

# GPTC BAS PROGRAM DEVELOPMENT CASE STUDY



**National Science Foundation**  
**Advanced Technological Education**  
**B.E.S.T. Center Winter Workshop 2013**



# BAS Program Development

June, 2007

B.L. hired at GPTC as Air Conditioning Instructor with goal of creating new, innovative programs, starting with Commercial Refrigeration – Began work immediately on commercial refrigeration program research & outline

## **Challenges to surmount:**

- Position filled was for AC instructor only
- Stated goal of writing new programs, but  
there wasn't space and no guarantee
- Teach a full slate of AC courses while writing program proposals in spare time
- Motivating others to use technology &

# BAS Program Development

November, 2007

“Vision for the Future”  
meeting with President,  
VPs, Deans, and  
Division Chair in an  
attempt to gain support  
across collegiate  
administration & align  
goals

June, 2007

## **Challenges to surmount:**

- Gain trust from administration in our ability to deliver – previous RS Andrews project helped in this
- Show administration the industry support
- Show uniqueness and bragging rights
- Show the pathway to implementation

Slide from “Vision for the Future” meeting

# Vision for the Future





# Moving Forward

- **Existing Program Strength (Discussed earlier)  
Students / Enhancements / Placement**
- **Addition of Commercial Ref. & Controls Programs**
- **Continued Progress as Commercial Refrigeration &  
Controls Programs Develop**
- **Employment of New Teaching Technologies**
- **Additional Space Requirements**
- **Additional Instructors & Advisory Committee  
Members**
- **Capital Improvements**
- **Corporate Partnerships / Donations**

# **Commercial Refrigeration**

- **Submission Complete – Diploma / Degree**
- **Only Program in GA – Very Few in SouthEast**
- **Strong Interest / Strong Demand**
  - **Existing Students**
  - **Graduates**
  - **Industry**
- **Huge Demand for Qualified Technicians**
  - **Supermarkets / Vendors / Food Service / Etc**
- **Estimated 125,000 technician shortfall by 2010**
- **Planning Stage – Space Layout / Curriculum**

# **Control Systems**

- **Working on Submission – Diploma / Degree**
- **Meeting with Industry Leaders**
  - **Attempting to Employ Existing Models**
- **Only Program in GA – None Regionally**
- **Strong Interest / Strong Demand**
  - **Existing Students**
  - **Graduates**
  - **Industry**
- **Huge Demand for Qualified Technicians**
  - **Any Building of Size has Controls Systems**
  - **HVAC / Lighting / Fire Alarm / Intrusion / Video Surveillance**
- **Integration of Multiple Building Systems is Driving Demand for Highly Skilled Technicians in Controls**
- **Skills are Highly Technical – Starting Salaries Very High**

# Diploma / Degree Paths

ACT 100

ACT 101

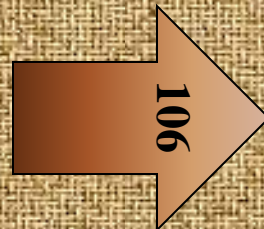
ACT 102

ACT 103

ACT 104

ACT 105

ACT 106



Controls  
Degree



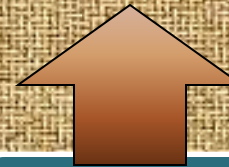
Refrigeration  
Degree



HVAC  
Degree



Controls  
Diploma



Refrigeration  
Diploma



HVAC  
Diploma



# BAS Program Development

Fall, 2007

Commercial  
Refrigeration(CR)  
Advisory Board  
established

## **Timing of CR industry board formation:**

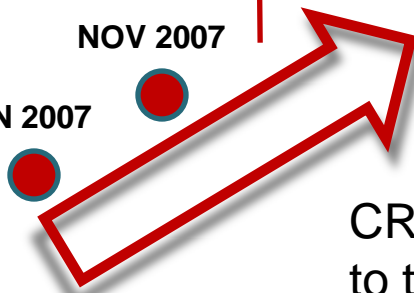
- After BAS approval by TCSG
- After laboratory space identified
- After course outlines were developed
- After establishing vision for program
- Prior to laboratory build-out

• Prior to courses being taught

CR advisory board assisted greatly in motivating administration to take action (see Ernie Thayer letter to President in pdf packet)

NOV 2007

JUN 2007





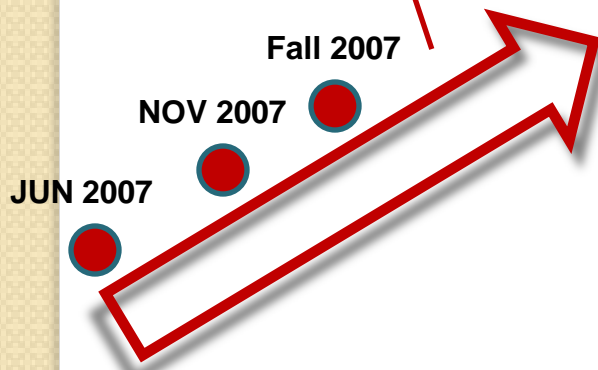
# BAS Program Development

Fall, 2007

We received approval from administrators to proceed with development of commercial refrigeration program, conducted research and developed a proposal which was approved by the college programmatic review committee, and it was then sent on to the TCSG system of GA where it was approved

## Key elements in TCSG approval:

- Minimal State of GA dollars needed
- Built with large % of existing courses
- Market analysis demonstrating need
- Industry support
- Student interest / potential for growth
- Qualified faculty to teach
- Allocated space for instruction



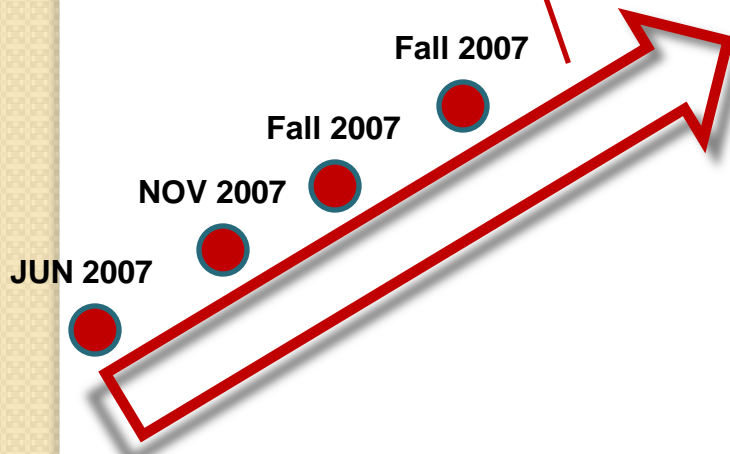
# BAS Program Development

Summer, 2008

We researched the need for a Building Automation Systems program, developed a proposal, and gained approval from the college review committee, submitted it to the state and subsequently gained approval from the TCSG system of GA

## **Key elements in TCSG approval:**

- Minimal State of GA dollars needed
- Built with large % of existing courses
- Market analysis demonstrating need
- Industry support
- Student interest / potential for growth
- Qualified faculty to teach
- Allocated space for instruction



# BAS Program Development

Fall, 2008

Renovations of  
laboratory spaces  
begins

Summer 2008

Fall 2007

Fall 2007

NOV 2007

JUN 2007

## **Challenges to attaining space:**

- Business case relating to student #'s
- Coordinating industry donations to coincide with space availability
- Developing a plan for build-out
- Institutional politics



11/11/08





12/29/08 – Ready for new floor





1/5/09 – New floor is down





# 2/20/09 – Cases arrive



# 2/20/09 – Refrigeration Rack



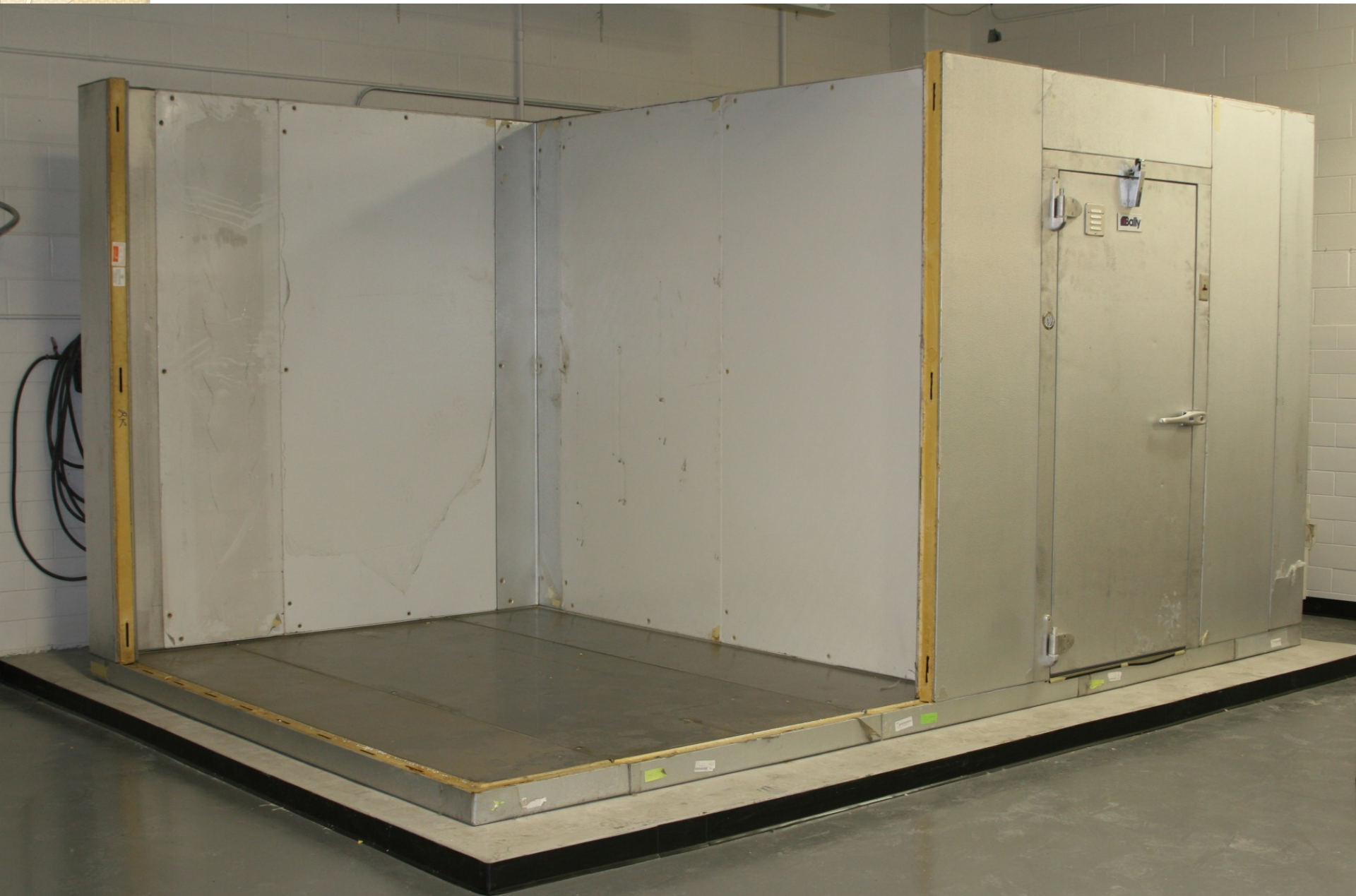


# Lab 3/9/09 – Moving cases





3/18/09 – Walk-Ins assembled





5/12/09 – Cases in place





# 5/19/09 – BAS Tables Arrive





# 5/21/09 – Table Assembly





# 5/21/09 – Table Assembly





# 5/27/09 – Tables shaping up





# 8/19/09 – BAS equipment arriving

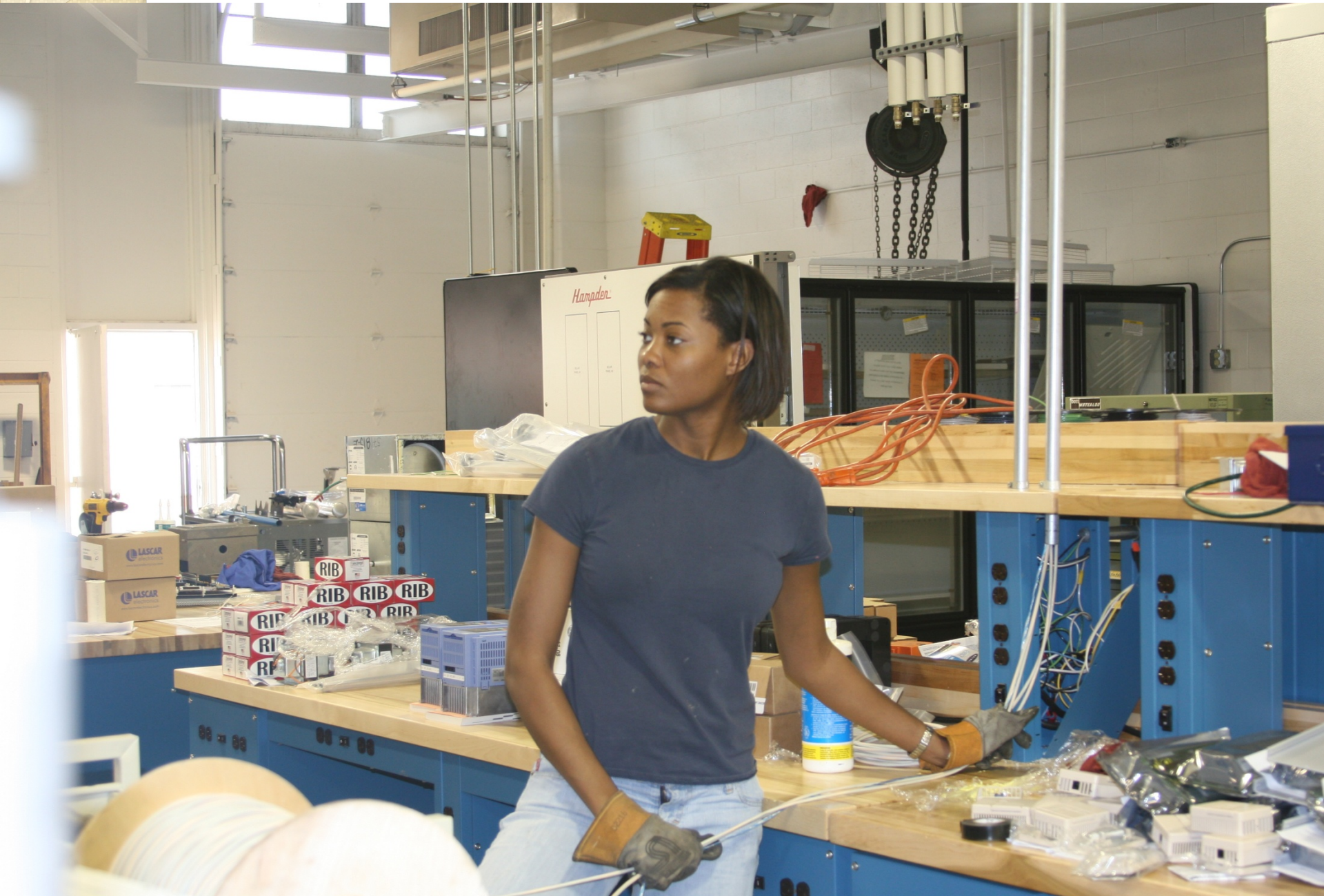


# 9/12/09 – Pulling control cables





# 9/12/09 – Pulling control cables





# 9/12/09 – Terminating controls

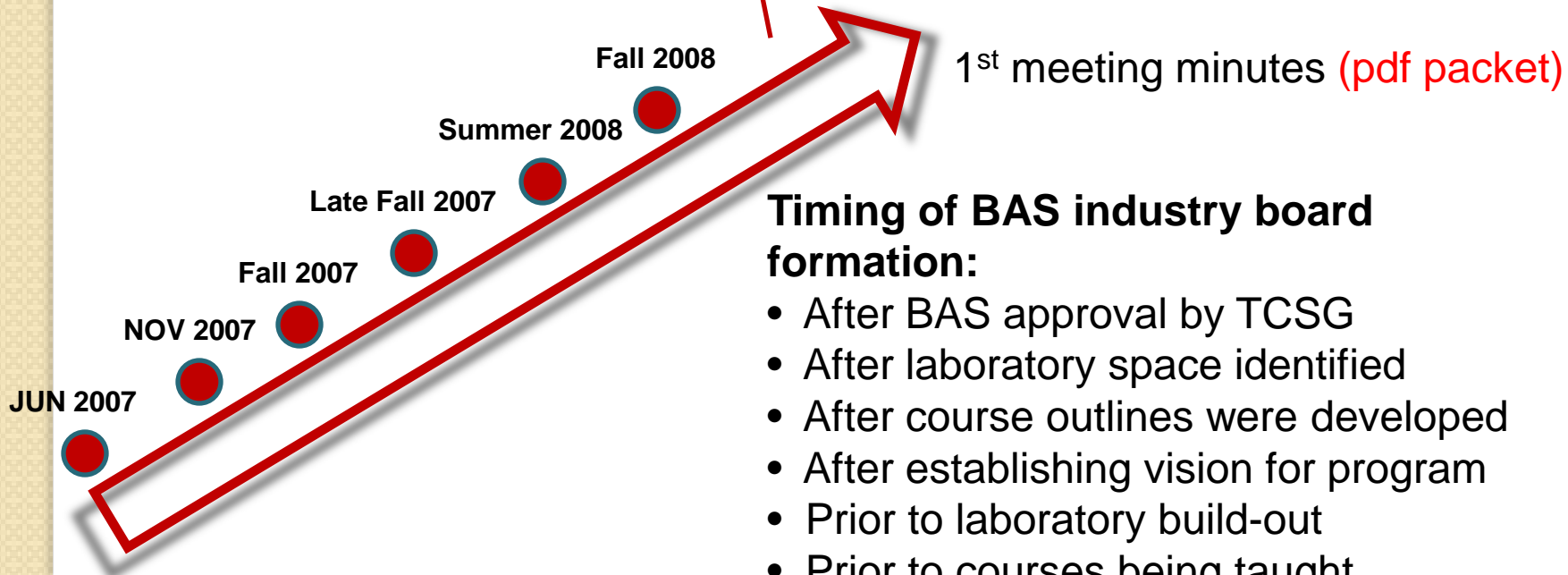




# BAS Program Development

February, 2009

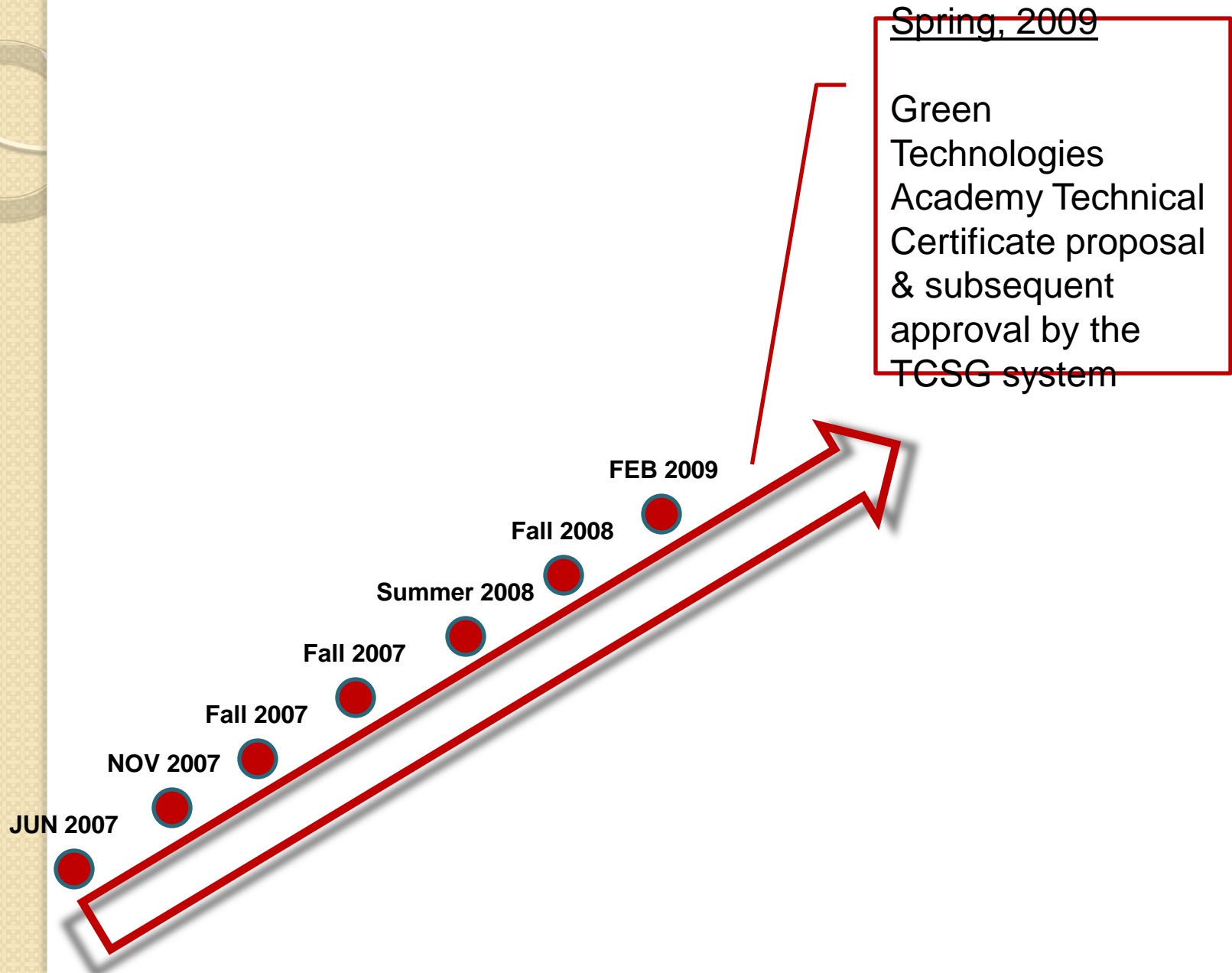
Building Automation  
Systems Advisory  
Board established



## Timing of BAS industry board formation:

- After BAS approval by TCSG
- After laboratory space identified
- After course outlines were developed
- After establishing vision for program
- Prior to laboratory build-out
- Prior to courses being taught

# BAS Program Development



# BAS Program Development

June, 2009

Green  
Technologies  
Academy Advisory  
Board established

Spring 2009

FEB 2009

Fall 2008

Summer 2008

Fall 2007

Fall 2007

NOV 2007

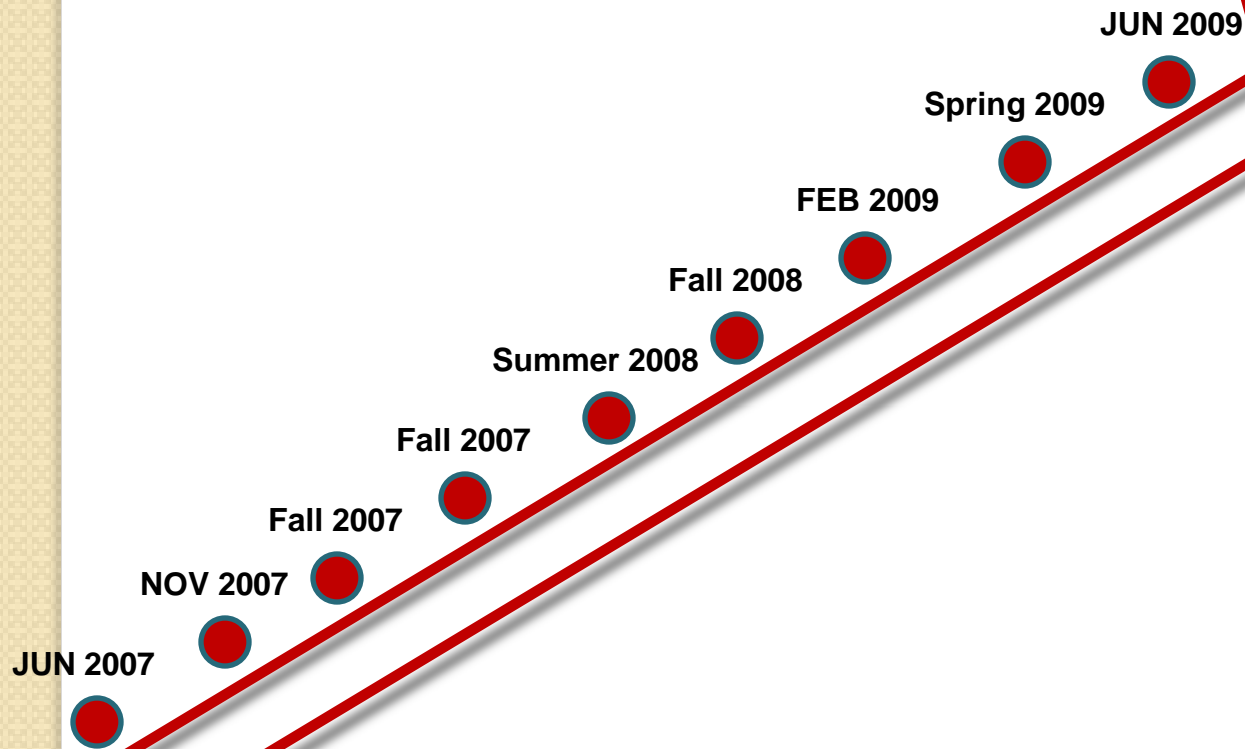
JUN 2007

At this stage, excitement across the college was growing, and we coupled this with industry support to develop a student / industry culture with Building Technologies Club

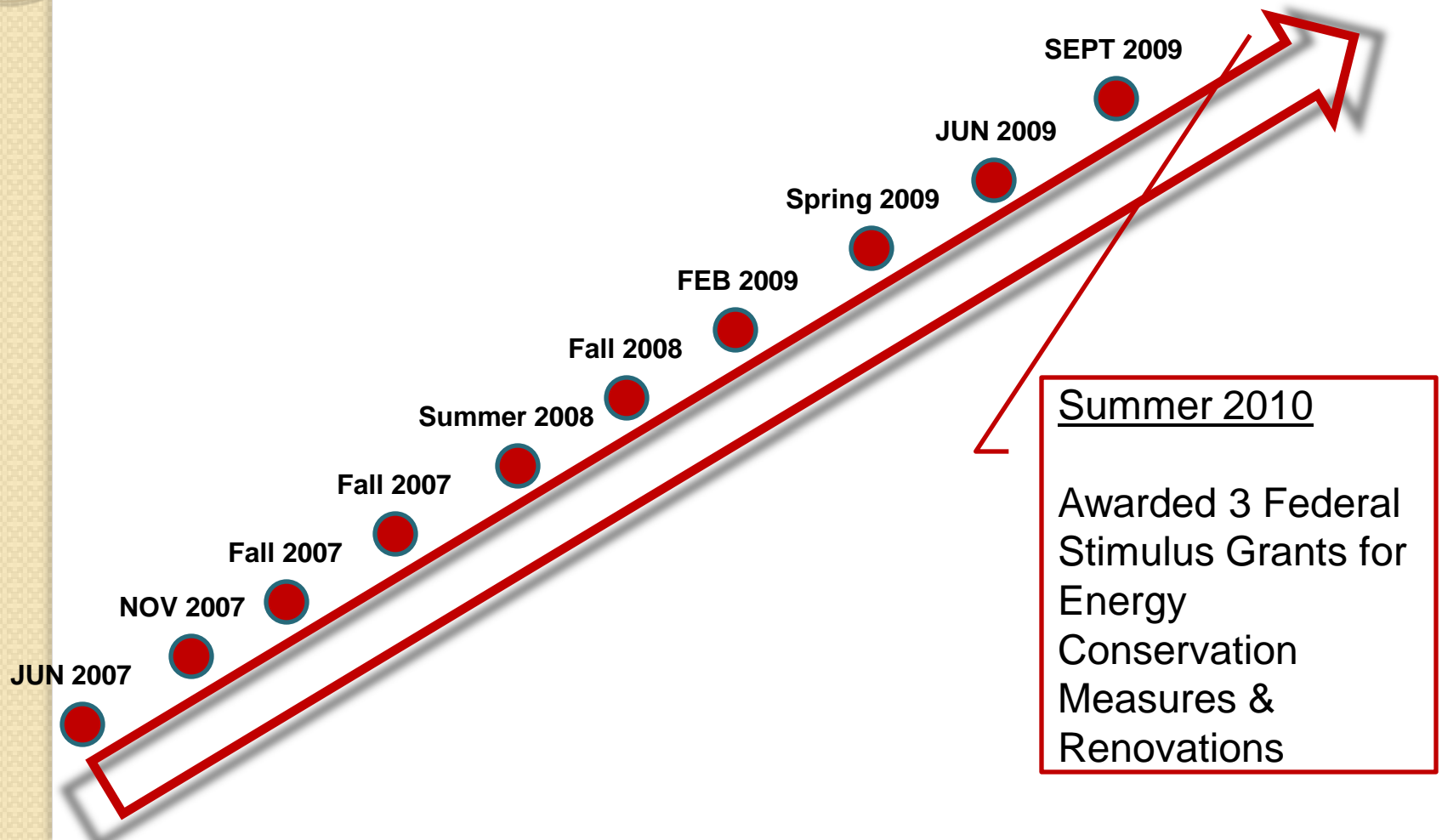
# BAS Program Development

September, 2009

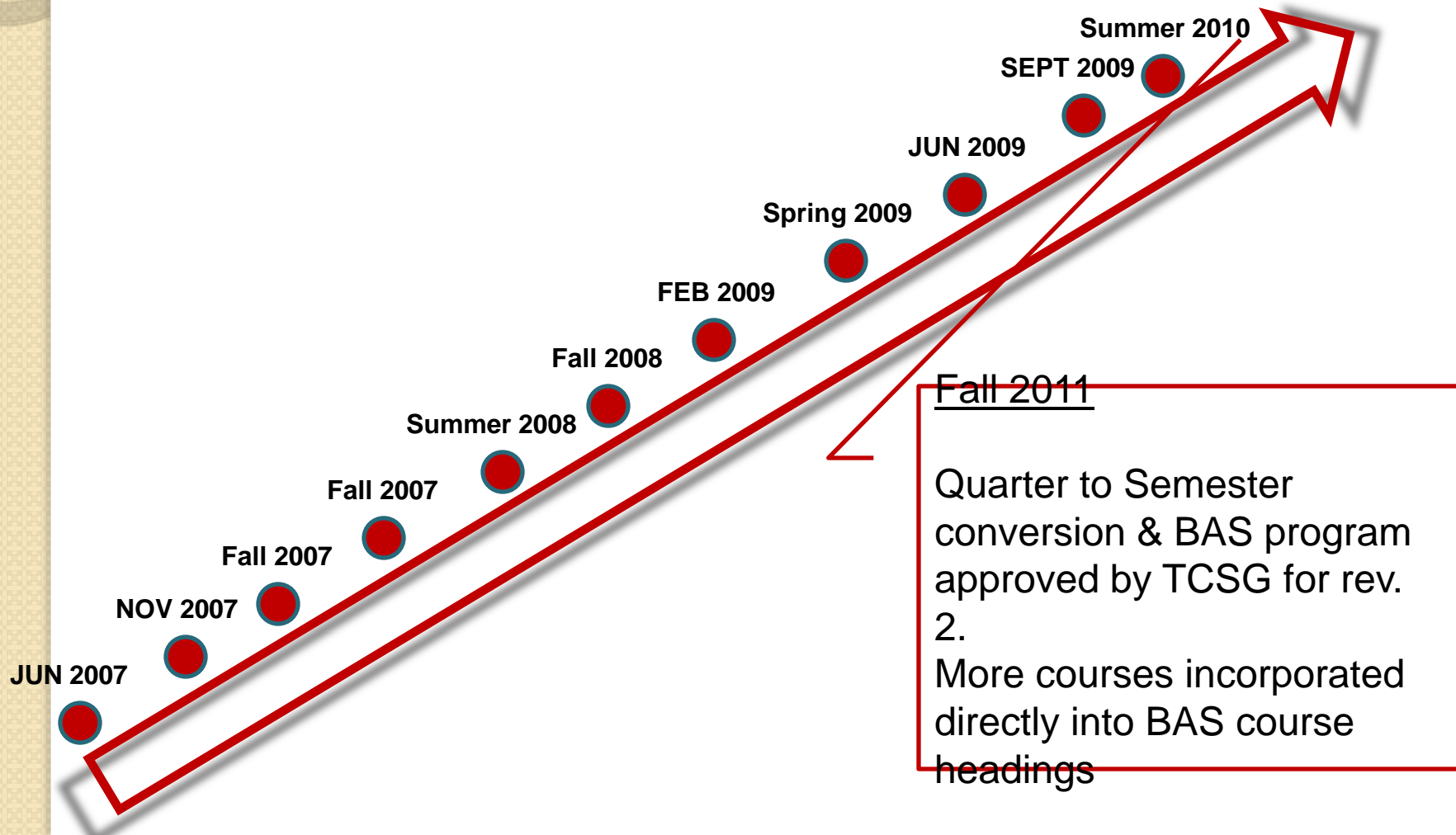
Grand Opening  
Celebration with  
administrators, 40 industry  
partner companies



# BAS Program Development



# BAS Program Development



# BAS Program Map from Quarter to Semester

## Quarter

### General

MAT 1111 (5) \_\_\_\_  
ENG 1101 (5) \_\_\_\_  
HUM 1101 (5) \_\_\_\_  
MAT 1113 (5) \_\_\_\_  
SCT 100 (3) \_\_\_\_  
AREA III (5) \_\_\_\_

### Core

IFC 100 (2) \_\_\_\_  
ACT 100 (4) \_\_\_\_  
ACT 101 (7) \_\_\_\_  
ACT 102 (7) \_\_\_\_

ACT 103 (7) \_\_\_\_  
ACT 104 (4) \_\_\_\_  
ACT 105 (5) \_\_\_\_  
ACT 106 (4) \_\_\_\_  
IFC 101 (4) \_\_\_\_  
CIS 1140 (6) \_\_\_\_  
ELC 108 (4) \_\_\_\_  
IFC 102 (4) \_\_\_\_  
BAS 200 (3) \_\_\_\_  
BAS 201 (4) \_\_\_\_  
BAS 202 (3) \_\_\_\_  
CIS 252 (7) \_\_\_\_  
BAS 203 (3) \_\_\_\_  
BAS 204 (3) \_\_\_\_  
BAS 205 (3) \_\_\_\_  
BAS 206 (3) \_\_\_\_  
BAS 210 (3) \_\_\_\_

## Semester

College Algebra (3) \_\_\_\_  
ENG 1101 (3) \_\_\_\_  
HUM 1101 (3) \_\_\_\_  
MAT 1113 (3) \_\_\_\_  
COMP 1000 (3) \_\_\_\_  
AREA III (3) \_\_\_\_

AIRC 1005 (4) \_\_\_\_  
AIRC 1010 (4) \_\_\_\_  
AIRC 1020 (4) \_\_\_\_

BUAS 1010 (2) \_\_\_\_  
BUAS 1020 (3) \_\_\_\_

BUAS 1030 (3) \_\_\_\_

BUAS 1040 (3) \_\_\_\_  
BUAS 1050 (3) \_\_\_\_

BUAS 1060 (3) \_\_\_\_

BUAS 2010 (3) \_\_\_\_

BUAS 2020 (3) \_\_\_\_

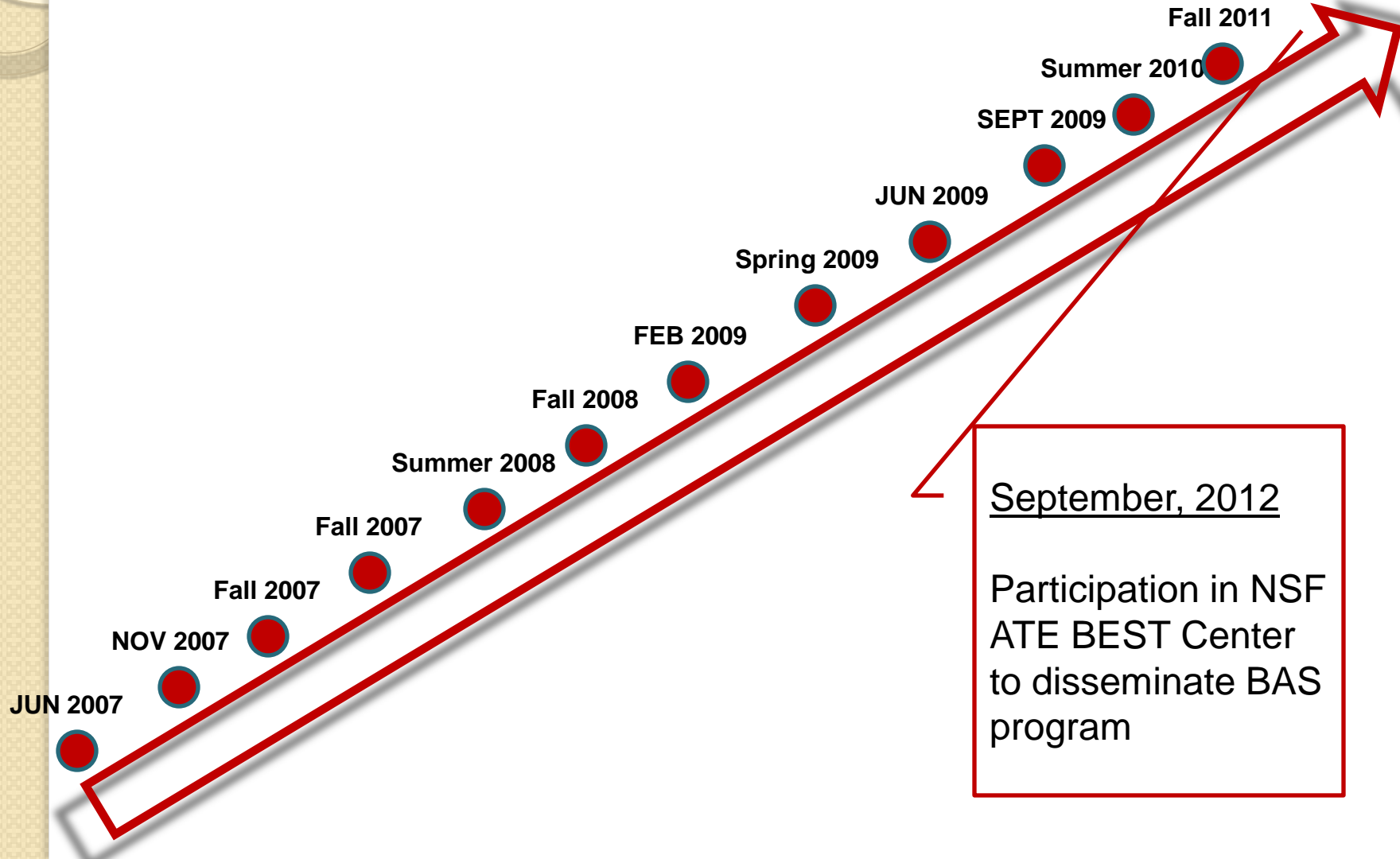
BUAS 2030 (3) \_\_\_\_

BUAS 2040 (5) \_\_\_\_

BUAS 2050 (3) \_\_\_\_



# BAS Program Development





# BEST Center Curricula, Resources & Recordings

## Academic Programs

Georgia Piedmont Technical College - Building Automation Systems

Milwaukee Area Technical College - Sustainable Facilities Operations

Laney College - Commercial HVAC Systems

City College San Francisco - Commercial Building Energy Analysis & Audits

## Professional Development Materials, Presentations & Videos

National Institutes

Building Automation Systems Instructor Workshops

Webinars (e.g., BEST Talks)

## Faculty Profile Videos

## Reports & Case Studies

## Marketing Resources

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