure our industry partners.

The stand-alone Information Technology Pathway will allow for distinct curriculum and Pathway community development that is not attainable with the current positioning of CIS in the Trades & Technical Studies Pathway. Troy has collaborated with several industry partners in the development of Pathway credentials to meet the anticipated expansion in Information Technology careers. Local and regional employers have been instrumental in guiding the curriculum for the envisioned Information Technology Pathway credentials. Once fully implemented the Pathway will reflect modifications to current programs and the addition of three new AAS degrees and seven new Credit Diplomas. This development will take place over the course of the next four academic years.

Budgetary impacts of the Pathway in FY22 will be minimal as the initial changes to programming and course offerings will be carried by existing personnel. The foundational curricular changes including some of the new credentials will be finalized through our procedural steps in order to be published in the 2022 LCCC Course Catalog. Associated expenditures will be considered in the FY23 budgeting process. Approval of the Pathway at this time allows for its inclusion in the Fall 2021 marketing and recruitment materials; an important inclusion that will support Pathway enrollments in Fall 2022. The request Troy presented to the Academic Standards Committee is attached; it offers additional context pertinent to this request for President's Cabinet approval.

MEMORANDUM

Date: March 5, 2021

To: Academic Standards Committee

From: Troy Amick, Coordinator, CIS
Jill Koslosky, Dean, BATS

Re: Information Technology Pathway



Please accept this overview of the proposed Information Technology Pathway as our request for approval.

Laramie County Community College (LCCC) has an opportunity for growth and advancement that no other community college in Wyoming currently can undertake. In the wake of a global pandemic, Information Technology careers have seen minimal impact, and have grown in many regards. Development work that began long before the first case of COVID-19 hit Wyoming will position LCCC to provide training and education to students and industry for many years to come in a growing market. These development efforts had the following goals:

1. Provide students an education in Information Technology that offers a differentiated experience from other schools, with highly valued demonstration of application.
2. Identify and address immediate industry needs in the local and regional markets.
3. Identify and address industry trends and future technologies to bring LCCC to the forefront of Information Technology training.
4. Drive inspired learning through the use of innovative modalities, interactive experiences, and breakthrough technologies.

LCCC's Guided Pathways model has demonstrated that it can provide students with options and avenues for growth that traditional discrete degree programs lack. When Pathways was proposed, and in consideration of our program portfolio at the time, a determination was made that we would limit the number of pathways. This limit necessitated that the assorted Computer Information Systems (CIS) and Cybersecurity (CSEC) programs be included in the Trades and Technical Studies (TTS) pathway. This decision was made with limited information on the impact to the program and our ability to meet student and growth needs for the market. The addition of a CIS/CSEC Program Coordinator in Spring of 2019 (and involvement during the pathway development in Fall of 2019) highlighted many of the struggles of including CIS and CSEC in the TTS path, with accommodations to both programs in an effort to fit them into the TTS path. As a result of this action, while the CIS and CSEC programs are part of the pathway, students cannot easily start in the TTS Pathway and then transition to the CIS or CSEC programs. Additionally, these programs are "hidden" under the TTS umbrella.

In late November of 2019, the CIS/CSEC Program Coordinator was approached by Dr. Clark Harris, Special Assistant, with how best to rectify these issues. It was known at that time that the outlooks for Information Technology (IT) careers in the LCCC market and Wyoming as a whole were to remain strong

in the face of an economic downturn. The Program Coordinator was tasked with identifying the best avenue to “uncover” the IT programs and expand offerings to match current and future market needs. The expectation was that the development and implementation of high-growth potential programs could become part of the long-term strategic goals of the College.

Using regional industry contacts, prior experience in the field, and robust job outlook data from EMSI, O*Net, and the Department of Labor, several programs were identified as holding potential for significant growth and development in the market. The majority of these programs are not currently being offered by any higher education provider in Wyoming, creating significant barriers to entry for Wyoming residents. Purely online programs in the subject matter can lack student immersion, and often require industry experience for acceptance to the programs. Simultaneously, industry partners identified several programs in the offerings at LCCC as lacking relevant content or value. These programs were identified for hiatus or deactivated status.

Concurrent to this development effort, the CIS and CSEC programs witnessed rapid growth as an immediate indicator of their value and potential. This rapid growth justified the addition of a full-time faculty member to the program, less than a year after the Program Coordinator position had been added. Prior to the impact to enrollment of the pandemic, forecasts in enrollment and growth indicated that the program would need an additional 1-2 faculty members within 3 years, without additional offerings. These factors led to the decision to actively pursue an 8th Pathway for LCCC, in the form of an Information Technology Pathway.

The arrival of the pandemic in March of 2020 altered many trajectories and plans for the future of the school and programs. One massive shift was the sudden and substantial increase in demand for qualified and educated IT professionals. In a time when many employers were struggling and employees found themselves furloughed or unemployed, CIS/CSEC graduates were in high demand and low availability. Growth projections in these careers exceeds 200% in some fields over the next 10 years, with thousands of new positions anticipated.

Occupation Data, 2020Q3

Region	Employment Type	Information Technology (CTE Cluster) (95-0150)							Computer and Information Analysts (15-1210)						
		Total 5 Year Forecast Demand	5 Year Growth Demand	Total 10 Year Forecast Demand	10 Year Growth Demand	Ann 10th %ile Wage ¹	Ann 25th %ile Wage ¹	Ann 50th %ile Wage ¹	Total 5 Year Forecast Demand	5 Year Growth Demand	Total 10 Year Forecast Demand	10 Year Growth Demand	Ann 10th %ile Wage ¹	Ann 25th %ile Wage ¹	Ann 50th %ile Wage ¹
Researched LCCC Market Region	Total Employment	13,641	2,475	27,600	5,221	\$47,300	\$65,200	\$88,400	1,575	291	3,190	615	\$61,600	\$74,200	\$90,400
Wyoming (+75 mile radius)	Total Employment	46,147	9,969	93,819	21,268	\$41,000	\$58,000	\$81,300	4,767	1,034	9,692	2,205	\$50,900	\$64,500	\$82,000
USA	Total Employment	2,038,105	298,051	4,101,691	616,014	\$44,500	\$62,800	\$88,300	326,117	47,721	656,211	98,545	\$55,500	\$70,900	\$92,500

Source: JobsEQ®
 Note: Figures may not sum due to rounding.
 Employment data as of 2020Q3. Demand data reflect place-of-work employment; retirements reflect place-of-residence data. Employment and unemployment data represent a four-quarter moving average.
 1. Wage data are as of 2019 and represent the average for all Covered Employment.

EMSI, JobsEQ data, IT CTE cluster, 12/20

In late 2019 and early 2020, Visionary Broadband, Lunavi, Blue FCU, and Union Wireless began actively reaching out to LCCC to identify the method in which they were going to plan to overcome employment

gaps to meet their own growth plans. Needs in Broadband Fiber Optics, Virtualization and Cloud Administrators, Applied Data Analytics, and Applied Programming were identified as immediate and pressing. The lack of options in 4-year degree offerings in Wyoming and the industry was highlighted repeatedly by our partners.

These conditions created the prime opportunity to actively pursue an 8th Pathway, and resolve the issues identified during the Pathway development process. Growth of the program prior to the pandemic indicated interest and viability that were potentially stifled by the inclusion in the TTS Pathway yet remained strong in the enrollment downturn. In early December 2020, the Dean of BATS, in recognition of the impact of obscuring the CIS/CSEC programs in TTS and the job growth potentials, requested a formal proposal of potential programs and such a pathway from the CIS/CSEC Program Coordinator.

The proposal was developed in December 2020 and January 2021, utilizing gathered industry feedback from major market employers and potential market employers that were under-employed. This feedback was correlated to information from JobsEQ, O-Net, EMSI, and the Department of Labor to validate potential of the new programs. Growth outlook data for the market was cross-referenced to outlook data for the state and neighboring states, as well as the nation, to garner an indication of needs to come. Employers such as Meridian Trust FCU, ANB Bank, Echostar, Magpul, Blue FCU, Lunavi, Microsoft, Centurylink, Charter Communications, Visionary Broadband, and others were tapped for input and opportunity to guide the program futures. Comparator programs from Pima Community College, Aims Community College, CSU Global, Purdue Global, Maricopa Community College, Arapahoe Community College and more were leveraged in program offering selections and designs.

In early February 2021, a 60-page proposal with 126-pages of supporting research and data was presented to academic leadership. Following three (3) weeks of review and alignment, a decision was reached to move forward with the proposal and begin the process of delivery for Academic Standards. This alignment worked to validate the research and overall impact of the pathway proposal and calibrate timelines with known capabilities.

The proposal includes the creation of an Information Technology Pathway with changes to the CIS and CSEC AAS degrees, each of the associated Credit Diplomas, and the addition of three (3) new AAS degrees and seven (7) new credit diplomas. The proposal also outlines the potential for a BAS program introduction. The core actions of the proposal are to complete between Fall 2021 and Spring 2025, and include:

- Develop the Information Technology Pathway, providing for a common first year for all IT students, regardless of discrete degree. *Spring 2021*
- Revise the existing Computer Information Systems AAS degree into a new Pathway degree. *Spring 2021 name change, Fall 2021 program modification*
- Revise the Cybersecurity AAS degree to match the new Pathway. *Fall 2021 program modification; Active Fall 2022*
- Revise the Datacenter Technician credit diploma to match the more industry recognized title of Datacenter Specialist and add a commonly requested course. *Fall 2021 program modification; Active Fall 2022*

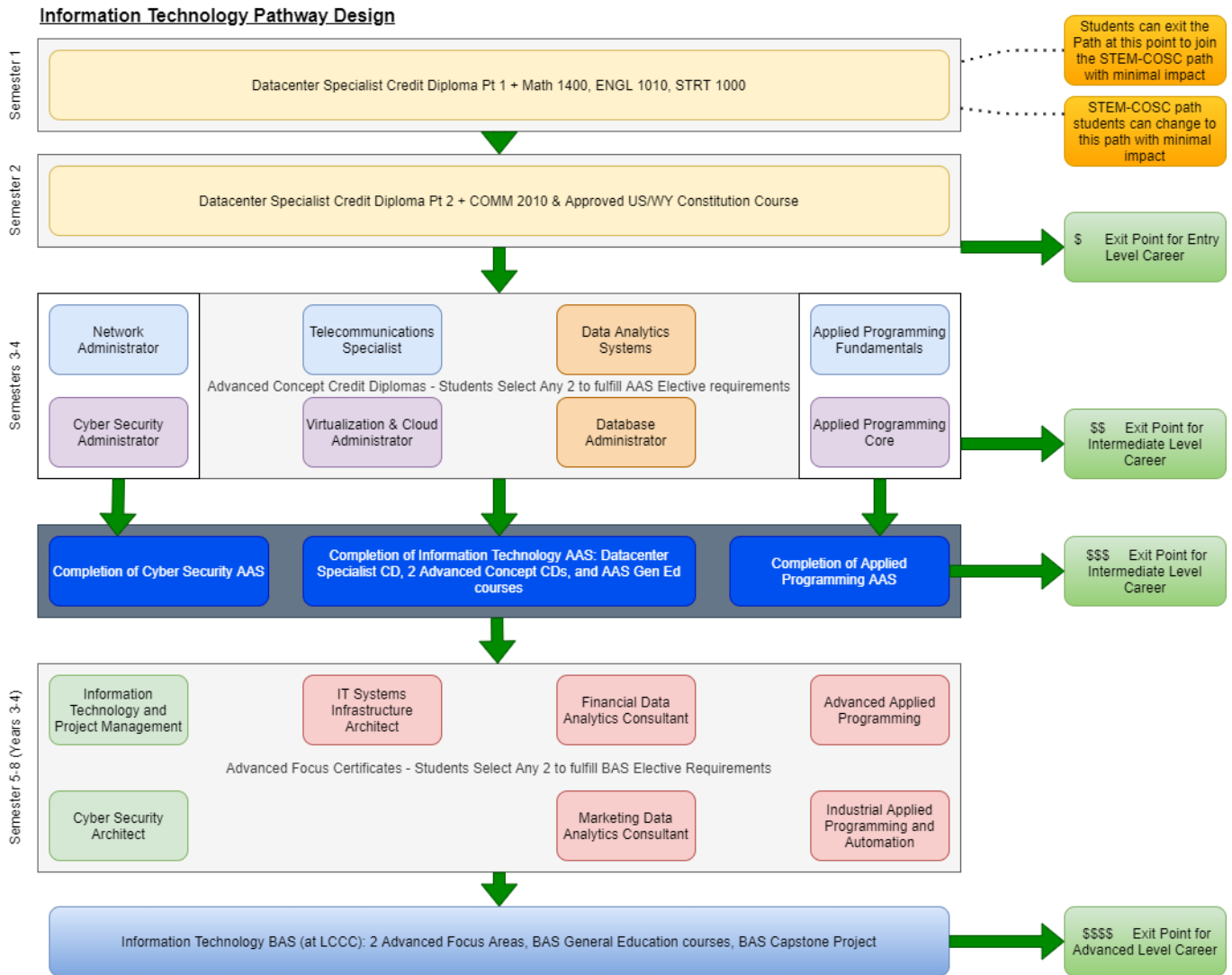
- Revise the Network Administrator credit diploma to align with the new pathway sequencing. *Fall 2021 program modification; Active Fall 2022*
- Remove the Cybersecurity Professional credit diploma from hiatus, align it to the discrete degree and pathway, and rename it to Cybersecurity Administrator. *Fall 2021 program modification; Active Fall 2022*
- Deactivate the Systems Administrator credit diploma to evaluate rigor and realign as a potential 3000/4000 level series of courses. *Fall 2021 program modification; Active Fall 2022*
- Develop and implement a new Virtualization and Cloud Administrator credit diploma. *Spring 2021 NOI and Development, Fall 2022 catalog*
- Develop and implement a new Telecommunications Specialist credit diploma *Spring 2021 NOI and Development, Fall 2022 catalog*
- Develop and implement a new Data Analytics AAS *Spring 2021 NOI and Development, Fall 2022 catalog*
- Develop and implement a new Applied Data Analytics credit diploma *Spring 2021 NOI and Development, Fall 2022 catalog*
- Develop and implement a new Applied Programming AAS. *Spring 2022 NOI and Development, Fall 2023 catalog*
- Develop and implement a new Applied Programming Fundamentals credit diploma. *Spring 2022 NOI and Development, Fall 2023 catalog*
- Develop and implement a new Applied Programming Core credit diploma. *Spring 2022 NOI and Development, Fall 2023 catalog*
- Develop and implement a new Database Administrator AAS. *Spring 2023 NOI and Development, Fall 2024 catalog*
- Develop and implement a new Database Administrator credit diploma. *Spring 2023 NOI and Development, Fall 2024 catalog*

In addition to this dearth of new programs, a plan was developed for the introduction of an Information Technology BAS, and the associated credit diplomas and courses therein.

The scope of this expansion necessitates growth in a staged and incremental approach. Releasing too many new courses and programs at once could result in student base dilution, before the marketing and program reputations are able to compensate and drive market outreach. As such, the proposal was developed for completion in multiple stages, with major milestones in each Fall from 2021 to 2025 and beyond. The first of these milestones is to shift the CIS AAS in name only for the Fall 2021 semester. This renaming to Associate of Applied Science, Information Technology provides an opportunity to initiate marketing plans and drive consumer interest prior to the large-scale launch in Fall of 2022. This also provides a window of execution for the assorted course and program developments and modifications required, while building enthusiasm. The visual on page 8 details these changes and the associated actions.

The incremental approach also provides the school with *stop-and-hold* or *acceleration* points. As industry needs or student demand shift from projections, the design allows us to shift to match without over- or under-committing resources. Finally, the staged approach ensures we can meet a high-quality of product to present to students from initiation.

The new Pathway provides a common first-year for all students, including STRT 1000 and required general education courses, before diverging in several discrete degrees. Some degrees require a decision (choice point) after the second semester, while others hold the choice for the end of the third semester. Additionally, some of the discrete degrees can be “abandoned” and the student returns to the Pathway with minimal or no lost effort. The following graphic and the program mapping on Page 7 detail these choices for the students.



An undertaking of this size and magnitude does contain multiple strategic needs. These include specific staffing needs, unique start-up costs, facility considerations, and more. The specific staffing needs are:

- *Shift of the Program Coordinator position to a Program Director position.* The current coordinator position fits the Director qualification in the staffing matrix, and the need for project and recruitment execution during the summer months necessitates the shift from a 10 to 12-months position. This change has been proposed and is under consideration to start July 1, 2021.
- *Addition of a Pathway Coordinator, Fiscal 2023*

- *Addition of 1 Faculty-A position to support program growth and Fall 22 additions. Fiscal 2023*
- *Addition of 2 faculty-A positions to support AAS program growth and addition of BAS programs. Fiscal 2024.*
- *Addition of adjunct faculty. As needed.*

Unique startup costs and facility needs are tied hand-in-hand. The existing facility is likely sufficient in space to support the program for 5-7 years. However, rapid growth of this sort is untested, and the facility is showing age and capacity concerns already. Most equipment in the facility is repurposed from ITS materials destined for recycling and is not indicative of a modern technical training facility. The facility itself also does not reflect this, with décor and support systems designed for technology 25 years ago. These unique start-up costs for this proposal are minimal (\$4500) and are allocated directly for the marketing and student engagement overhaul of the existing spaces.

As with the projects and development that led to this growth and plan, external financial support will be leveraged heavily to accomplish the growth and improvement goals. Industry partnerships such as Microsoft, Blue FCU, Lunavi and Holly Frontier are supplying equipment and scholarships for students. Federal grant opportunities such as Perkins, CARES, NSF, and more have been leveraged and will continue to be leveraged to improve facility capabilities. The program has earned a reputation of finding a way to evolve without burden to the school and will continue to drive forth in that manner. Currently, there is exploration into additional NSF grant applications, as well as leveraging potential opportunities as a result of the Heroes Act passed in March 2021.

Overall, the addition of the 8th Pathway, Information Technology, rectifies an oversight in the original Guided Pathways design and positions LCCC into a growth market. This pathway addition bears the potential to establish LCCC as a premier leader in IT training in Wyoming and the region, with future growth limited only by our ability to market and respond to industry needs. A diverse Wyoming economy will be borne on the back of technology, and LCCC is poised to be on the forefront of providing the workforce of tomorrow.

		PROPOSED IT PATHWAY				
		CURRENT COMPUTER INFORMATION SYSTEMS	PATHWAY AAS	CYBERSECURITY AAS	DATA ANALYTICS AAS	APPLIED PROGRAMMING AAS
SEMESTER 1	^CIS 1 Datacenter Technician CD (16)	IT 1 (16)				
SEMESTER 2	^^CIS 2 CIS Network Administrator (CCNA) CD (18)	IT 2 (18) Datacenter Specialist CD complete				
SEMESTER 3	CIS 3 (18) OR CYBER 3 (17)	IT 3 (13-16) CHOICE CD	CYBER 1 (16) CCNA CD	DATA 1 (17)	APPLIED 1 (16) Programming Fundamentals CD	
SEMESTER 4	CIS 4 (17) OR CYBER 4 (18)	IT 4 (16) CHOICE CD	CYBER 2 (16) Cyber Administrator CD	DATA 2 (15)	APPLIED 2 (16) Programming Core CD	
CREDITS	69	69	63-66	66	66	66
Credentials Earned	Computer Information Systems AAS Datacenter Technician CD CIS - Network Administrator (CCNA) CD CIS - Systems Administrator CD	Cybersecurity AAS Datacenter Technician CD CIS - Network Administrator (CCNA) CD	Datacenter Specialist CD Information Technology AAS 1 or 2 choice CDs	Datacenter Specialist CD Cybersecurity AAS CCNA CD Cybersecurity Administrator CD	Datacenter Specialist CD Data Analytics AAS Data Analytics Systems Administrator CD	Datacenter Specialist CD Applied Programming AAS Applied Programming Fundamentals CD Applied Programming Core CD
		IT 3 CHOICE CDs CCNA (16) Database Administrator (first half) (13) (FA24) Programming Fundamentals (16) Telecommunications Specialist (16)				
		IT 4 CHOICE CDs Cyber Security Administrator (16) Database Administrator (second half) (16) (SP25) Virtualization and Cloud Administrator (16)				

