

# Writing Effective Recruitment & Retention Plans for your NSF ATE proposal

The information provided is extracted from NSF publications or comes from presenters' knowledge and experience as ATE PIs. Mentor-Connect does not speak for the National Science Foundation.



Live Webinar  
Wednesday, June 21, 2023  
2:00 - 3:00 p.m. ET





## Getting Started

- Using the chat box, tell us how many viewers are in the room with you
- Ask questions in the chat
- Questions will be answered during the webinar
- Change the view in the upper right-hand corner





# Housekeeping

- Registered participants will receive a link to the webinar recording
- Registered participants will receive an e-mail with any attachments shared in Chat
- Typically happens within one week of the broadcast
- Tutorial based on the webinar will be published in the *Resource Library* at [Mentor-Connect.org](http://Mentor-Connect.org)
- Tutorial includes the PowerPoint slides with annotated text



# Welcome and Introductions



Elaine Craft, Principal Investigator  
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Terry Bartelt, Involved in over 15 grants including NSF ATE projects.  
Author of 3 textbooks, instructor emeritus at Fox Velley Technical College;  
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Esperanza Zenon, Professor, River Parishes Community College,  
PI - Advanced Industrial Instrumentation Control Technician Training  
Email: [ezenon@rpcc.edu](mailto:ezenon@rpcc.edu)



## Program Solicitation

*“The ATE program is interested in projects addressing issues in rural technician education and projects that broaden the diversity of the entry-level technical workforce including strategies to recruit veterans into technician education programs.”*





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# What proposals say:

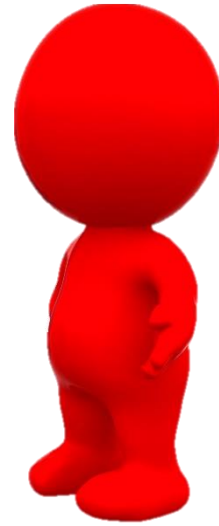
We are going to increase female enrollment



We will recruit more veterans



We will broaden participation





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## The Problem

- Generic “broadening participation” is less convincing than a plan that targets specific underserved or underrepresented populations.
- Also include retention plans. How do you keep the students once attracted to your program?





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## What to Include

- Diversity goal/objectives supported with data (current situation and specific target metrics for improvement)
- Specific target audiences that are appropriate for your locale and project
- Both current and recent past enrollment and demographic information
- Make-up of college's enrollment and community demographics
- What type of diversity will you seek to improve





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## Considerations

- I didn't know there really was an ATE Community
- I didn't make use of resources
- I didn't know I could include experts in my budget
  
- Basically . . . I didn't know what I didn't know





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# RRPCC

Esperanza Zenon





## Advanced Industrial Instrumentation Control Technician Training

RPCC will deconstruct and redesign the existing Industrial Instrumentation degree program by working closely with industry partners to develop an Introduction to IoT course and an Industry 4.0 capstone course to enrich the new degree program



# ATE Proposal Outcome #3

Integrating core STEM modules to address the academic needs of a diverse, rural student population.

## Recruitment and Retention

- NAPE PIPE\* STEM- Equity Gap Analysis
- Open Educational Resources (OER) STEM Modules

\* NAPE - National Alliance for Partnerships in Equity ([napequity.org](http://napequity.org))  
PIPE - Program Improvement Process for Equity

# ATE Proposal Language



This project will address STEM integration for diverse populations, creating an inclusive and skilled technical workforce that “encourag[es] broader representation in STEM fields, [crossing] lines of gender, ethnicity, and socio-economic status [which] has been shown to improve decision-making, solve problems more efficiently, and build better products” (Hook, 2015). Understanding the need for and the benefits of a more diverse workforce is a key component of addressing the needs of diverse, rural students pursuing degrees in technical education fields.

To increase diverse enrollment in technical education fields, this project proposes to use strategies outlined in the five Modules of the National Alliance of Partnerships in Equity (NAPE) STEM Equity Pipeline Project, based upon NSF Grant No. HRD-0734056 and Grant No. HRD 1203121, to increase the participation of underrepresented populations in the Industrial Instrumentation and Process Technology degree programs.





# NAPE PIPE

- ❑ NAPE and its partners use a five-step Program Improvement Process for Equity™ (PIPE; formerly the Five-Step Improvement Process) that is based on practical yet rigorous methods and tools to guide state and local efforts to improve access, equity, and diversity in nontraditional occupations and STEM fields.
- ❑ Through a 5-step process—*Organize, Explore, Discover, Select, and Act*—PIPE engages teams of administrators, teachers, and counselors in conducting a student data-based performance gap analysis, identifying root causes for the gaps, and developing an action plan based on research-based strategies proven to close the identified gaps. ([napequity.org](http://napequity.org))

# PIPE-STEM™: Equity Gap Analysis



## Completed So Far

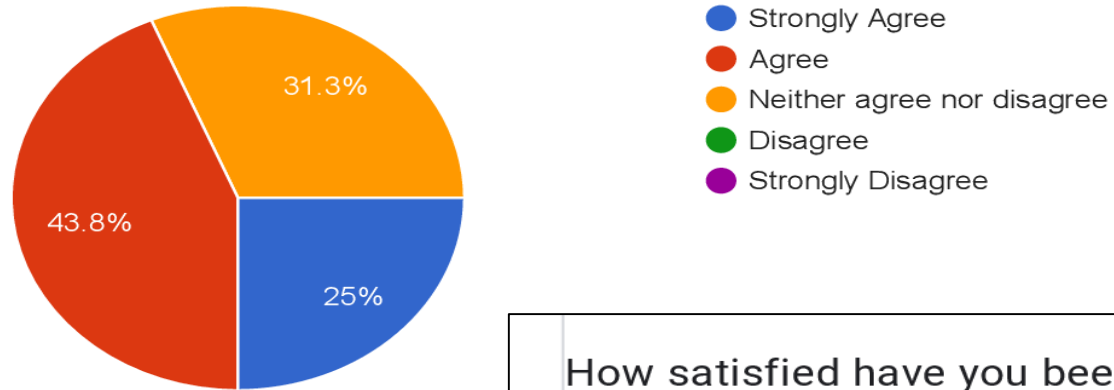
- Organize: Team consisting of PIs, Institutional Research, Workforce
- Explore: Gather data
- Discover: Data showed major gap in female enrollment/completion
- Select: Hypothesis based on investigating root causes for gaps: Focused recruiting efforts are lacking for our Instrumentation Program
- Act: Experiment (Action Research): Targeted recruiting materials

## To-Do

- Outcome of using these targeted materials
- [napequity.org](http://napequity.org)

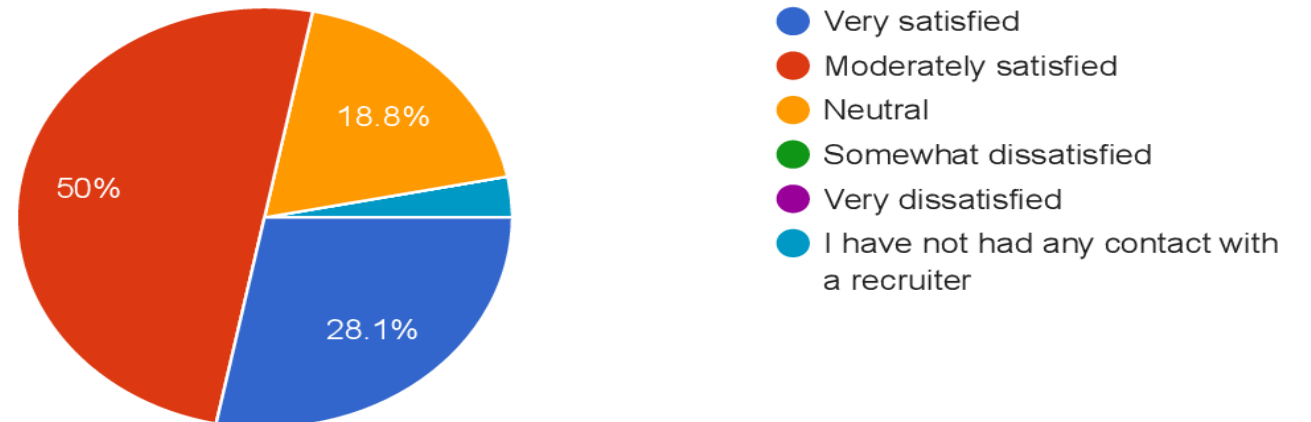
## My interaction with RPCC Recruiting staff and/or Instrumentation faculty impacted my decision to attend RPCC

32 responses



## How satisfied have you been overall with your recruiting experience at RPCC?

32 responses





# Requirements for STEM Modules

- Open Source
- Portable
- Provide cost savings to students
- Aligned with Curriculum Needs
- Appropriate level for Students
- Reviewed - Quality Matters
- Accessible



# OER STEM Module Topics



- Basic Math Topics
- Fluids
- AC and DC Circuits
- Physics Fundamentals
- Solid States and Systems

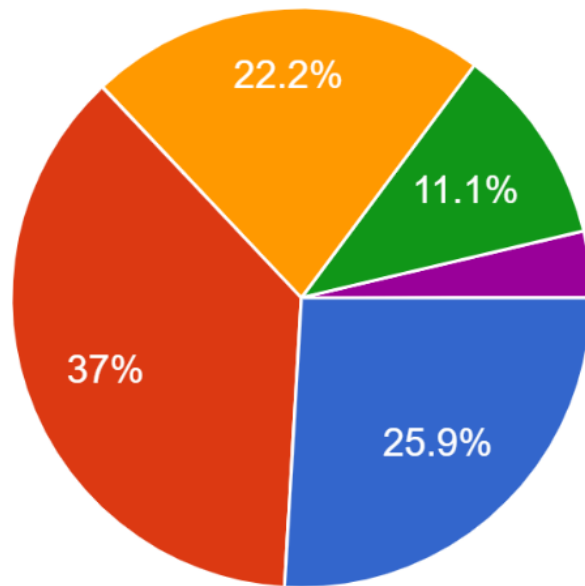






How often did you use the free tutorial/optional resources for this course during the semester?

27 responses

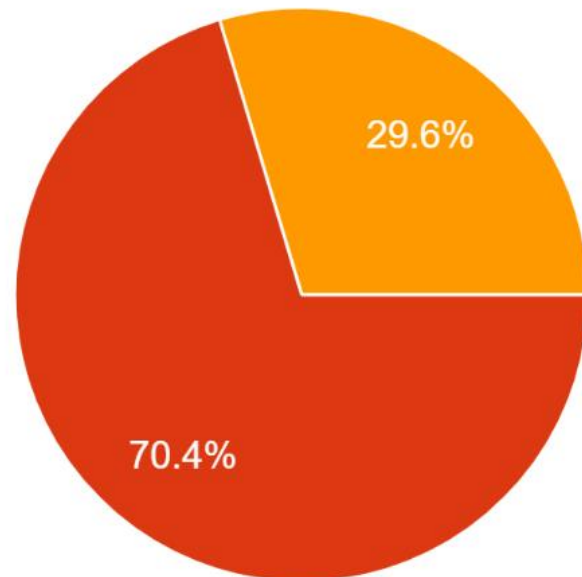


- Never
- 2-3 Times a Semester
- 2-3 Times a Month
- 2-3 Times a Week
- Daily



How would you rate the quality of the free tutorial/optional materials used for this course?

27 responses

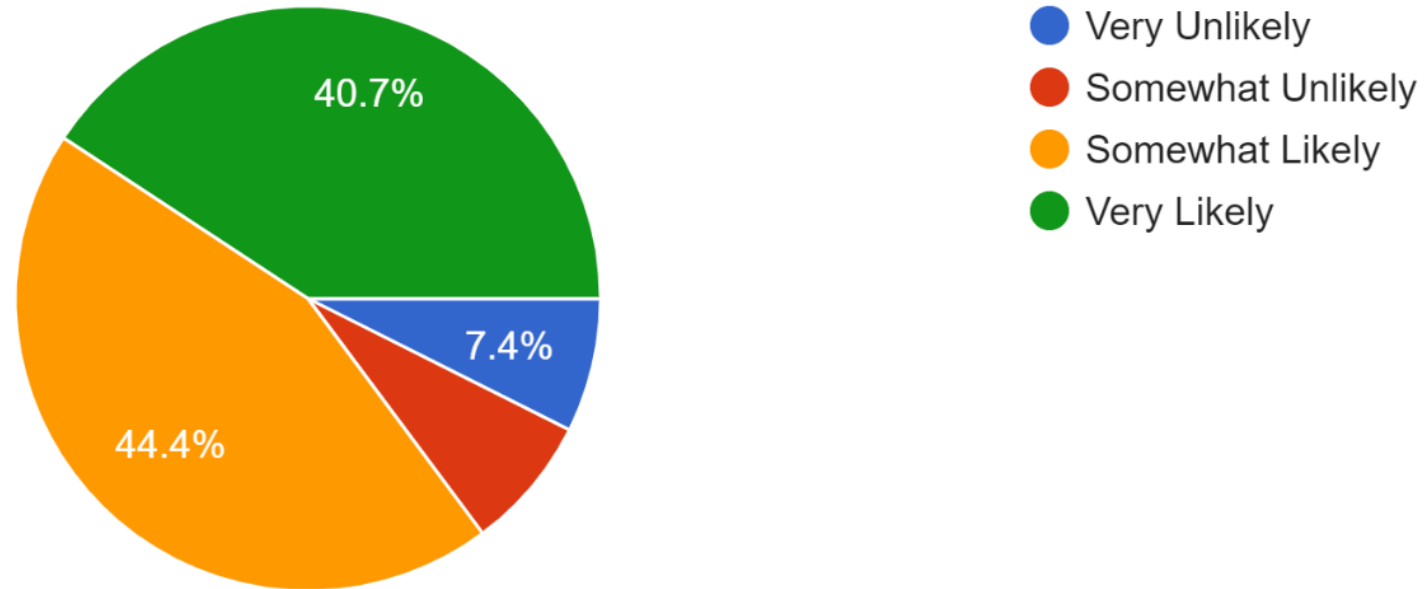


- WORSE than the quality of the texts in my other courses
- About the SAME AS the quality of the texts in my other courses
- BETTER than the quality of the texts in my other courses



How likely are you to register for a future course with open materials -- free, online materials like those used in this course?

27 responses





## Reminder

- Put your questions in the chat box
- We are collecting them and will answer questions at the end of the webinar





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Terry Bartelt



## 10 Tips to Program Building Think Outside the Box



# Electromechanical Low Enrollment Dilemma



# Non-Traditional Recruitment Requirements



- Faculty take ownership of program building
- Make an effort to recruit when the opportunity arises

**Goal: 1 Student per Week**



# College Career Counselors who meet with incoming recruits

- **Invite** them to your annual advisory committee meeting
- **Attend** their meeting once a year to explain changes to program



# College Career Counselors who meet with incoming recruits



- Show up at their office area **once** a month
- Go to their office to thank them after bringing a student to the lab for a **Tour**








**Have a tour  
that is  
interesting  
and  
informative**





# Provide a handout that includes:

- Local employers who hire
- Types of jobs
- Salaries
- Placement percentages
- Other work information

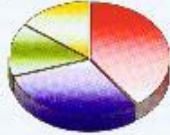
**Fox Valley  
Technical  
COLLEGE**

## ELECTROMECHANICAL TECHNOLOGY PROGRAM

Information You Can Use

### What is Electromechanical Technology ?

**15% Fluid Power**  
Hydraulics/Pneumatics



**35%  
Electronics**

**15% Mechanical  
Drive Systems**

**35% Computer Controlled Systems**

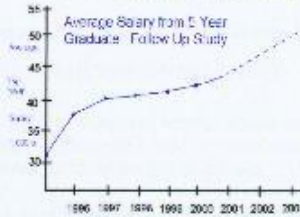
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**Over 20 job listings for each graduate.**

**Starting wages** have been #1 or #2 for the previous 3 years and within the top 5 of all 64 programs in the entire school over the last 20 years.  
(See the graduate placement report for more details.)

**Scholarships** are also available targeted for just the Electromechanical Technology student from major industries in our part of the state.

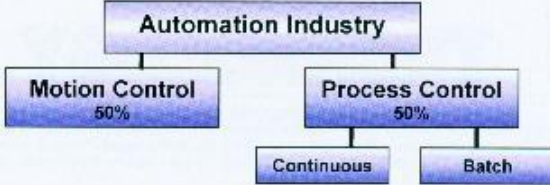
**100 % Placement**



Average Salary from 5 Year Graduate Follow Up Study

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**First in the state to offer training in process control as well as motion control.**



```
graph TD;
  A[Automation Industry] --> B[Motion Control 50%];
  A --> C[Process Control 50%];
  C --> D[Continuous];
  C --> E[Batch];
```

**Motion Control** (examples)

- Parts Insertion
- Packaging
- Business Machines
- Machine Tool
- Graphic Arts

**Continuous Process** (examples)

- Paper Production
- Waste Water Treatment
- Plastic Production

**Batch** (examples)

- Food Industry
- Foundries
- Chemical Industry



Dear Jesse:

It was a pleasure to meet you yesterday. During the brief time we had to describe the Electromechanical program, a large amount of information was presented. It is very likely that I forgot to mention something, or you may have thought of a question after leaving the school.

**After the tour,  
send a follow-up letter  
the next day**

I invite you to please call (920) 991-3111 if you would like to have another discussion to clarify any questions that you may still have. I want to make sure that we provide you with the information you need to make a correct decision about your future. The Electromechanical program is a very challenging yet very rewarding program. I am confident that you will do very well, we look forward to serving you in the future.

Sincerely,



Start with 10 minute  
**individual** bonding  
session the **first 2**  
days of the semester





# Stay engaged with students

Dear Wellington:

This letter is just a friendly reminder that Fall Classes will be starting on August 20th.

There is still plenty of time to sign up for your class or classes. We are encouraging everyone to utilize the online registration. Go to [fvtc.edu](http://fvtc.edu) and click on the registration and follow the prompts. You may also call in your registration at 1-800-735-3882 or come in person and sign up.

- Be an advisor before students sign up for next semester courses
- Send letters to returning students in the summer (phone the students who you think may drop out)

I invite you to phone me at (920)996-2802 if you would like to have another discussion. We want to make sure that we provide all the information you need to make a correct decision about your future. You may also contact Judy Hohnberger at 735-2554. We look forward to serving you this Fall.

# Capitalize on college partners interested in collaboration





# Time Commitment

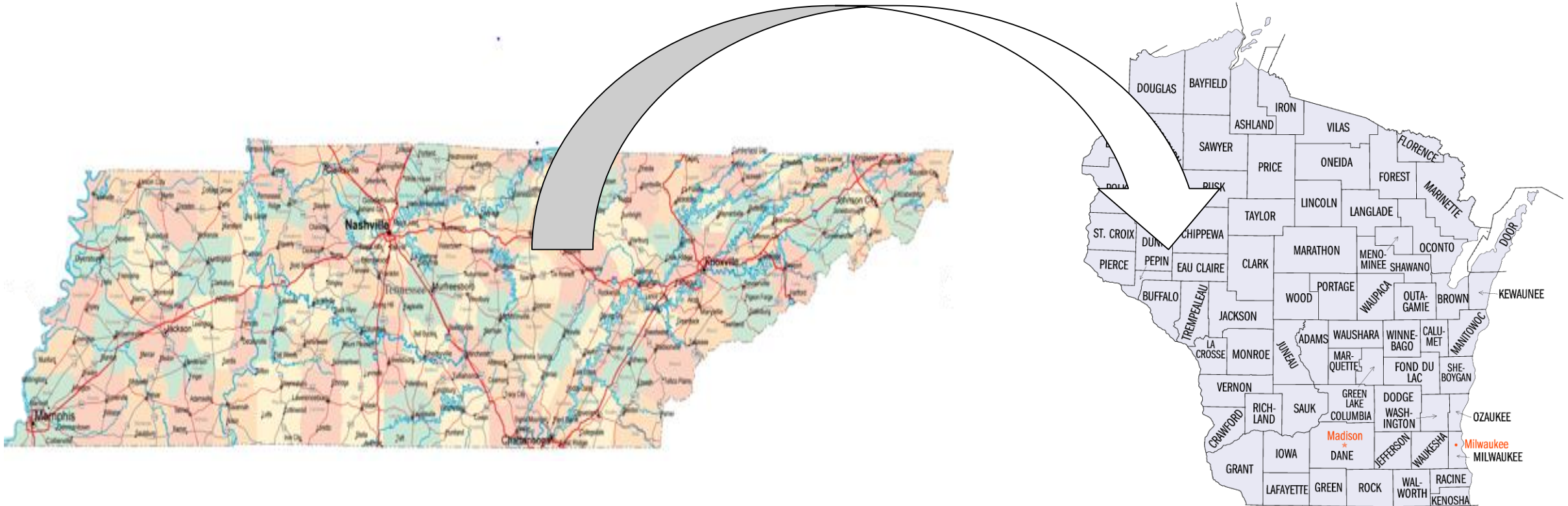


**2 Hours per Week**



# See what others are doing

- Visited college in Tennessee
- Adapted their ideas to our program

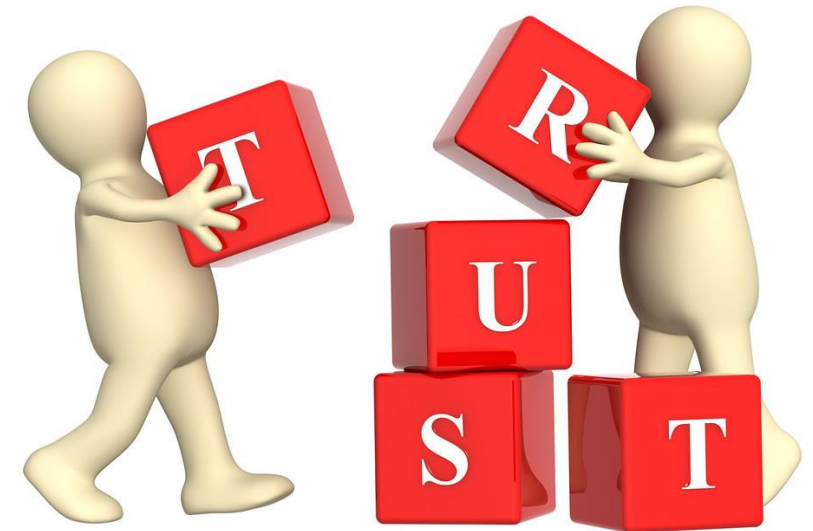






Focus on building personal relationships with:

- Those being recruited
- Local high school counselors and teachers
- Instructors in the technology department at college
- Managers at local companies



**Strategy 1:**  
Try to recruit  
**one** student  
each day







## Strategy 2: Share office space with instructors





## **Strategy 3:** **Help students enroll**

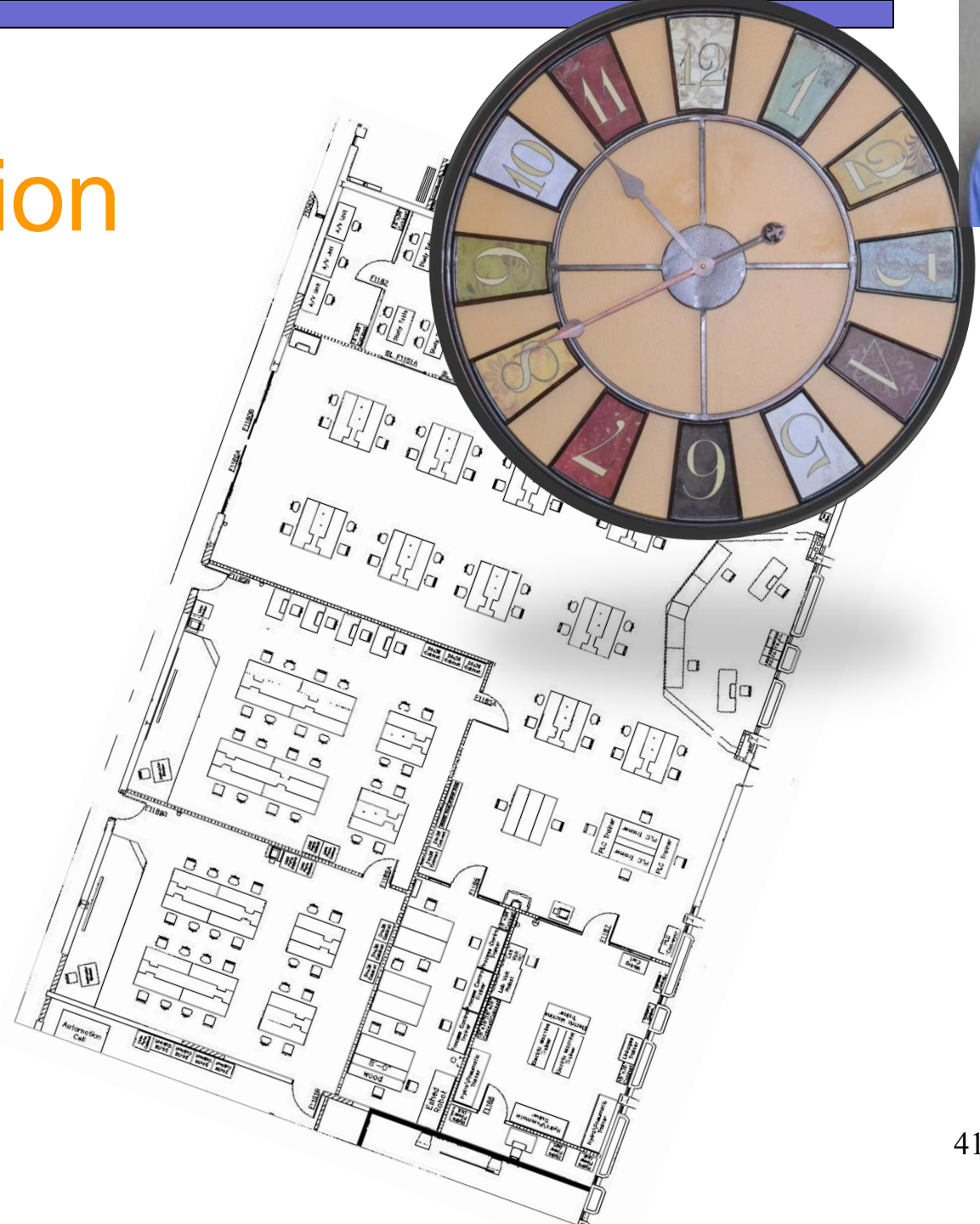


# **After you RECRUIT you must RETAIN**

**Consider Making  
Your Program Flexible**

# Hours of Operation

- 7:30am to 9:30pm on Monday – Thursday
- 7:30am to 3:30pm on Friday





# Instructor Schedules

## (3 Instructors)

- Section A**      7:30am to 12:30pm (M-F)
- Section B**      9:30am to 11:30am (M-F)
- 12:30pm to 3:30pm (M-F)
- Section C**      3:30pm to 9:30pm (M-Th)



# Critics of Flexible-based Training





## Evolve and Adapt

- Student engagement
- Hands-on lab assignments
- Continuous quality improvement process
- Course materials and assessments
- Multi-credit courses into 1-credit courses







# Advantage - Flexibility

## Accommodates

- **Full-time** students
- **Part-time** students
  - Incumbent workers
  - Swing shift workers
  - Students with families (single parents)



Alternative program structuring  
reaches a broader and  
more diverse population





- Ideas to get you started
- Many other resources.. .









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**ncwit.org**

**Academic membership is free!**





## HSI ATE Hub

- [Mentor-Connect.org](https://mentor-connect.org) > Library > HSI (search word)
- Three webinars available
  - *Culturally Responsive Instruction at HSIs - Strategies that Work*
  - *Culturally Responsive Technician Education - Asset or Deficit Models*
  - *Impacts of Culturally Responsive Practices in Technician Education: Student and Faculty Perspectives*
- >38 research papers or other resources specific to Hispanic populations





## For Success . . .

- Why you are including diversity? Who do you want to attract/serve and why? Include data. This builds *Rationale*.
- How will you stimulate change? Specify your strategies and activities.
- How will your plan unfold over time and who will be responsible for what? Include budget support.
- What guided your plan? Cite research and/or best practices that you used or will use.
- What experts will you need and how will you include them?
- What target metrics will indicate success?














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# QUESTIONS





-   [www.Mentor-Connect.org](http://www.Mentor-Connect.org)
-   843.676.8541
-   [mentor-connect@fdtc.edu](mailto:mentor-connect@fdtc.edu)
-  [ATEMentorConnect](https://www.facebook.com/ATEMentorConnect)
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# Webinar Evaluation

- Please complete the evaluation/poll
- Scroll down to make sure you answer all questions





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# Leadership Development and Outreach for ATE

NSF DUE #1840856

**Elaine Craft, Principal Investigator**

SC ATE Center of Excellence

Florence-Darlington Technical College - Florence, SC 29501-0548



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