



“Marking up the Future: How Students are Leveraging Bluebeam for Future Success in the Construction Industry”

Nathan Howard
Associate Professor
Fort Hays State University



AGENDA

- Introduction
- Discussion of Course Work
- Student Objectives using Bluebeam
- Examples of Assignments
 - Sample of Instruction
- Examples of Student Work
- Industry Partners and Advisory Board Involvement
- Closing
- Q&A

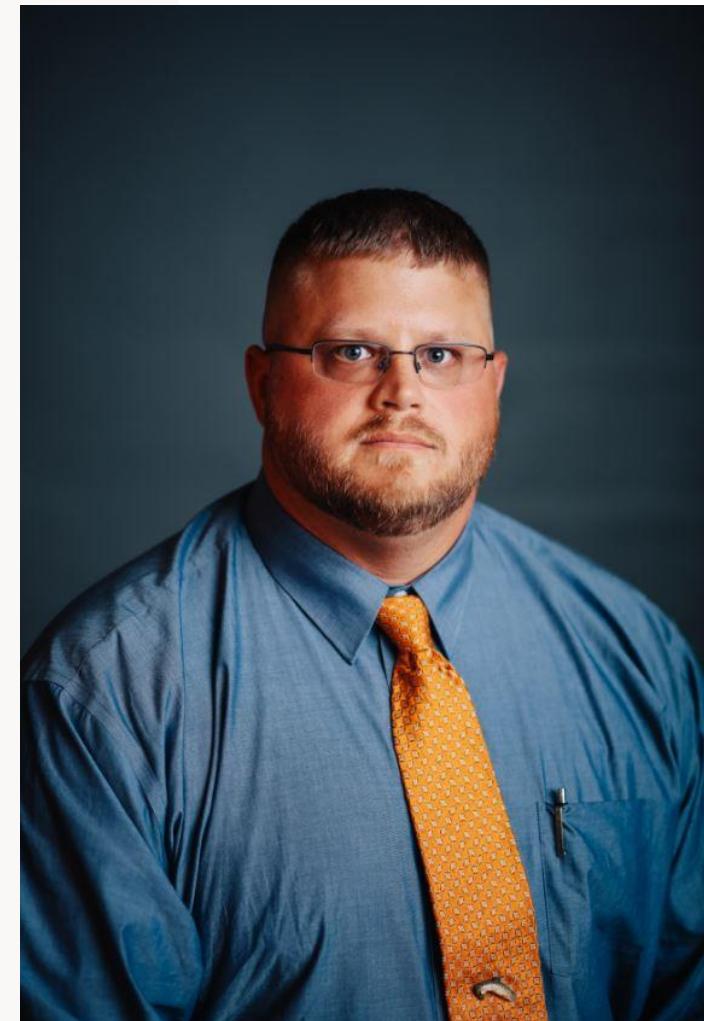
Nathan Howard

Associate Professor at Fort Hays State University

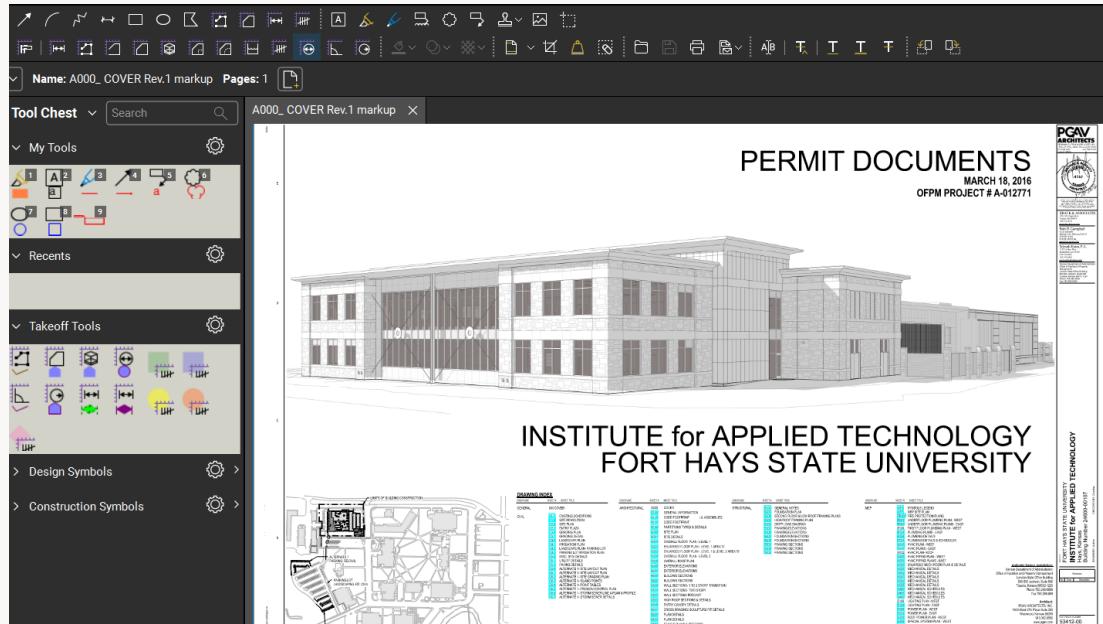
**lead Professor in Construction management
Concertation**

**Lead Sponsor For FHSU AGC student
Organization**

**7 years at the University
20 years in Education**



Objective for Students and Bluebeam



Upon completion of the courses, students will demonstrate proficiency in utilizing Bluebeam Revu for construction management applications, including digital document review, measurement and quantity takeoffs, and collaborative project communication, in order to enhance accuracy, efficiency, and professional practice within the construction industry.

Course Work that uses Bluebeam

TECS 382 Estimating and Scheduling

- Construction cost reporting, estimating and control. Construction planning, both long-term and short-interval, construction scheduling, monitoring, and control along with computer applications. Successful construction companies have an understanding of the inner relations of labor production, cost control and schedule management. We will use a series of problems and activities that have both individual and team components to define and develop these skills. In each activity a real problem will be presented.

TECS 385 Construction Planning and Design

- This course is designed to give the student look at the multitude of areas considered when planning and designing a construction project, both residential and commercial. Some of the areas that are covered are land use, historical considerations, environmental impact, community impact, right-of-way, state /governmental issues, traffic, lighting, green construction, utilities, design specifications, ADA. These areas will be covered by classroom discussion, research, classroom speakers, field trips. A final project will be required.



TECS 382-Estimating

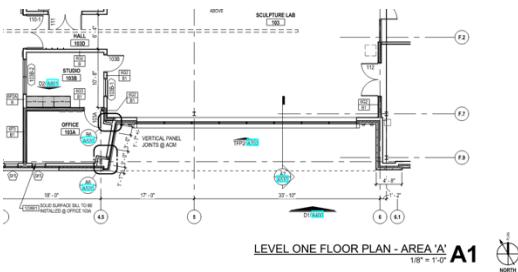
Reviewing construction drawings and specifications to find any inconsistencies within the project.

Performing material takeoff on the different scopes of work.

- Setting scale to the PDF
- Setting up students' tools for the takeoff of materials on the project.
- Organizing their takeoff tools
- Organizing the data from the drawings.

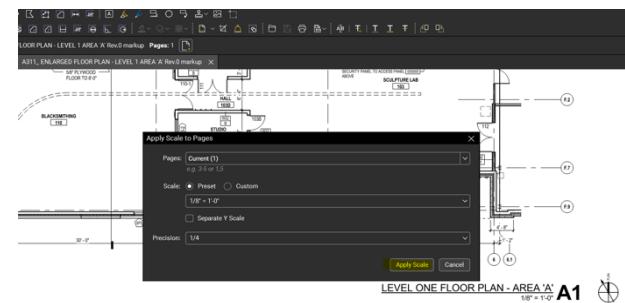
Setting scale for the drawing

Locating Scale in Drawing



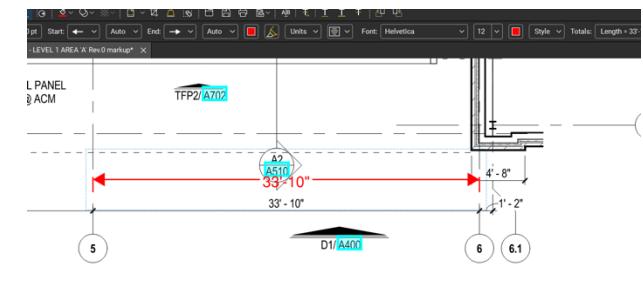
Find the scale on the drawing or locate a long dimension for setting a custom scale.

Setting select scale or custom scale



- Preset scale
- Custom scale
 - Custom will have you measure a known dimension to set scale.

Verifying the scale



LEVEL ONE FLOOR PLAN - AREA 'A'
1/8" = 1'-0"

Make sure to verify the scale is correct with a known dimension on the drawing prior to starting takeoff.

Takeoff tools

Basic tool setup

- Polylength
- Length
- Area
- Volume
- Count
- [Setup video](#)

The screenshot shows the Bluebeam interface with a floor plan titled "A311_ENLARGED FLOOR PLAN - LEVEL 1 AREA 'A' Rev.0 markup*". The floor plan includes various rooms and dimensions. The "Tool Chest" sidebar on the left contains sections for "My Tools" (with icons for 1-9), "Recent Tools", and "Takeoff Tools" (with icons for Design and Construction Symbols). The "Markups List" table at the bottom shows a list of marked objects with columns for Subject, Page Label, Comments, Author, Date, Length, Volume, Status, and Color.

Subject	Page Label	Comments	Author	Date	Length	Volume	Status	Color
Doors-Right (1)	1	5	njhoward	9/1/2025 4:31:3...				■
Doors-Right								
Metal Double Doors (2)	1	1	njhoward	9/1/2025 4:25:5...				■
Metal Double Doors								
Metal Double Doors								■
Windows (1)	1	5	njhoward	9/1/2025 4:30:2...				■
Windows								
Windows-Store Front (2)	1	9	njhoward	9/1/2025 4:30:5...				■
Windows-Store Front								

TECS 385- Planning and Design

Students set their default tools

Create call-outs for their submittals

Bring attention to a location on drawings for RFIs

Review and highlight specifications that have importance to the planning of a project.

Garage Bolt Holdown

Product details: Provides loads for intermediate-load-range shear walls, braced-wall panels and lateral applications in wood construction installed with bolts into studs or columns. Offers low-deflection performance for various load requirements. Suitable for back-to-back applications where eccentricity is a concern.

Key features: Installed after concrete and framing is in place. Can be installed directly on sill plat or above. Self-jigging, ensures code-required minimum of seven bolt diameters from the end of the post when flush with sill plate.

Material: Zinc Galvanized, G90

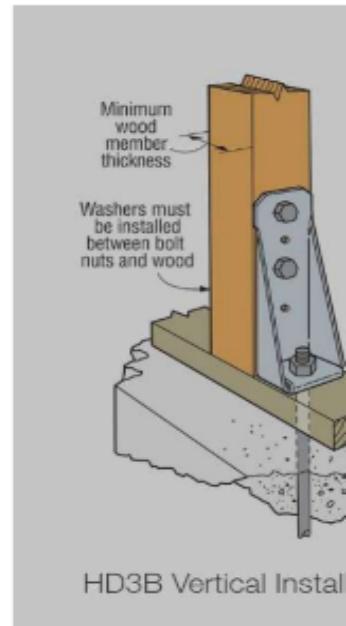
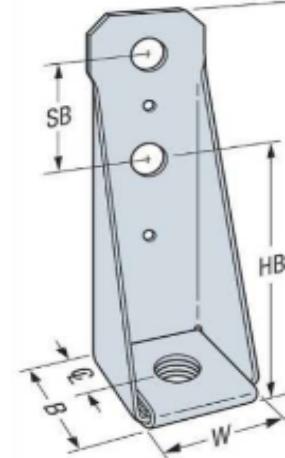
Finish: Galvanized

Installation: Bolt holes minimum of 1/32" to a maximum of 1/16" larger than bolt diameter. Stud bolts should snug and tightened with standard-cut washers between the wood and nut.

Product Specifications: Machine bolts shall be installed with the nut on the opposite side of the holdown. If it is reversed then it could reduce the allowable loads per NDS requirements.

References to bolts are for structural quality through bolts equal to or better than Grade A.

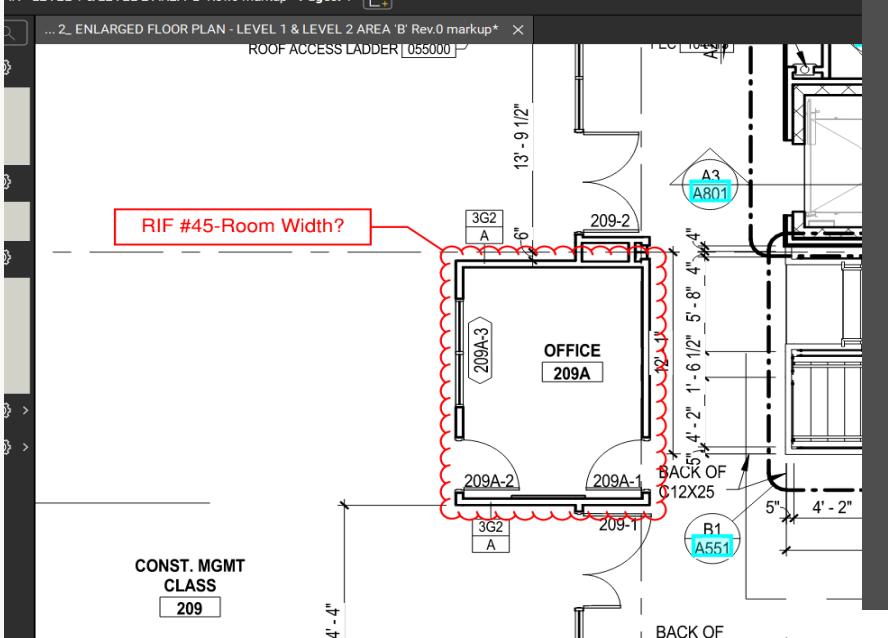
These products are available with additional corrosion protection.



Basic Planning with Bluebeam

- Sample Student Submittal
- Clouding and highlighting information in Specification Book.

- [Video](#)



025-03-04-15-55-45_1881752812 Pages: 6

Studco_Fort-Hays_2025-03-04-15-55-45_1881752812* X

PRODUCT CODE: SS-35833
PUBLICATION DATE: DECEMBER 2024

SUBMITTAL SHEET

3-5/8" 33 Mils Structural Stud with 1-5/8" Flange (G60)

PRODUCT INFORMATION

Description 3-5/8" 33 Mils Structural Stud with 1-5/8" Flange (G60)
Code SS-35833
Category Studco Structural Stud

As per 054000-2.3

GEOMETRIC PROPERTIES

Web Depth (in)	3-5/8"
Flange Height (in)	1-5/8"
Stiffening Lip	1/2"
Weight (lb/ft)	0.89
Punchout Width	1-1/2"
Punchout Height	2-1/4"
Gauge	20 GA
Design Thickness	0.0346
Thickness - Mils	33
Yield Strength FY (KSI)	50
Coating	G60

GROSS SECTION PROPERTIES

Cross Section Area A	0.262 in. ²
Moment of inertia I _{xx}	0.551 in. ⁴
Section modulus S _{xx}	0.304 in. ³
Radius of gyration R _{xx}	1.450 in.
Moment of inertia I _{yy}	0.099 in. ⁴

STUDCO
BUILDING SYSTEMS

SS-35833

UNBOUND

Tips and Takeaways from classes

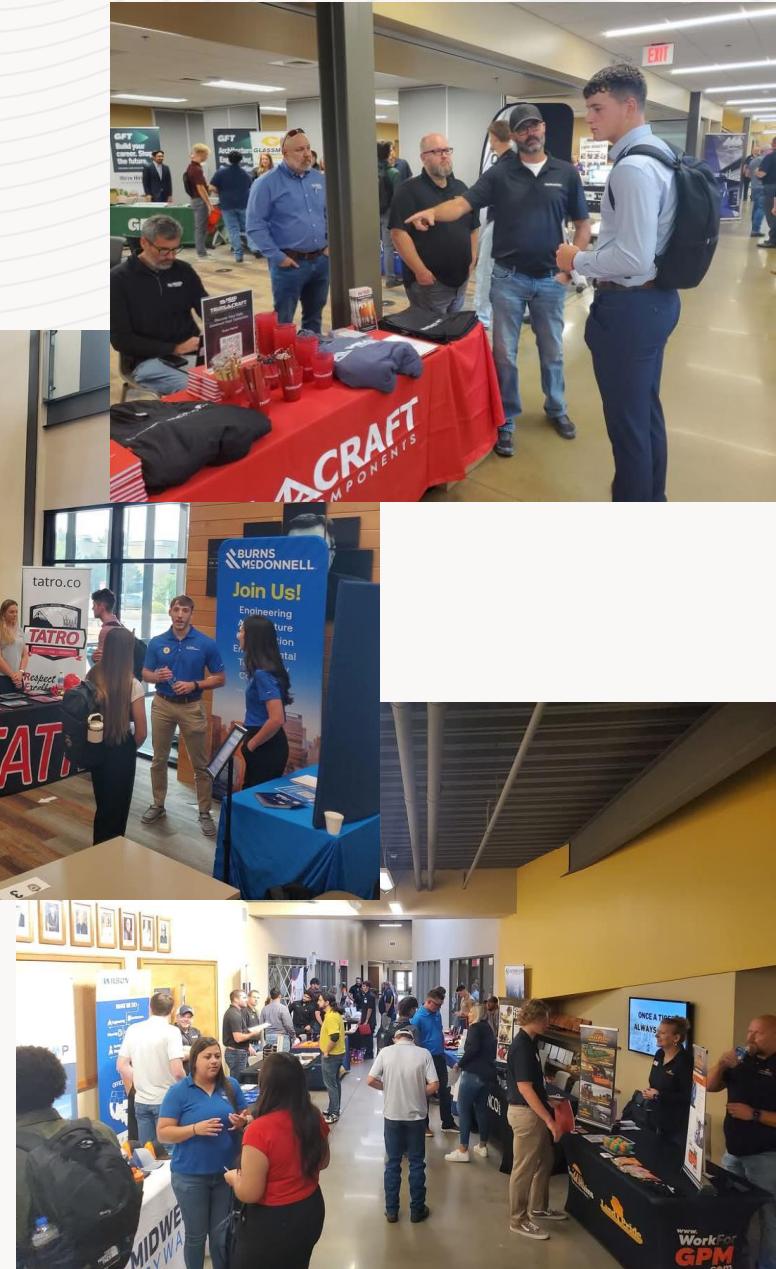
- Be adaptive in class.
- Use industry examples for students
- Listen to students when they come back from internships.
 - Companies have little differences in how they complete paperwork.

Bluebeam

- Learn the shortcuts in the program.
- Have the students set up their tools and let them make adjustments to meet their needs.
- Use Bluebeam University to assist students.

What got me to this point?

- Been in the Lead Construction Management position for 4 years.
- When I took the position curriculum needed an update to meet student and company needs.
- Suggestions from students and Industry partners led me to implement Bluebeam into our curriculum.
- Bluebeam Educational License
- Applied Tech Career Fair
 - 250 students, 65 companies, 30 alumni recruiting



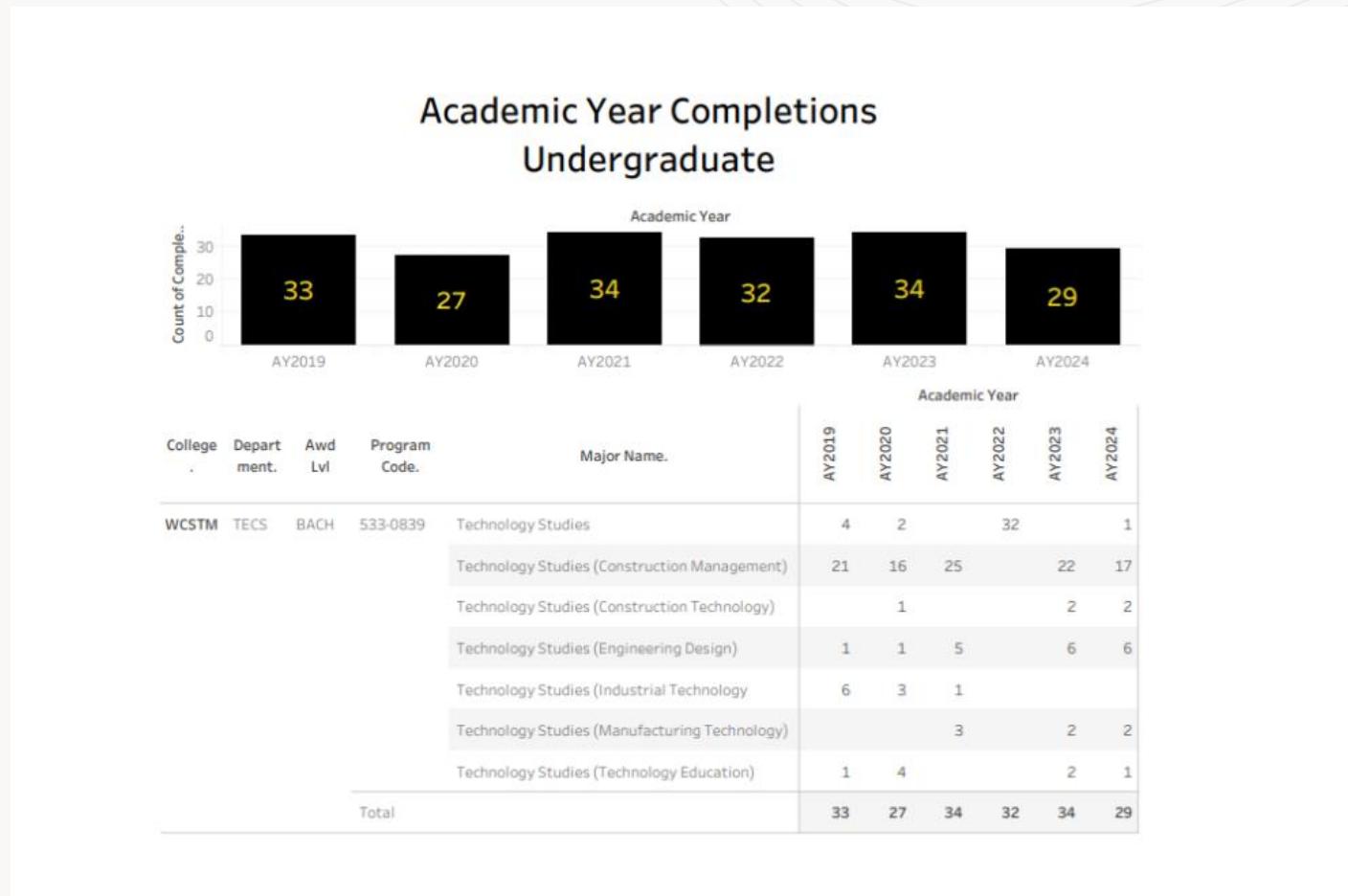
Industrial Partnerships

- **Company visits during the summer**
- **AGC of Kansas meetings**
- **Career fair discussions about the skills students need**
- **Alumni reflections after they have been in the field.**



Graduation Success of Fort Hays State Students

Department of Applied Technology as a whole.



Graduation Rate Percentage

Undergraduate Career Outcomes Data - Summer 2020, Fall 2020 and Spring 2021

BUSINESS & ENTREPRENEURSHIP	Emp. Other Out of # of Emp. Out of Cont. Not Still No										Success Rate
	Emp. Ellis Co.	Other Kansas	Out of State	# of Grads	In Major	Out of Major	Cont. Edu.	Not Seeking	Still Looking	No Information	
Physics	0	0	4	5	4	0	0	0	0	1	100%
Technology Leadership	1	2	3	7	6	0	0	0	0	1	100%
Technology Studies (BS)	3	12	15	34	28	2	1	0	0	3	100%
Applied Technology (AAS)	1	4	4	11	7	2	0	0	0	2	100%

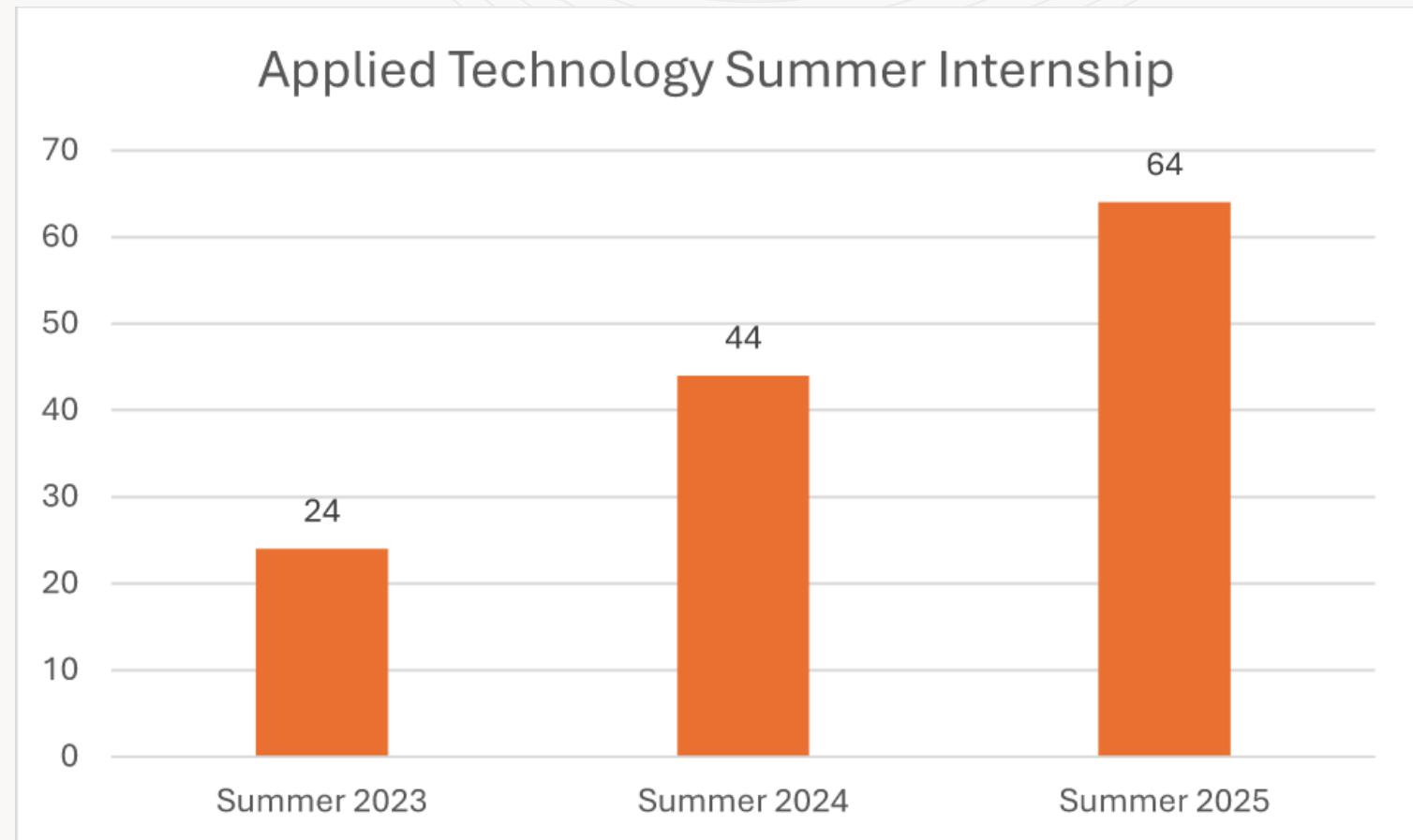
Undergraduate Career Outcomes Data - Summer 2023, Fall 2023 and Spring 2024

BUSINESS & ENTREPRENEURSHIP	Emp. Other Out of # of Emp. Out of Cont. Not Still No										Success Rate
	Emp. Ellis Co.	Other Kansas	Out of State	# of Grads	In Major	Out of Major	Cont. Edu.	Not Seeking	Still Looking	No Information	
Physics	0	3	0	4	3	0	1	0	0	0	100%
Technology Leadership	1	1	3	6	5	0	0	0	0	1	100%
Technology Studies	2	12	7	28	21	0	1	0	0	6	100%
Technology & Leadership (AAS)	1	0	0	1	1	0	0	0	0	0	100%

Internship Success

Department of Applied Technology as a whole.

This information includes students in Manufacturing, Engineering Design Technology, Construction Management, and Construction Technology.



Who is hiring?

Companies from 2025 Career Fair

Employer Name	Employer Industry	
Spirit AeroSystems	Aerospace	
AGCO Corporation	Agriculture	
Murphy Tractor and Equipment Co.	Agriculture	
Kirkham Michael	Civil Engineering	
JEO Consulting Group Inc.	Civil Engineering	
Driggs Design Group, PA	Civil Engineering	
Cerris	Construction	
Nabholz Construction Services	Construction	
MCL Construction	Construction	
MegaKC Corporation	Construction	
Crossland Construction	Construction	
The Law Company Inc	Construction	
Straub Construction	Construction	
SHERWOOD CONSTRUCTION CO	Construction	
Dondlinger Construction	Construction	
Hutton	Construction	
Primoris Service Corporation	Construction	
Wiens & Company Construction, Inc	Construction	
BRB Contractors, Inc.	Construction	
Eby Construction Company	Construction	
Glassman Corporation	Construction	
Mead Lumber	Construction	
CAS Constructors, LLC	Construction	
One Source Products	Construction	
KBS Constructors Inc.	Construction	
JE Dunn Construction	Construction	
Central Consolidated, Inc.	Construction	
Commercial Builders, Inc.	Construction	
Midwest Drywall	Construction	
UCI Industrial Engineering & Construction	Construction	
McCownGordon Construction	Construction	
Icon Structures, Inc.	Construction	
Ames Construction	Construction	
Zemco	Construction	
Simpson Construction Services	Construction	
Bartz Construction	Construction	
BHS Construction, Inc.	Construction	
PWC Inc	Construction	
Walters Morgan Construction	Construction	
Buildings by Design	Construction	
Conco Construction	Construction	
Brack & Associates Consulting Engineers, P.A.	Design	
Burns & McDonnell	Engineering & Construction	
Wilson & Company, Inc., Engineers and Architects	Engineering & Construction	
Marine Officer Programs Kansas City	Government - Local, State & Federal	
Custom Wood Products, Inc.	Interior Design	
Vortex Global Solid & Bulk Handling Components	Manufacturing	
Custom Dredge Works Inc	Manufacturing	
Sunbelt Solomon	Manufacturing	
Hess Services, Inc.	Manufacturing	
Finn-Kool, Inc.	Manufacturing	
Great Plains Manufacturing, Inc.	Manufacturing	
Southern Star Central Gas Pipeline	Oil & Gas	
RVW, Inc.	Other Industries	
Mark One Electric Co. Inc.	Other Industries	
ICM	Utilities and Renewable Energy	
Sunflower Electric Power Corporation	Utilities and Renewable Energy	
Midwest Energy, Inc.	Utilities and Renewable Energy	

A photograph of a cable-stayed bridge with a blue overlay. The overlay features a large, thin blue 'X' that spans the width of the image. The bridge's cables and towers are visible through the blue area.

THANK YOU

Nathan Howard, Associate Professor
785-628-4154
njhoward@fhsu.edu
www.fhsu.edu/appliedtechnology/