Advisory Committee Fall 2024 Minutes
Automation and Electrical Technology
October 7, 2024, Noon
Vernon College Skills Training Center, Multipurpose room 400

Members Present	**Vernon College Faculty/Staff**
Ken Theimer	Bettye Hutchins
Dakota Patterson	Dr. Mark Holcomb
Bobby Ayala	Zachary Nguyen-Moore
Kelly Easter	Mark Cisneros
Randy Brooks	
Ian Bentley	
Matt Neal	

Members Not Present
Gordon Drake

Dr. Holcomb started by welcoming the committee. Bettye Hutchins thanked the committee members for their service, reviewed the purpose and importance of input from local industry professionals participation. Bettye asked for volunteers or nominations for vice-chair and recorder.

Chair: Kyle Stewart
(*Chair no longer member; Dr. Holcomb acted as chair in his place)
Vice-Chair: Ken Theimer
Recorder: Dakota Patterson

Election of Vice-Chair, and Recorder ....Bettye Hutchins

Chair……………………………………………………………………... Gordon Drake

Old Business/Continuing Business...Gordon Drake

New Business ....Gordon Drake

A. <u>Review program outcomes</u>

Dr. Holcomb reviewed the following program outcomes. The changes in verbiage for outcome 6 may be seen highlighted below. Dr. Holcomb also reviewed the addition of RBTC 2445 (to be voted on later in the agenda) and the program outcomes that would be tied to it (1,3,5,6).

Program outcomes

1. Apply basic AC/DC electrical and electronic fundamentals to the wire, integrate, and troubleshoot electrical devices and systems. Devices are used in industrial environments to increase the efficiency of production.
2. Incorporate local, state, and federal safety requirements and guidelines in the design of electrical systems. Automate different manufacturing processes.
3. Interpret schematics and wiring diagrams and recognize the sequence of operations occurring in automated electrical systems.

4. Develop programs, calibrate devices, and tune PID parameters for various types of process control systems, including such as pressure, level, flow, and temperature control systems.
5. Calculate requirements of electrical systems utilized in commercial, industrial, and high voltage distribution and transmission applications.
6. Design, program, integrate, and troubleshoot automation control devices such as PLC (Programmable Logic Controllers), PID (Proportional Integral Derivative) Controllers, and PAC (Programmable Automation Controllers), Robotic Units (work cells)

Program Outcomes Mapped to courses

Program: Industrial Automation Systems							
Award: Industrial Automation Systems Associate in Applied Science (AAS) Degree						Credential: Associate in Applied Science (AAS) Degree	
Cip: 15.0303							
LIST OF ALL COURSES REQUIRED AND OUTCOMES							
OUTCOMES						Course Number	Course Title
1	2	3	4	5	6		
						LEAD 1100*	Workforce Development with Critical Thinking
X					X	ITNW 1325*	Fundamentals of Networking Technologies
X		X	X		X	ELPT 1411*	Basic Electrical Theory
X	X	X		X		HART 1401*	Basic Electricity for HVAC
X	X	X				CBFM 2317	Mechanical Maintenance
X		X	X		X	ELMT 2433*	Industrial Electronics
X	X	X		X		ELPT 1441*	Motor Control
X	X	X		X		ELPT 1457*	Industrial Wiring
	X	X		X		ELPT 2339*	Electrical Power Distribution
		X	X		X	ELPT 2355	Programmable Logic Controllers II
X	X	X				EEIR 2366	Practicum (or Field Experience) - Electrical/Electronics Equipment Installation and Repairer, General
X	X	X	X		X	ELPT 2419*	Programmable Logic Controllers I
X	X	X		X		ELPT 2443*	Electrical Systems Design
X		X	X		X	ELPT 2449	Industrial Automation
X					X	RBTC 1405 *	Robotic Fundamentals
X			X	x		ELPT 1321*	Electrical Safety and Tools
X		X		X		RBTC 2445	Robotic Application, Set-up, and Testing
						6. Design, program, integrate, and troubleshoot automation control devices such as PLC (Programmable Logic Controllers), PID (Proportional Integral Derivative) Controllers, and PAC (Programmable Automation Controllers) Robotic Units (work cells)	

			5. Calculate requirements of electrical systems utilized in commercial, industrial, and high voltage distribution and transmission applications.
			4. Develop programs, calibrate devices, and tune PID parameters for various types of process control systems, including such as pressure, level, flow, and temperature control systems.
		3. Interpret schematics and wiring diagrams and recognize the sequence of operations occurring in automated electrical systems.	
	2. Incorporate local, state, and federal safety requirements and guidelines in the design of electrical systems. Automate different manufacturing processes.		
1. Apply basic AC/DC electrical and electronic fundamentals to the wire, integrate, and troubleshoot electrical devices and systems. Devices are used in industrial environments to increase the efficiency of production.			

1. **Approve program outcomes**

After review of the program outcomes, Dr. Holcomb asked for a motion to approve the program outcomes with updates presented.
Randy Brooks made a motion to approve the program outcomes as presented.
Ken Theimer seconded the motion.
The motion passed and the committee approved the program outcomes as presented.
Dr. Holcomb moved on to assessment methods.

B. **Assessment methods and results**
Dr. Holcomb reviewed the assessment methods below.

INDUSTRIAL AUTOMATION SYSTEMS CAPSTONE EXPERIENCE GRADING RUBRIC
STUDENT: _____ STUDENT ID: _____

Topic	Target = 5 Acceptable = 4 Borderline = 3 Unacceptable = 2 Incomplete = 1	5	4	3	2	1
Resume	The resume was clear, concise, and fully descriptive of the student's attributes.					
Programmable Logic (Automation) Control	The student will perform the 3 tasks to demonstrate knowledge of the circuit construction reading program to feature advanced programming on the Allen-Bradley Compact Logic Controller to assess learning in automated controls. **(PO1, PO3, PO5,)**					
Task One: Wiring	Did the wiring meet operational and quality standards set by the instructor? (Able to integrate Mechanical devices, solid-state devices, and various loads (outputs) correctly)					
Task Two: Programming	Did the programming meet the scenario as described in the capstone project?					
Task Three: Editing Program	Did the programmer edit the program to allow easy understanding for non-technical observers?					
Task Three: PID Control	Did the student follow assignment instructions properly and completed all tasking for adjustment of the PID loop?					
Task four: Adjustable	Using an Allen-Bradley Flex 40, students will develop an operational program that utilizes Scaled parameter Analog signal Control. **(PO1, PO3, PO4, PO5)**					

Frequency Drive						
Task Five: Wiring	Was wiring completed with meeting Quality standards and functioning properly?					
Task Two: Advanced Parameter Setting	Were all parameters programmed correctly so the drive integrated properly with PLC to perform tasks?					
Motor Control Troubleshooting	Following proper safety procedures, students will use the schematic wiring diagram and digital multimeter to locate the fault. **(PO1, PO3, PO4, PO5)**					
Task One: Fault One	Did the student use a systematic approach and locate the fault in the control circuit?					
Task Two: Fault Two	Did the student use a systematic approach and locate the fault in the control circuit?					
Task Three: Fault Three	Did the student use a systematic approach and locate the fault in the control circuit?					
Task Four: Fault Four	Did the student use a systematic approach and locate the fault in the control circuit?					
Electrical Design Calculation	Students calculated per National Electric Code (NEC) sizing of conductor, overcurrent protection, and overload protection for motor circuit. **(PO1, PO2, PO3, PO5)**					
Using Solidworks, Design a feeder circuit for 3 motors						
Task one: One-line diagram	Student created a one-wiring diagram detailing the motor circuits as per the calculated values from the Electrical Design.					
Task two: Construct control circuits	Student created a motor control circuit as instructed in the assigned Scenario.					
Task three: Advanced Electrical calculations	The student provided advanced calculations for adjusted Power Correction Factor, and Short Circuit Analysis rating at instructor-selected locations.					
Task four:	The student will be evaluated using the results of the midterm and final exam from ELPT 2443, Electrical Systems Design					
	Instructor Notes:					
Total (80)						

MASTERY OF PROGRAM CONTENT: 80 to 76
PROFICIENT AT PROGRAM CONTENT: 75 to 70
COMPETENT AT PROGRAM CONTENT: 69 to 64
UNSATISFACTORY SCORE: Below 64

1. **Approve assessment methods and results**

Dr. Holcomb asked the committee for a motion to approve the assessment methods and results as presented.
Ken Theimer made a motion to approve the assessment methods and results as presented.
Kelly Easter seconded the motion.
The motion passed and the committee approved the assessment methods as presented.
Dr. Holcomb then moved on to workplace competency.

C. **Workplace competency (course or exam)**
Dr. Holcomb reviewed the following information with the committee.

Verification of workplace competencies:

Level 1 Certificate: ELPT 2443 – Electrical Systems Design
A.A.S: ELPT 2443 - Electrical Systems Design

Program Outcome	Number of students who took the course or licensure exam	Results per student	Use of results
1.	20	20 PASSED	No Action
2.	20	20 PASSED	No Action
3.	20	20 PASSED	Add Electrical Solidwork schematic software for students to develop diagrams and add sketching circuits prior to wiring exercising
4.	20	20 PASSED	Development of more instrumentation performance labs Completed
5.	20	20 PASSED	Need for additional Application Math training for complex equations Completed
6.	20	20 PASSED	More training on communication issues On Going

1. **Approval of workplace competency**

Dr. Holcomb asked the committee if any one had questions or recommendations. Dr. Holcomb then asked for a motion to approve the workplace competency as presented.
Ken Theimer made a motion to approve the workplace competency as presented.
Bobby Ayala seconded the motion.
The motion passed and the committee approved the workplace competency as presented.

D. Program Specific Accreditation Information and Requirements (if applicable)

N/A

E. Review program curriculum/courses/degree plans

Dr. Holcomb began by proposing a name change for the program and explained his justification for said change. Dr. Holcomb next reviewed updates to the Level 1 Certificates both basic and advanced, A.A.S. degree, and Occupational Skills Rewards. Dr. Holcomb then discussed the addition of RBTC 2445, the replacement of Macroeconomics with Art Appreciation in the gen. ed. requirement in the A.A.S. degree plan, and the addition of the OSHA 10 Outreach certification to ELPT 1321.

Name Change **Electrical Engineering Technology,**

Certificate Level 1: **Electrical Engineering Technology Basic 32 wks**

Electrical Engineering Technology, Change CIP to 46.0301 (formerly Industrial Automation),

ELPT 1411, Basic Electrical Theory(A)
 or, or
 HART 1401, Basic Electricity for HVAC
 LEAD 1100, Workforce Development w/Critical Thinking

 ELPT 1441, Motor Control
 ELPT 2319, Programmable Logic Controllers I
 ELPT 1321, Introduction to Electrical Safety and Tools
 RBTC 1405, Robotic Fundamentals
 ELPT 1457, Industrial Wiring   Total Hrs: 23

Verification of Wkpl Comp: ELPT 1457, Industrial Wiring

Certificate Level 1: **Electrical Engineering <mark>Technology</mark> Advanced 32 w**
ELPT 2339, Electrical Power Distribution
ELPT 2443, Electrical Systems Design
ELMT 2433, Industrial Electronics
ELPT 2355 or, Programmable Logic Controllers II
ELPT 2449, Industrial Automation
RBTC 2445, Robotic Application, Set-up, and Testing   Total Hrs: 22

Verification of Wkpl Comp: ELPT 2443, ,

Electrical Engineering Technology, AAS

General Education Courses
ENGL 1301, Comp I
GOVT 2305, Fed Govt
MATH 1332 , Contem Math
SPCH 1315, Public Spk
ART 1301, Art App

ELPT 1411, Basic Electrical Theory(A)
or,
HART 1401, Basic Electricity for HVAC
ELPT 1321, Introduction to Electrical Safety and Tools
ELMT 2433, Industrial Electronics
ELPT 1441, Motor Control
ELPT 1457, Industrial Wiring
LEAD 1100, Workforce Development w/Critical Thinking
ELPT 2339, Electrical Power Distribution
ELPT 2355, Programmable Logic Controllers II
EEIR 2366, Practicum
ELPT 2319, Programmable Logic Controllers I
ELPT 2443, Electrical Systems Design
ELPT 2449, Industrial Automation
RBTC 1405, Robotic Fundamentals
MFGT2459, Industrial Automation II
RBTC 2445, Robotic Application, Set-up, and Testing

Verification of Wkpl Comp:
 ELPT 2443

Occupational Skills Awards: Basic Electrical
ELPT 1411, Basic Elec Theory,
or, ,
HART 1401, Basic Elec Theory for HVAC,
ELPT 1321, Introduction to Electrical Safety and Tools,

ELPT 1441, Motor Controls,

Occupational Skills Award: Robotics,
ELPT 1411, Basic Electrical Theory(A)
OR
HART 1401, Basic Elec Theory for HVAC
RBTC 2445, Robotic Application, Set-up, and Testing
RBTC 1405, Robotic Fundamentals

Occupational Skill Awards: PLCs
ELPT 1411, Basic Elec Theory
or,
HART 1401, Basic Elec Theory for HVAC
ELPT 2319, Programmable Logic Controllers I
ELPT 2355, Programmable Logic Controllers II

Industry Credentials

OSHA 10 Outreach certifies individual skills against national standards. 360training.com, Inc. is accredited by the International Accreditors for Continuing Education and Training (IACET) and offers IACET CEUs for its learning events that comply with the ANSI/IACET Continuing Education and Training Standard. IACET is recognized internationally as a standard development organization and accrediting body that promotes the quality of continuing education and training. Proposed OSHA credential added to ELPT 1321 of $60. (10 Hours)

Students learn OSHA's best practices for reducing accidents and injuries, including fall protection, emergency evacuation plans, and the use of personal protective equipment.

Students will also learn about the major hazards you might encounter in general industry work and solutions for recognizing, controlling, and protecting against them. This includes flammable and combustible substances, chemical and electrical hazards, and fire prevention.

NFPA 70E (2021): STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE

National Fire Protection Association – NFPA 70E covers standards for electrical safety in the workplace. Throughout this course, you will review the relationship between the Occupational Safety and Health Administration (OSHA) and NFPA 70E. You will also review general NFPA 70E standards and the importance of these standards in maintaining your safety and the safety of others in the workplace.
The purpose of NFPA 70E is to provide a working area for employees that is safe from the risk associated with the use of electricity in the workplace. Using an appropriate mix of risk controls from the hierarchy of risk control methods. Proposed OSHA credential added to ELPT 2443 of $45. (4 Hours)

Course descriptions and learning outcomes are provided as a separate document.

1. **Approve program revisions (if applicable, if no revisions skip)**

After review, Dr. Holcomb asked if there were any additional questions or suggestions. With no further discussion, Dr. Holcomb asked for a motion to approve all changes proposed above.
Matt Neal made a motion to approve program revisions with all proposed updates.
Ken Theimer seconded the motion.
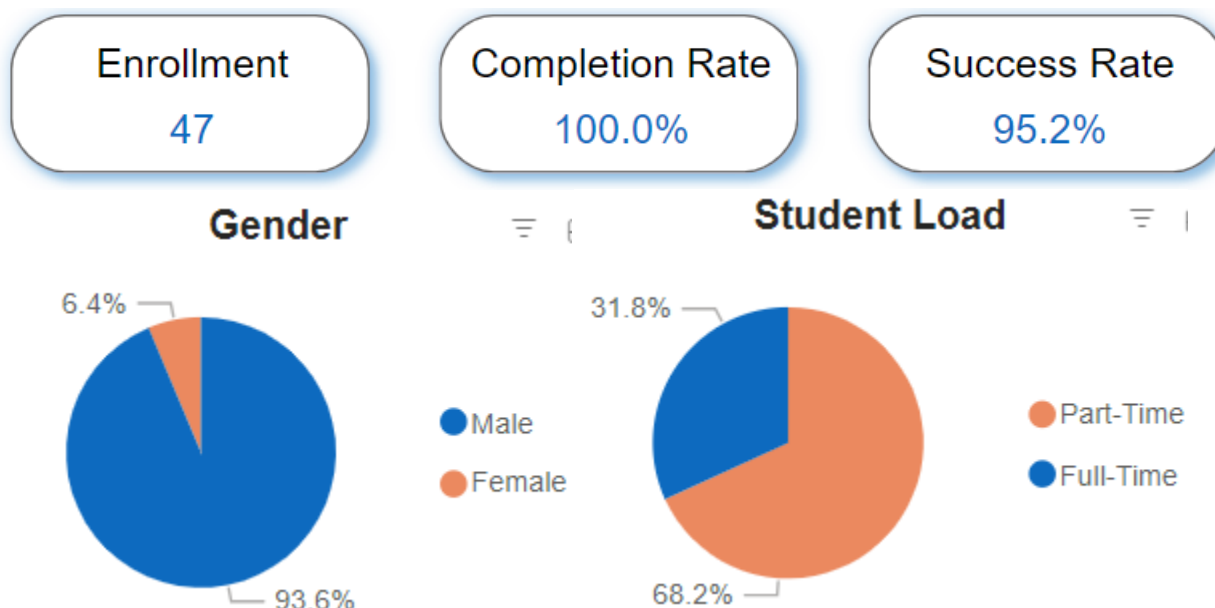*The motion passed and the committee approved all changes proposed.*
Dr. Holcomb then moved on to program statistics.
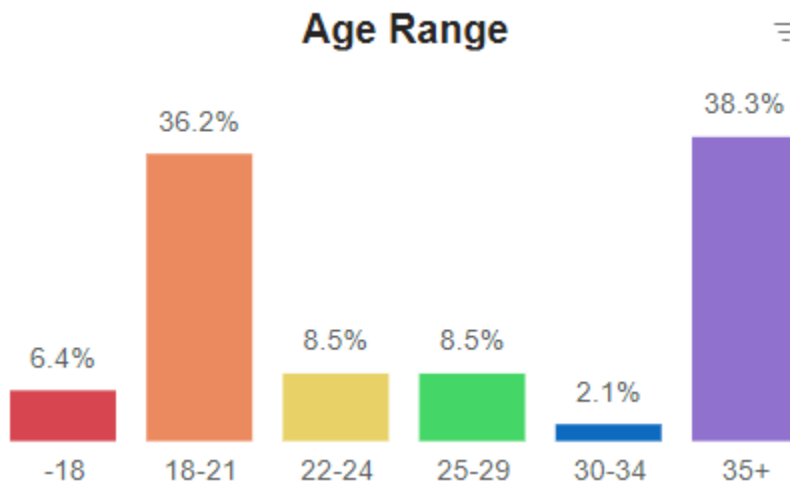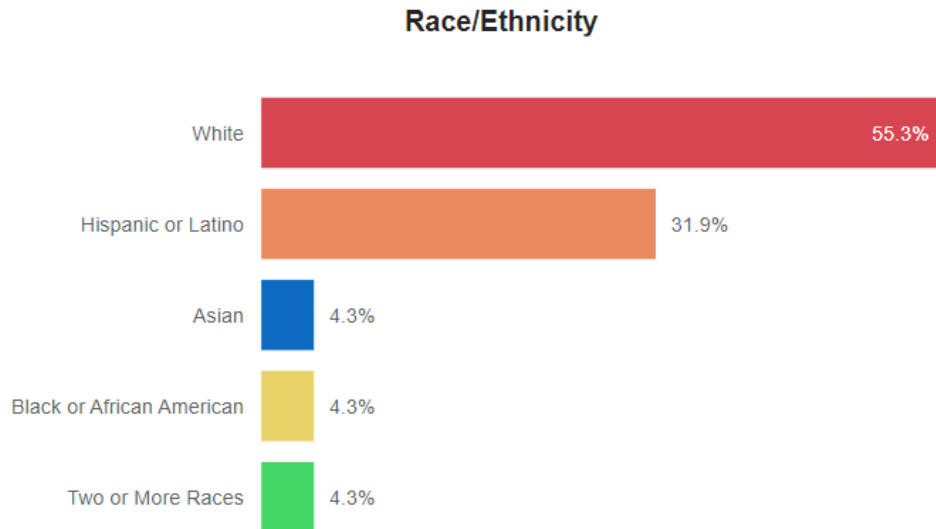
F. **Program Statistics:**

Dr. Holcomb went on to review the following statistics.
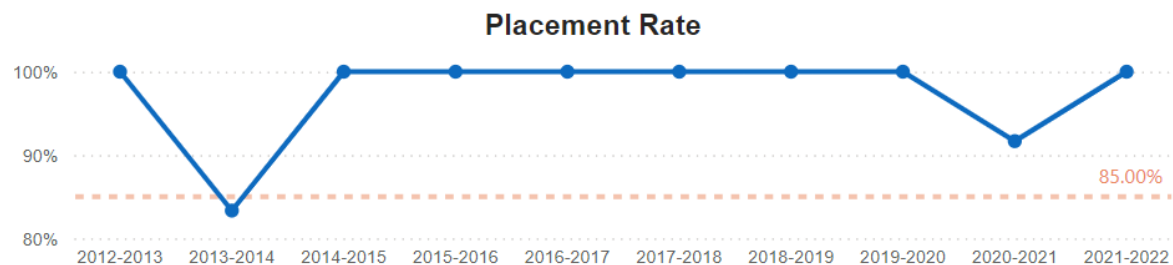
Program Statistics:
- Graduates 2022-2023: 22
- Enrollment Summer 2023: 0
- Majors Fall 2023-2024: 51
- Enrollment Fall 2023: 80

Enrollment	Completion Rate	Success Rate
47	100.0%	95.2%

Gender

6.4%

93.6%

● Male
● Female

Student Load

31.8%

68.2%

● Part-Time
● Full-Time

Race/Ethnicity

White	55.3%
Hispanic or Latino	31.9%
Asian	4.3%
Black or African American	4.3%
Two or More Races	4.3%

Age Range

-18	18-21	22-24	25-29	30-34	35+
6.4%	36.2%	8.5%	8.5%	2.1%	38.3%

*Fall 2023 Data

Program Completer Placement Rate - % of program completers who are employed or pursuing additional education within one year of graduation.

Placement Rate

2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
100%	~83%	100%	100%	100%	100%	100%	100%	~91%	100%

85.00%

After reviewing program statistics, Dr. Holcomb moved on to local demand.

G. Local Demand/ Labor market Outlook

Dr. Holcomb invited Bettye Hutchins to review the information below. Along with the following chart, Bettye reviewed the Comprehensive Local Needs Assessment to collect data for reporting to the state.

Occupation	National Median Wage	State Median Wage	Local Median Wage	Current /Projected Job openings (annual)	Projected Growth (annual)
Electrical& Electronics Repairers, Commercial & Industrial Equipment	$32.05/hr $61,536/annual	$31.18/hr $64,857/annual	$31.18/hr $64,857 state figures	624(state)	1.63% (state)
Electrical & Electronic Engineering Technologists & Technicians	$34.04/hr $65,357/annual	$31.83/hr $61,113/annual	$31.83/hr $61,113/annual state figures	1,156 (State)	1.34% (state)
Inspectors, Testers, Sorters, Samplers, & Weighers	$22.74/hr $43,660/annual	$22.53/hr $43,257/annual	$21.87/hr $41,994/annual	5,607 (state) 112 (local)	$31.83/hr $61,113/annual

*Labor Market Outlook (O*NET)

After reviewing local needs, Dr. Holcomb moved to evaluation of facilities, etc.

H. Evaluation of facilities, equipment, and technology

Dr. Holcomb reviewed the following information regarding facilities, equipment, and technology.

Replacement of one robotic unit (Motoman NX100 & HP3) with YRC 1000 unit and fix or replace overhead door in Lab

Dr. Holcomb asked for any additional recommendations. Someone suggested the program begin to look into adding an energy technology element to the program, along with the required equipment to do so. Another member suggested seeking alternative funding sources like a JET Grant. Dr. Holcomb then moved to professional development.

I. Professional development of faculty
Dr. Holcomb reviewed his following professional development opportunities.

TACTE conference in Grapevine April 2024, Vernon in-house staff and training from ATC in Universal Robot Operation and Festo Mechlab w/FluidSim training at Palo Alto College, San Antonio, Tx

After reviewing professional development, Dr. Holcomb moved on to promotion and publicity.

J. Promotion and publicity (recruiting) for the program
Dr. Holcomb reviewed the following information regarding promotion and publicity. Dr. Holcomb added the new recruiting efforts beginning at grade 8, events at the CEC and MPEC, as well as the efforts of VC's CTE Navigator in promoting the program.

Possible changing focus next year from on the Wilbarger Dual-credit program offered at Vernon College's main campus to traditional college student scheduling

After review, Dr. Holcomb moved on to special populations.

K. Serving students from special populations:
Dr. Holcomb reviewed the definition of special populations and the services available to those who are eligible.

Vernon College is an open-enrollment college. The Proactive Assistance for Student Services (PASS) department offers many services for documented disabilities such as but not limited to quiet testing, longer testing times, interpreters, and special equipment.

Vernon College has a program titled "New Beginnings" for students who qualify to receive transportation, childcare, and/or textbook loans. Perkins funding is also offering assistance to break down barriers such as uniform, supply, and equipment costs.
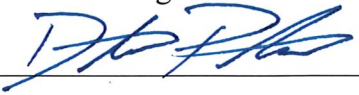
Peer to Peer mentoring, tutoring (online and in-person), resume building, student success series, and counseling are just a few of the other options/services available to students.

1. Special population's new definitions:
    a. Individuals with disabilities;
    b. Individuals from economically disadvantaged families, including low-income youth and adults;
    c. Individuals preparing for nontraditional fields; 49 male / 2 female ratio
    d. Single parents, including single pregnant women;
    e. Out-of-workforce individuals;
    f. English learners;
    g. Homeless individuals described in section 725 of the McKinney-Vento Homeless Assistance Act (42 U.S.C. 11434a);
    h. Youth who are in, or have aged out of, the foster care system; and
    i. Youth with a parent who—

      i.   is a member of the armed forces (as such term is defined in section 101(a)(4) of title 10, United States Code);

     ii.   is on active duty (as such term is defined in section 101(d)(1) of such title).

Dr. Holcomb asked if there were any other comments or suggestions. With no further discussion to be had, Dr. Holcomb adjourned the meeting at 1:37pm.

Recorder Signature	Date	Next Meeting: Fall 2025
	9-16-2025	