SEMICONDUCTOR WORKFORCE

BUILDING SKILLS FOR INDUSTRY GROWTH

Texoma Semiconductor Growth

TEXAS INSTRUMENTS

- 11/17/21 – New $30 Billion Dollar Chip Facility Announcement
- 5/18/22 – Construction Begins: 4 New 300 mm Wafer Fabrication Plants
- 3,000 New Jobs

GLOBAL WAFERS

- 6/27/22 – New $5 Billion Chip Facility Announcement
- 12/1/22 – Construction Begins: 300 mm Silicon Wafer Plant
- 1,500 New Jobs

Texoma Semiconductor Growth (cont.)

GLOBITECH

- Located in Sherman since 1999 and a subsidiary of GlobalWafers
- Provides silicon-epitaxy products and services to semiconductor companies
- 640 # of employees

COHERENT

- Develops and manufactures laser equipment and specialty components, including the Vertical-Cavity Surface-Emitting Lasers (VCSEL)
- Targeting industrial, communications, electronics, and instrumentation markets
- 575 # of employees

Training Needs

- 4500 New Workers for Semi-Conductor Industry
- Some existing staff will transition to new 300 mm facilities
- Need training and recruitment of additional staff
- Texas Instruments workers needed:
  - **Production Specialists:** HS Diploma or Certificate
  - **Maintenance Specialists:** HS Diploma or Certificate
  - **Technicians:** Pursuing Associates Degree
  - **Engineering-Interns:** Pursuing Bachelor's Degree
  - **Engineering New College Grads:** Bachelor's Degree
  - **Experienced Engineers:** Bachelor's Degree

Addressing Training Needs

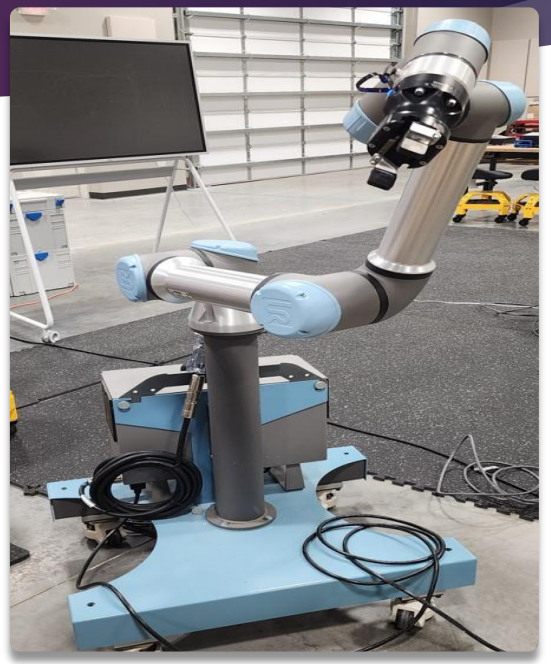
- **Training needs identified**
  - Electronic Engineering Technology (EET)
  - Semiconductor Technician
  - Industrial Technician
- **Upskill/Re-Skill**
- **Articulation Agreements**
- **Expanding Dual Credit Opportunities for HS Students**
  - Grow Our Own!
- **Once hired, additional upskilling is available along semiconductor career paths – paid by employer!**

Addressing Training Needs – Dallas College's Pathways

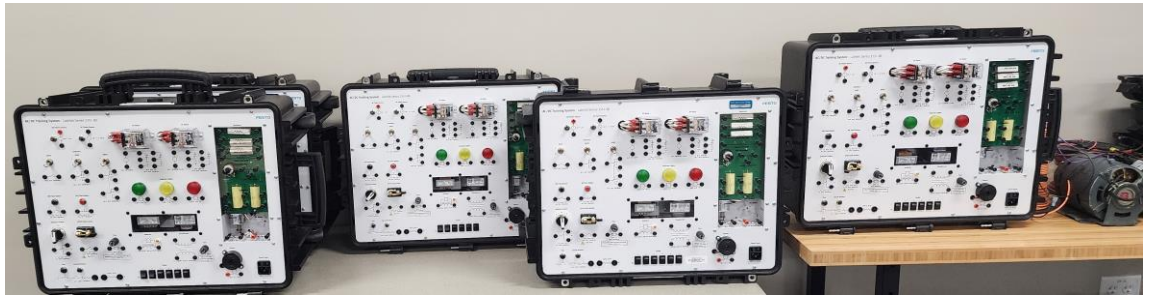
- **Level I Certificate Pathways**
  - **Electronics Technology**
  - **Industrial Automation**
  - **Mechatronics Technology**
- **AAS Pathways**
  - **Electrical Engineering**
  - **Robotics & Industrial Automation**
  - **Electro Mechanical Technology**

Funding & Training Opportunities

Expand Community College Training Options



- **North Texas Community College**
  - **High Demand Job Training Grant**
  - $300,000
  - Match provided by the Gainesville Economic Development Corporation
  - Created Industrial Mechatronics Training Program
    - Level 1 Certificate
    - AAS and Bachelor Degree training available
  - Photos:
    - UR 3e Robots – repetitive task training
    - Programmable Logic Controllers (PLC) – electrical circuit & motor control systems training



- **Grayson College**
  - TWC Skills Development Funding Grant
  - See Karen Campbell's Presentation

Funding & Training Opportunities

- **Established High School Training Labs with High Demand Job Training (HDJT) Grants**
  - **Sherman High School**
    - Electronics Engineering Technology (EET) Lab
    - HDJT Funding = $300,000 with $150,000 match from Sherman Economic Development Corporation
    - Dual Credit Curriculum resulting in a Level 1 Certification
    - Photos:
      - Dual Trace Oscilloscope – learn to measure, observe and display results
      - 4-in-1 Soldering Kit – practice soldering activities

Funding & Training Opportunities

- **Denison High School**
  - Electronics Engineering Technology (EET) Lab
  - HDJT Funding = $244,000 with $122,000 match from Denison Development Alliance
  - Dual Credit Curriculum resulting in a Level 1 Certification
  - Photo: Facet Compact Instrument Package

- **Jobs & Education for Texans (JET): Texoma Board and Grayson College are working with several other High Schools to obtain funds for additional EET labs.**
- **Also working to standardize curriculum for Texoma High School's EET training through use of Dallas College and Grayson College's curriculum**

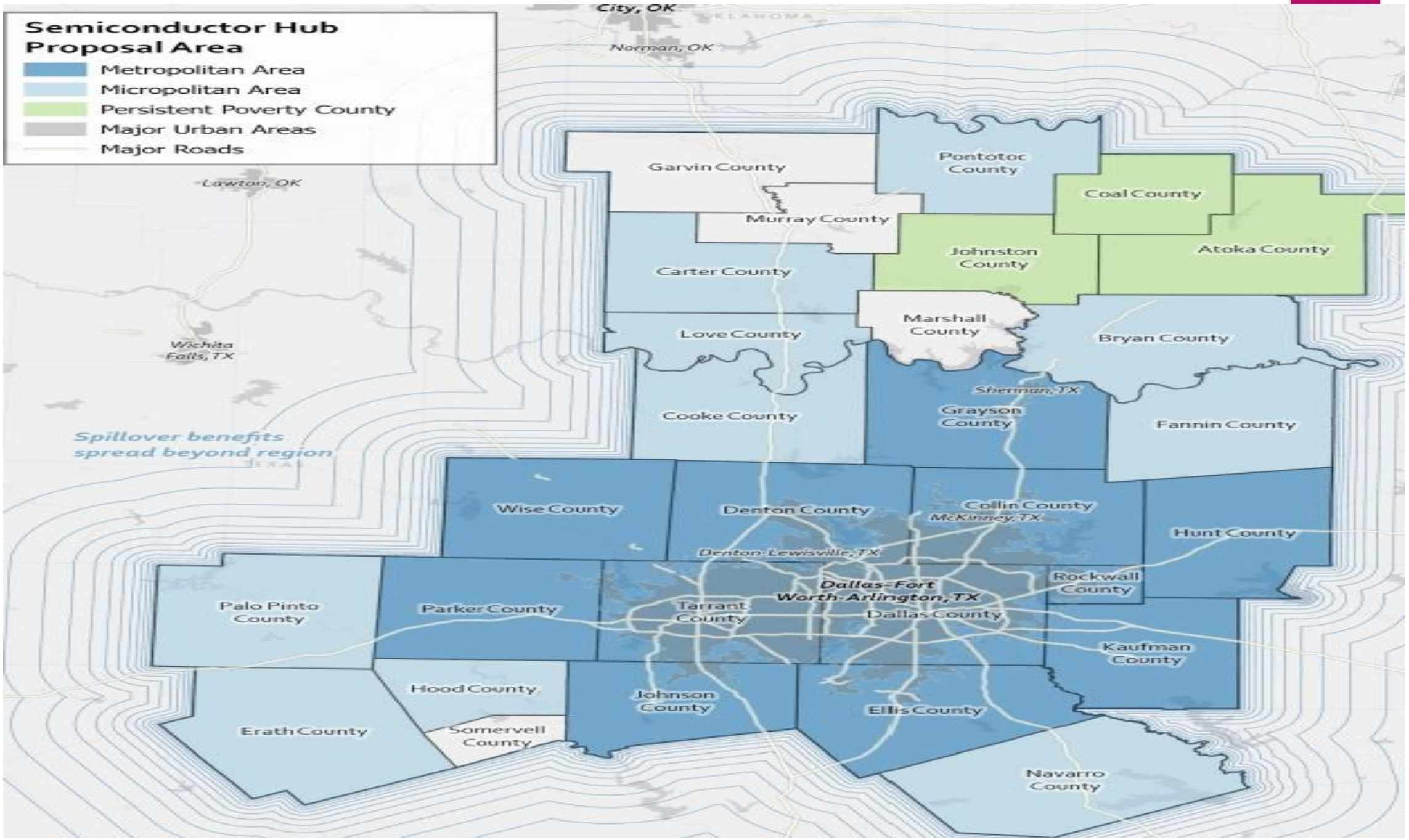
Future Funding & Training Opportunities

- **US Economic Development Administration (EDA)**
  - Regional Technology and Innovation Hubs (TECH HUBS)
  - Funding Purpose:
    - Strengthen US economic and national security
    - Provide opportunities for industries, companies, and the jobs created to start, grow and remain in the United States
- **Texoma participated with a consortium led by Southern Methodist University**
- **Phase 1 Application submitted 8/15/2024.**
- **Out of the 378 applications that were submitted, 31 EDA Tech Hubs were selected as Designation and Strategy Development Regions.**

Future Funding & Training Opportunities (2 of 4)

- On 10/23/24 the EDA notified our group that we were one of the 31 applications selected.
- The Texoma Semiconductor Tech Hub was officially created!
- Our consortium can now compete for Phase 2 and potentially receive between $40 and $75 million dollars.
- This consortium is comprised of 29 counties across North Central Texas and Southern Oklahoma and 50 consortium members.
- 2 major workforce workgroups
  - North Texas area led by Austin College
  - Metroplex Counties led by Southern Methodist University

Texoma Semiconductor Tech Hub


Semiconductor Hub Proposal Area
Metropolitan Area
Micropolitan Area
Persistent Poverty County
Major Urban Areas
Major Roads
City, OK
Norman, OK
Lawton, OK
Wichita Falls, TX
Spillover benefits spread beyond region
Garvin County
Pontotoc County
Coal County
Murray County
Johnston County
Atoka County
Carter County
Marshall County
Love County
Bryan County
Sherman, TX
Cooke County
Grayson County
Fannin County
Wise County
Denton County
Collin County
McKinney, TX
Hunt County
Denton-Lewisville, TX
Rockwall County
Dallas-Fort Worth-Arlington, TX
Palo Pinto County
Parker County
Tarrant County
Dallas County
Kaufman County
Hood County
Johnson County
Ellis County
Erath County
Somervell County
Navarro County

Future Funding & Training Opportunities (3 of 4)

- **Phase 2 Proposal was submitted to the EDA on 2/28/24.**
- **Multiple partners in this project will use awarded funds to support the Semiconductor Industry and bring benefits to over 8 million individuals in 29 counties in North Texas and southern Oklahoma.**
- **Awarded funding will be primarily be used for:**
  - semiconductor R&D,
  - development of training curriculum, digital platforms, laboratories, and training facilities,
  - technical innovation in the semiconductor industry, and
  - workforce development and training to help students and adults obtain basic through advanced degrees.

Future Funding & Training Opportunities (4 of 4)

- **Texoma Semiconductor Tech Hub Video – North Texas Partner Overview**
- **https://www.dropbox.com/scl/fi/lg1pjf4fof5jpcyghgcjp/Workshop-TechHub-Final.mp4?rlkey=95n4mqgb17l3edjxzke63nnqn&dl=0**

Texoma Semiconductor Tech Hub

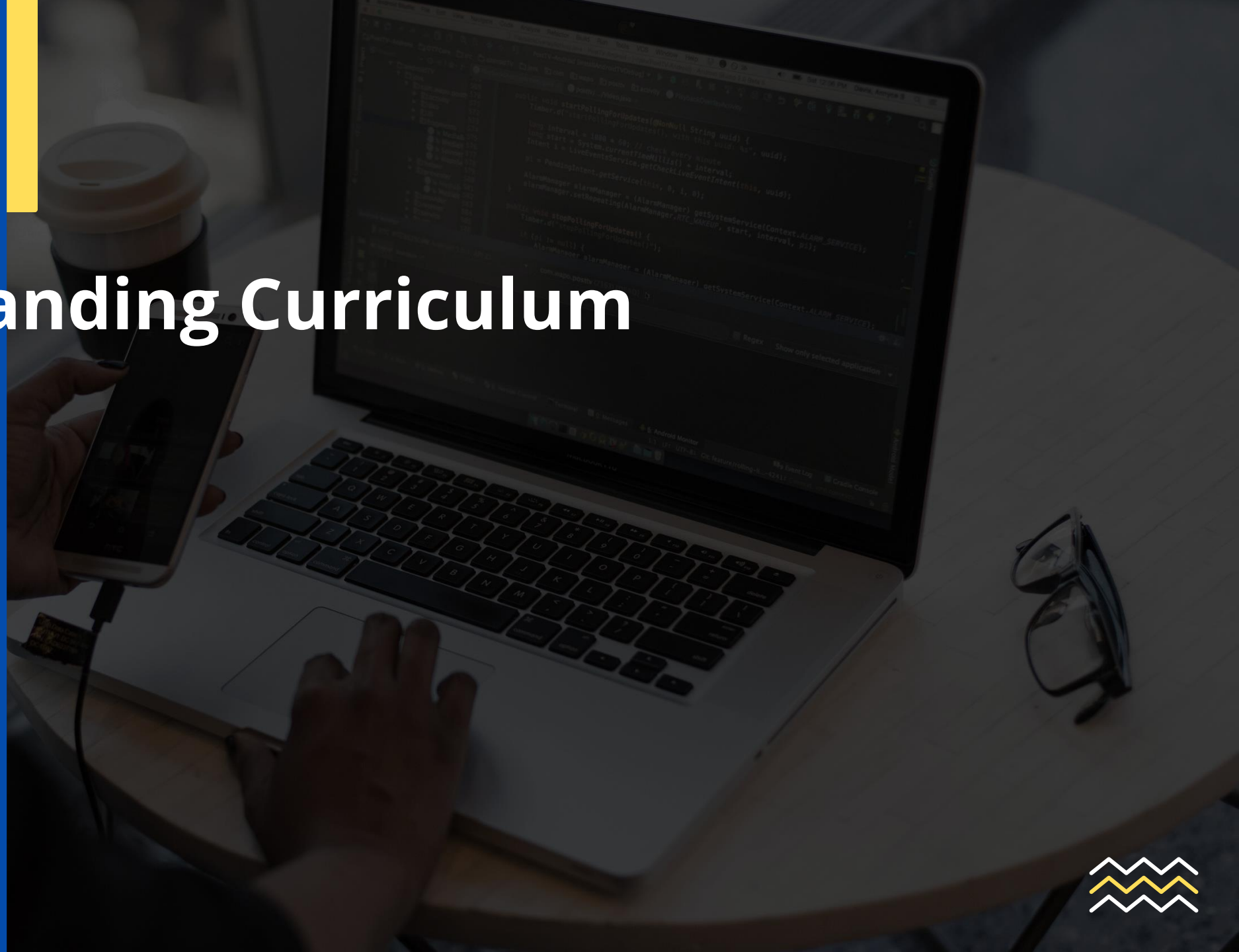
Future Plans

- **Keep our Target Occupations List current to include emerging occupations that will support local hiring needs.**
- **Continue to support opportunities to train our emerging workforce.**
- **Continue to work with the Texoma Semiconductor Tech Hub and seek out additional funding to encourage continued training and employment opportunities.**

GRAYSON COLLEGE

ELECTRICAL ENGINEERING TECHNOLOGY

Understanding Curriculum



STEP 1: Electronic Skills Certificate

Courses	Lecture	Lab	Contact	Credit
CETT 1403 DC Circuits	3	3	96	4
CETT 1405 AC Circuits	3	3	96	4
CETT 1441 Solid State Circuits	3	3	96	4
CETT 1425 Digital Fundamentals	3	3	96	4
SMFT 2335 Vacuum Technology	3	1	64	3
SMFT 1343 Semiconductor Manufacturing Technology	3	1	64	3
EECT 1104 Electronics Soldering	1	1	16	1
Totals:	**18**	**15**	**528**	**23**

STEP 2: Automation Skills Certificate

Courses	Lecture	Lab	Contact	Credit
ELPT 1441 Motor Control	3	2	80	4
ELPT 2319 Programmable Logic Controllers	2	2	64	4
MCHN 1438 Basic Machine Shop	2	6	128	4
HYDR 1445 Hydraulics & Pneumatics	3	3	96	4
RBTC 1343 Robotics	2	2	64	3
INMT 1417 Industrial Automation	3	3	96	4
EECT 1104 Electronic Soldering	1	1	16	1
Totals:	**15**	**19**	**544**	**23**

STEP 3: Academic Core

Courses	Lecture	Lab	Contact	Credit
SPCH 1311 Intro to Speech Communication	3	0	48	3
MATH 1314 College Algebra	3	1	64	3
Language, Philosophy, Culture Core	3	0	48	3
Social Sciences Core	3	0	48	3
ENGL 1301	3	1	64	3
Totals:	**15**	**2**	**272**	**15**

Estimating Costs

Electronic Equipment

Courses	Provider 2
CETT 1403 CETT 1405 CETT 1441 CETT 1425	78,000
SMFT 1343, 2335	51,000 + 60,000
EECT 104	15,000
Totals:	$204,000

Automation Equipment

Courses	Provider 2
ELPT 1441	$170,000
ELPT 2319	$91,000
HYDR 1445	$318,000
RBTC 1343	247,000
INMT 1417	$170,000 + 70,000
Totals:	$1.07M

Student Pipeline

COHORTS 2023-2025

01

Industry cohort (x24)

Successfully started on noncredit side in June 23 and shifting to credit courses in Jan 24, graduating with 2 certificates by August 24 and possible AAS in December 24 or May 25, one student did drop and another was added (so total of 25 have been enrolled), mostly nontraditional students demographics

02

Traditional Cohort (x7)

Starting in January 24 and completing electronics certificate by August 24 and automation certificate and AAS by March 25

03

Fall 24 Cohort (x72)

STARTING NEW ELECTRONICS COHORT OF 24 AND FINISHING AUTOMATION COHORT OF 12 FROM SPRING 24. STARTING AUTOMATION COHORT OF 24. ALSO ADDING A COHORT AT SHERMAN AND MAYBE DENISON HS OF 18 DUAL CREDIT STUDENTS IN ELECTRONICS AS WELL AS INDUSTRY COHORTS IN THE EVENINGS.

Dual Credit

- 23 High Schools in Service Region
- Electronics Labs at High Schools
- Region 10 TEA Program of Study Approved for articulated credit and PLA/PLC
- HDJT (Workforce Commission) and Jet Grants to help schools set up labs
- Hybrid half-day scheduling to accommodate seniors
- Summer Camps & Field Trips

Advisory Board

- New Membership
  - Coherent
  - Oklahoma Steel and Wire
  - Presco
  - Emerson
- Current membership
  - Texas Instruments
  - Globitech
  - Modular Power Solutions
  - ATC

Future Planning

- Add more national certifications from SACA, NC3, MSSC, etc
- Possible apprenticeship programs
- Possible capital expansion with more lab space on South Campus in 2027
- Expanded Summer Camp options for middle schoolers
- Grants for rural high schools, floating instructor between 4 rural high schools
- Added more electives in safety, process troubleshooting, instrumentation, manufacturing processes

THANK YOU!