

*Beyond College
Admissions...*

**Toward College
and Career
Success!!!**

Panel Discussion

- University, business and industry representatives will discuss the value of advising high school students to consider applied science programs of study as viable pathways to career opportunities in science, technology and engineering.

Dr. Gayle Greene
*Dean - Arts, Humanities and
Social Sciences*



Dr. Tony Brizendine

Department Chair –
Engineering Technology



UNCC HARRIOTTE



Beyond College Admissions –
Toward College and Career Success

WCPSS CDC/Counselors Event
Wake Technical Community College
March 15, 2007

Careers in Engineering Technology or Construction Management...
Why?

Anthony L. Brizendine, PhD, PE, PS
Professor & Chair
Engineering Technology & Construction Management
University of North Carolina at Charlotte

Engineering Technology & Construction Management



Vision

The UNC Charlotte School of Engineering Technology and Construction Management delivers the “ET and CM Programs of Choice” in the southeast and among the top ten nationally...

Mission

The UNC Charlotte Engineering Technology & Construction Management programs exist to serve the citizens of North Carolina and the industries in this region...

Engineering Technology & Construction Management

✧ “BS Programs” ✧

Civil Engineering Technology (CET)

Construction Management (CM) - (NEW IN FALL 2006)

Electrical Engineering Technology (ELET)

Fire Safety Engineering Technology (FSET)

Mechanical Engineering Technology (MET)

Distance Delivery – ELET +2 (Upper Division)

Distance Delivery – FSET +2 (Upper Division)

*Future Plans – MS Construction Management
MS Fire Science*

Program Outcomes: (These are statements that describe what students are expected to know and be able to do by the time of graduation.)

Graduates with a Bachelor of Science in Engineering Technology (BSET) or Construction Management (BSCM) degree from UNC Charlotte will be able to:

Utilize appropriate tools to acquire data and analyze problems. (TAC 2a, 2b, 2c)

Demonstrate effective skills in the development and presentation of team projects. (TAC 2e, 2g, 2k)

Exhibit knowledge and skills consistent with the expectations of a practicing engineering technologist or construction manager. (TAC 2h, 2j, 2k)

Generate creative and realistic solutions to defined problems and projects.
(TAC 2a, 2d, 2f)

Recognize the value of diversity, and identify ethical and societal issues in business and technical tasks. (TAC 2i, 2j)

Solve problems and design components, systems or processes appropriate to the discipline. (TAC 2a, 2d, & Program Criteria)

UNC Charlotte Engineering Technology & Construction Management

✧ “Where we are in Academic Year 2006-2007” ✧

➤ Currently 5 BS Programs

➤ Four BS Engineering Technology Programs (Civil, Electrical, Fire Safety, & Mechanical ET)

➤ BS in Construction Management

➤ Currently have 24 Full-time faculty, 15 Part-time

➤ Adding 6 to 7 new tenure-faculty for fall 2007

➤ Total **Fall 2006** ET Enrollment - **632 Students** *

➤ 2005 ASEE ET Programs Listing (Ranked **13th** Nationally with 357 students for AY 2004-05) *

* UNC Charlotte Fact Books & ASEE Directories





Engineering Technology & Construction Management

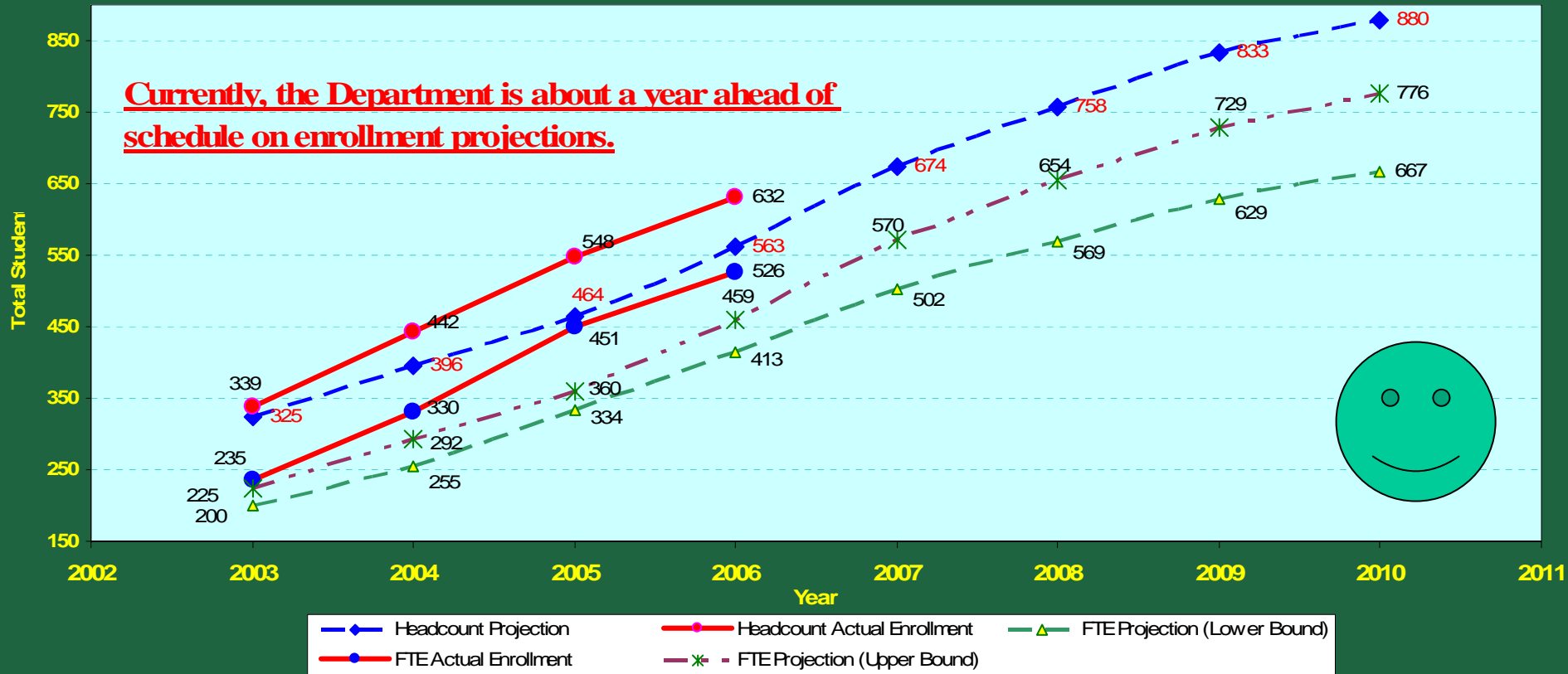
✧ “Where we aspire to be.....” ✧

• Milestones for 2010 to 2013

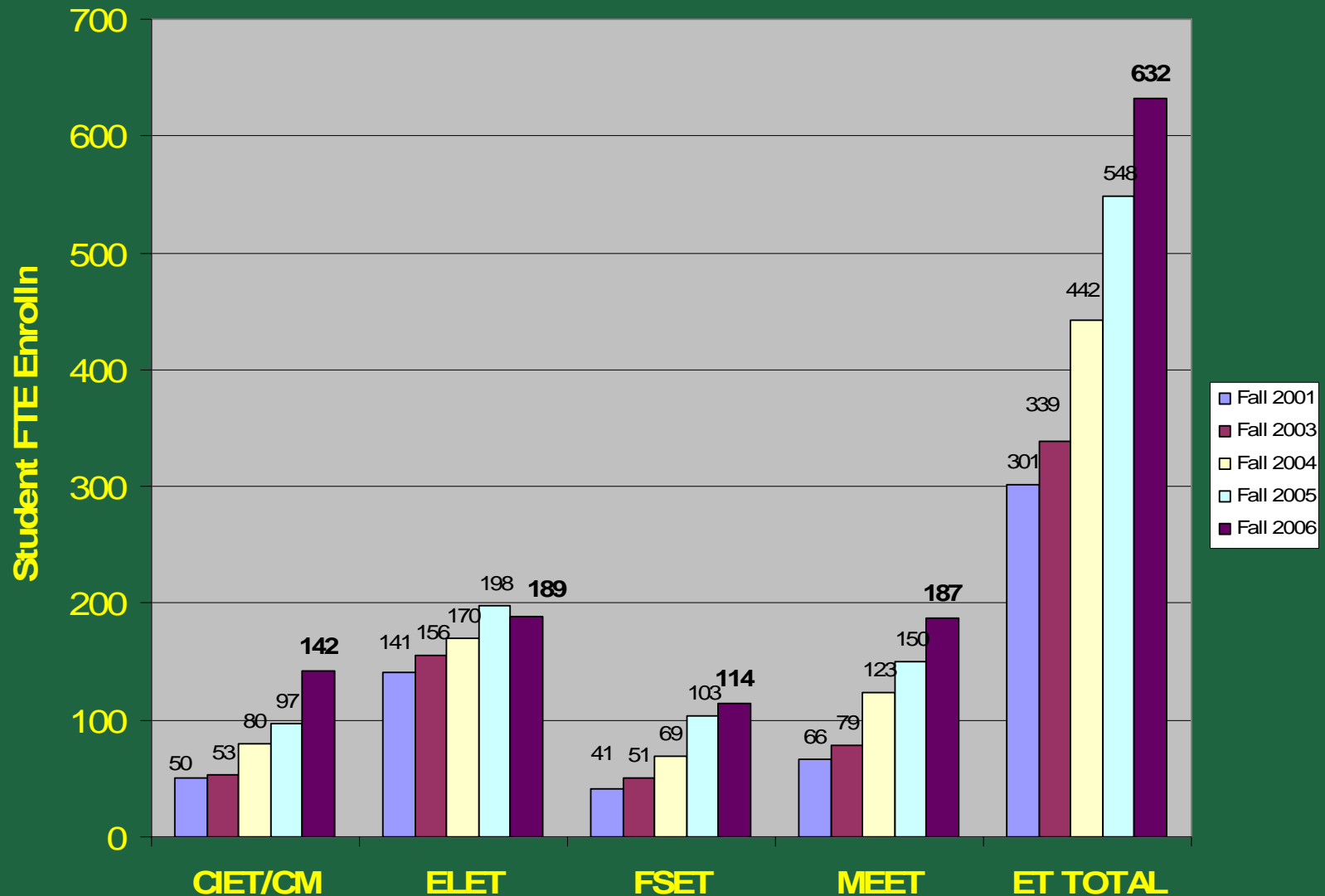
- School of Engineering Technology & Construction Management
- Location: CRI Campus - New Building
- Seven (7) Undergraduate Programs (Current programs plus)
 - BS Facilities Management & Plant Engineering
 - BS Computer ET
- Two Graduate Programs (MS)
 - MS Construction Management
 - MS Fire Science
- 41+ FT Faculty Members
- Total Enrollment of 925 - 1200+ students
- Degrees Awarded Annually at 150 - 225
- Top 10 (5) Level Nationally in enrollment & degrees awarded

Enrollment Growth Projection & Tracking

Currently, the Department is about a year ahead of schedule on enrollment projections.



Headcount Enrollment Trends Fall 2001-2006



Year 2010

UNCC School of Technology in 2010

Top 10 U.S. – BSET Enrollments

	School	State	Enrollment
1	Ferris State University	MI	1962
2	Purdue University School of Technology	IN	1641
3	Indiana U. Purdue U. at Indianapolis	IN	1530
4	Southern Polytechnic State Univ.	GA	1488
5	Wentworth Institute of Technology	MA	1413
6	Texas A&M University	TX	1282
7	Rochester Institute of Technology	NY	1013
8	DeVry School of Technology	IL	910+
9	DeVry Inst. of Tech., Chicago	IL	704
10	Alfred State College	NY	689

Top 10 U.S. – Number of BSET Degrees Awarded

Year 2010

UNCC School of Technology in 2010

	School	State	Degrees Awarded
1	Texas A&M University	TX	331
2	Ferris State University	MI	300
3	Purdue Univ. School of Technology	IN	265
4	DeVry Inst. of Tech., Phoenix	AZ	211
5	Wentworth Institute of Technology	MA	207
6	Southern Polytechnic State Univ.	GA	202
7	Rochester Institute of Technology	NY	196
8	Indiana U. Purdue U. School of Technology	IN	185
9	Okalahoma State University	OK	134
10	SUNY Inst. of Tech., Utica/Rome	NY	125

UNCC School of Technology in 2010 **150**



Why Should You Consider Engineering Technology or Construction Management as a career choice?

- Increasing Workforce Demand + Decreasing Supply =
National Shortage in Technical Workforce
- Good paying jobs with excellent upward career mobility =
Professional Security and Personal Fulfillment
- Opportunity to contribute on teams to solve problems of local / regional / national / global importance and improve quality of life of citizens worldwide =
Career Satisfaction & Sense of Contribution to Society

Employment Prospects 2000-2010

Total Job Openings

Total Architecture & Engineering	868,000
Architects, surveyors, cartographers	61,000
Engineers (All Disciplines)	432,000
Engineering technicians *	375,000

* Includes drafting and mapping

(Source: US Dept. of Labor, Bureau of Labor Statistics Employment Projections)

Employment, Growth & Earnings – 2000 to 2010

Occupation	2000-2010 total job openings (Due to growth and net replacement needs)	2000 Median annual earnings
Civil Engineers	60,000 (23.4 %)	\$ 55,740
Civil Engineering Technicians	30,000 (28.6%)	\$ 35,990
Architectural & civil drafters	52,000 (42.3 %)	\$ 35,220
Environmental engineering technicians	9,000 (37.5 %)	\$ 34,000
Cost Estimators	81,000 (38.4 %)	\$ 45,800
Construction Managers	100,000 (32.5 %)	\$ 58,250
All Drafters	106,000 (49.8 %)	-
All Engineering Technicians (except drafters)	167,000 (32.2 %)	-
All drafting, engineering, and mapping technicians	375,000 (34.1 %)	\$ 41,710
All engineering	432,000 (29.5 %)	-
Total, all occupations	57,930,000 (34.4 %)	-

(Source: US Dept. of Labor, Bureau of Labor Statistics Employment Projections)

Employment, Growth & Earnings – 2000 to 2010

Occupation	2000-2010 job openings (Due to growth and net replacement needs)	2000 Median annual earnings
Electrical engineers	47,000 (28.6 %)	\$ 64,910
Electronics engineers	37,000 (28.5 %)	\$ 64,830
Computer engineers (hardware)	23,000 (38.3 %)	\$ 67,300
Computer engineers (software)	711,000 (102 %)	\$ 67,670
Electrical and electronic engineering technicians	72,000 (27.1 %)	\$ 40,020
Electrical and electronics drafters	20,000 (39.2 %)	\$ 38,210
Electro-mechanical & industrial engineering technicians	31,000 (29.0 %)	-
All Engineering Technicians (except drafters)	167,000 (32.2 %)	-
All engineering	432,000 (29.5 %)	-

(Source: US Dept. of Labor, Bureau of Labor Statistics Employment Projections)

Employment, Growth & Earnings – 2000 to 2010

Occupation	2000-2010 job openings (Due to growth and net replacement needs)	2000 Median annual earnings
Mechanical engineers	94,000 (35.9 %)	\$ 58,710
Mechanical engineering technicians	20,000 (30.3 %)	\$ 40,580
Electro-mechanical & industrial engineering technicians	31,000 (29.0 %)	-
Mechanical drafters	32,000 (45.7 %)	\$ 37,835
All Drafters	106,000 (49.8 %)	-
All Engineering Technicians (except drafters)	167,000 (32.2 %)	-
All engineering	432,000 (29.5 %)	-
Total, all occupations	57,932,000 (34.4 %)	-

(Source: US Dept. of Labor, Bureau of Labor Statistics Employment Projections)

Unemployment & Earnings By Educational Attainment

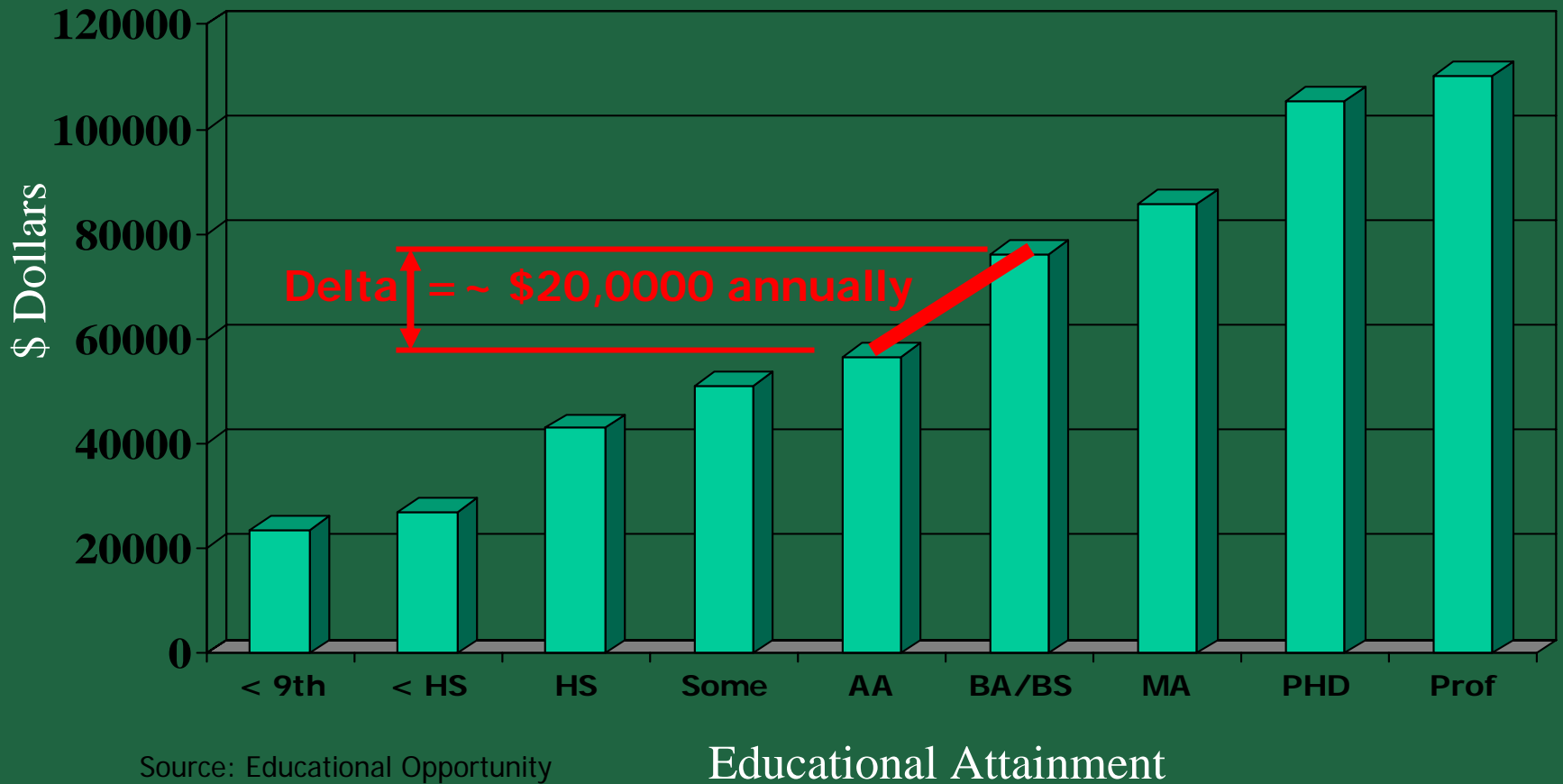
Unemployment rate in 2000	Education attained	Median earnings in 2000
-	Professional Degree	\$ 80,200
-	Doctorate	\$ 70,500
1.6 %	Master's degree	\$ 55,300
1.8 %	Bachelor's degree	\$ 46,300
2.3 %	Associate degree	\$ 35,400
2.9 %	Some college, no degree	\$ 32,400
3.5 %	High-school graduate	\$ 28,800
6.5 %	Some high-school, no diploma	\$ 21,400

BS to AAS Differential - \$10,900 per year; career earnings differential approaching \$500,000
 When TVM (6% assumed) Effects Considered totals reach \$1.7 M

Unemployment and earnings for workers age 25 and over, by educational attainment

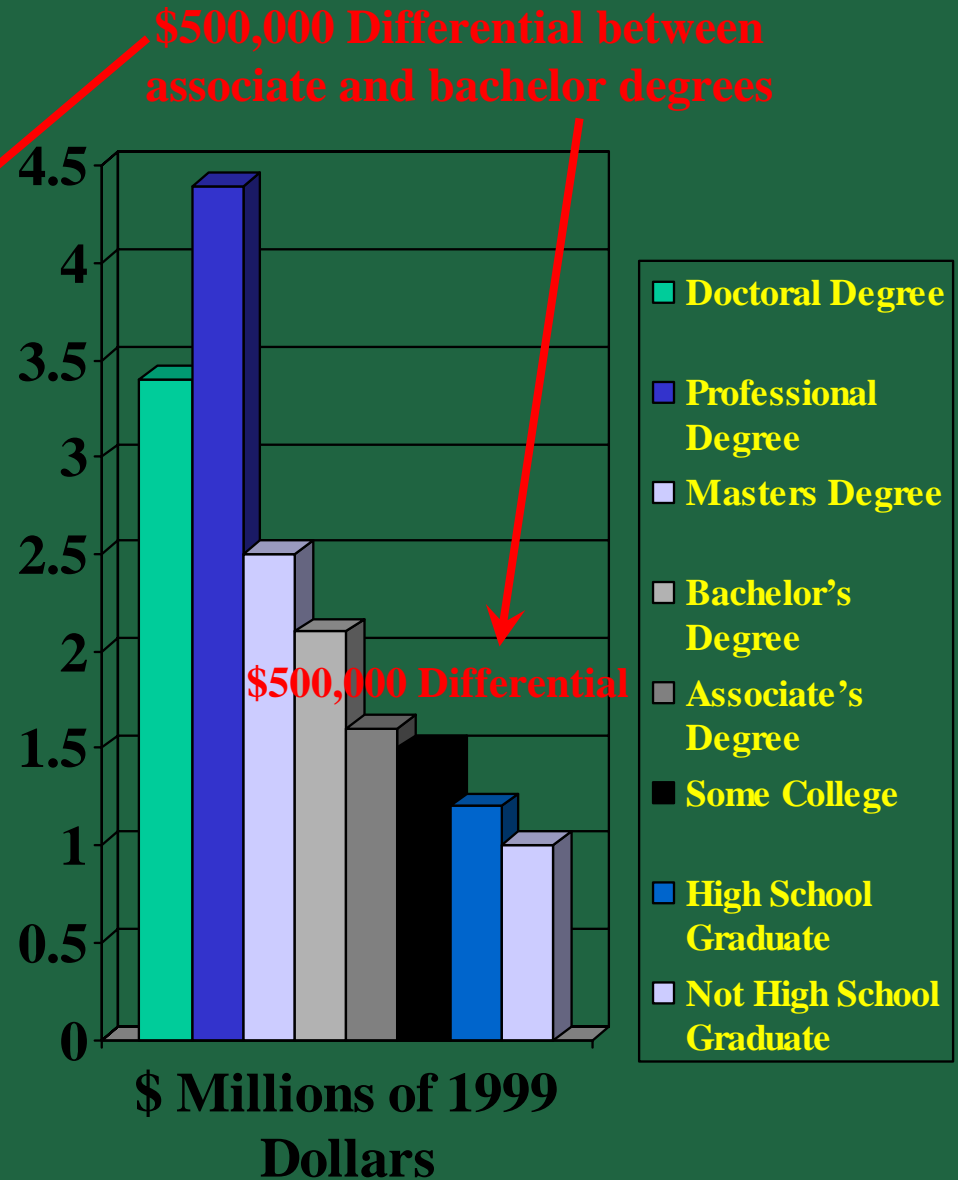
Source: Unemployment rate, 2000 annual average: Bureau of labor Statistics; earnings, March 2000: Bureau of the Census.

MEDIAIN FAMILY INCOME



Lifetime Earnings

Educational Attainment	Synthetic Work-Life Earnings (Millions of 1999 Dollars)
Doctoral Degree	3.4
Professional Degree	4.4
Masters Degree	2.5
Bachelor's Degree	2.1
Associate's Degree	1.6
Some College	1.5
High School Graduate	1.2
Not High School Graduate	1.0



Who Hires UNC Charlotte BSET Graduates?

Employer	Title
Cagle Surveys	Assoc. Land Surveyor /Draftsman/Crew Chief
Cooper Environmental	Engineering Technician
Fleming Engineering	Engineering Intern
Tully Construction	Job Estimator
Concord Engineering & Surveying, Inc.	Engineer Technician
Froehling & Robertson, Inc.	Engineering Staff
City of Charlotte	Civil Engineer I
Dewberry & Davis Inc.	Project Engineer
Rooftop Systems Engineers	Roof Consultant
Meade Gunnell Engineering & Surveying	Project Manager
Conover Metal Products	Engineer In Training
Whiting-Turner Contracting Company	Project Engineer
BP Barber Associate	Engineering Associate
City of Mount Airy	Civil Engineer
Metwood Incorporated	Designer/Estimator
NCDOT	Transportation Technician
Players, Inc	Project Manager/Estimator

Who Hires UNC Charlotte BSET Graduates?

Employer	Title
RF Micro Devices	Application Engineer
Wachovia	Project Assistant
Clariant Corp.	Sr. Technology Support Specialist
Continental Teves	Material Handling
SPX	Maintenance Electrician
Weyerhaeuser	Motor drives, controllers
WSOC/WAXN TV	Operations Engineer
US Coast Guard	Lieutenant
Johnson Controls, Inc.	Applications Engineer
DataSouth Computer Group	Electrical Engineer
Duke Energy Corporation	Electrical Engineer
Keller's Incorporated	Project Manager
NASA/Goddard Space Flight Center	Vehicle Electrical Support Test Op Engineer
Rockwell Automation	Electrical Sales Engineer
USAirways	Service Engineer
AGV Products, Inc.	Project Engineer
AGV Products, Inc.	Senior Project Engineer

Who Hires UNC Charlotte BSET Graduates?

Employer	Title
American Truetzschler	Field Service Technician/Application Engineer
Analog Devices, Inc.	Design Technician
ATS Carolina	Electrical Engineer
Bealer Wholesale, Inc.	Computer Technician
Bellsouth Corporation	Electronic Technician
Genesis Systems Group	Control Engineer
Lefler's Electronics Inc	Alarm Technician
MTS	Electrical Engineer
Protronix Inc	Systems Engineer
Reliance Electric	Electrical Engineer
Sentrol Controls Group	Electrical Engineer I
Softcell, Inc.	Applications Engineer
Tideland EMC	Associate Engineer

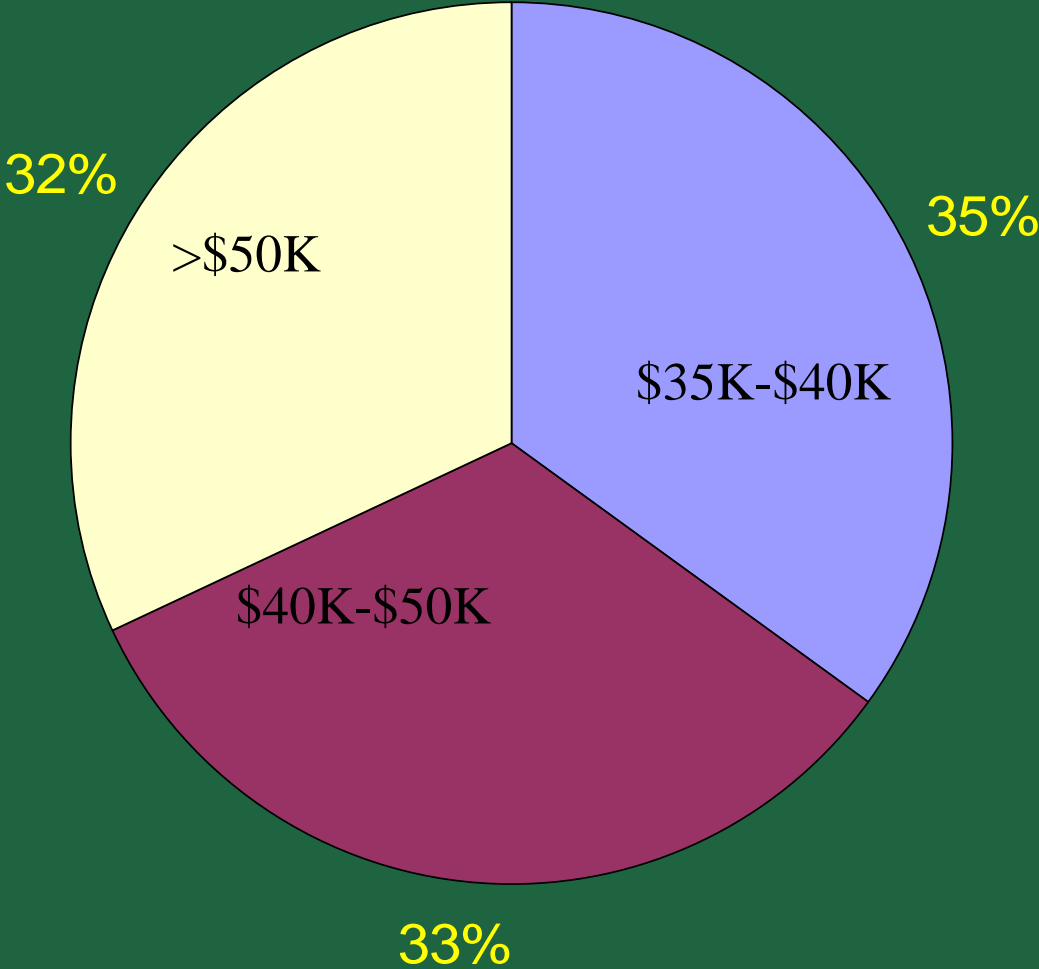
Who Hires UNC Charlotte BSET Graduates?

Employer	Title
Julius Blum Inc.	Injection Molding Engineer
Sony Ericcson	Development Engineer
Perfecting Coupling	Engineer
Atlantic Engineering	CNC Programmer
Daetwyler Corp.	Design Engineer
City of Charlotte	Waste Water Treatment Plant Mechanic
Borg-Warner	Quality Control Engineer
Charlotte Plastics	Design Engineer
CommScope	Equipment Engineer
Ocean Spray Cranberries	Environ., Health & Safety Mgr.
Windsor Windows and Doors	Plant Engineer
Pass and Seymour/LeGrand	Product Design
ISM Trane	Design Engineer/Engineering Team Supervisor
Kent Trusses	Technical Representative/Design Engineer
Southeast Engineered Solutions	Regional Sales Manager
United Engineering Group, Inc.	Mechanical Designer

Who Hires UNC Charlotte BSET Graduates?

Employer	Title
Corning Cable Systems	Process Engineer
United Engineering Group, Inc.	Design Engineer
BPI Incorporated	RCI Coordinator
Dana Corp	Transmission Product Engineer
Flexalloy	Applications Engineer
IBM	Mechanical Engineer
ISTAT Corporation	Associate Engineer
Marley Electric Heating	Product Manager
NAN YA	Supervisor
Phelps Dodge	Process Engineer
Storm Engineering & Associate	VP/Design Engineer

2004-2005 BSET Graduate Starting Salaries





Why Should You Choose to study Engineering Technology or Construction Management at UNC Charlotte, or alternatively, transfer to UNC Charlotte after your associate degree in ET or CM is earned!

- Lifetime earnings potential for BS graduates in ET or CM is outstanding when compared to associate degrees or many other BS degrees
- UNC Charlotte programs are TAC of ABET accredited and increasingly recognized as among best nationally
 - Small Class Sizes, Individual Advising
 - Outstanding facilities with well-equipped laboratories,
 - Faculty with Professional Industry/Consulting/Government experience
 - Outstanding academic enhancement opportunities such as internship, coop, leadership academy, professional and career development, and potential for scholarship support

From: Mark Gxxxxxx

Sent: Wednesday, March 14, 2007 7:06 AM

To: Brizendine, Tony

Subject: Mark Gxxxxxx

Dr. Brizendine,

Hi how are you? You may remember me. I graduated in '94. You gave me a D in Highway Design, so I have decided after all these years to come after you. Actually I owe you a thank you **for teaching me to become a problem solver. It has truly helped in making our family business a success.** Thank you.

The reason for the email is to ask you if there are any students looking to be placed in the construction field, in either an apprentice-ship or a full time position. We are a **General Contractor in southern Maryland. We do approx 20 million in commercial construction along with residential construction and commercial and residential development.** Most of our work is in this area. I am looking for good people to train in the estimating, project management and field supervision positions as well as contract administration. If you can help me I would once again owe you a Thank you. If you have the time to talk please give me a call 301 843 xxxx

I hope all is well with you and your endeavors

Sincerely, Mark

Thank You!

Questions?

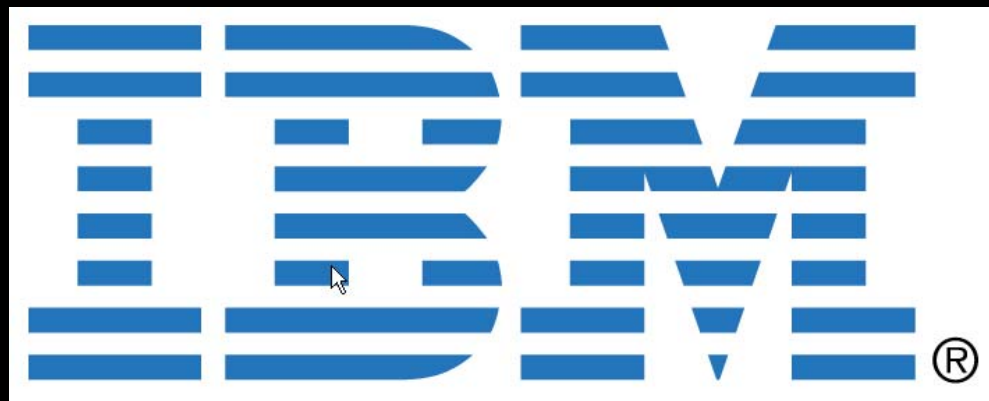


Dr. David Batts

Program Coordinator for
BSIT



Jeffrey A. Gibbs
Relationship Manager
IBM Academic Initiative





IBM Academic Initiative

In-demand skills for an On Demand world

Jeff Gibbs



The need for skilled developers and IT professionals is greater than ever

- **71% of all vacant positions in science and engineering between 2004 and 2014, or 1.6 million jobs, will be in information technology.**
- **The fastest-growing occupation in the next decade is projected to be computer software engineers**
- **Approximately 70 million Baby Boomers will exit the workforce during the next 15 years, with only 40 million workers coming in**

* Watson Wyatt, Monster.com; U.S. Department of Labor; Bureau of Labor Statistics; Information Technology Association of America

Student enrollment in science and engineering continues to decline

- **Newly declared computer-science majors down 32% from 2000 – 04 (1)**
- **Incoming freshmen who expressed an interest in majoring in computer science has plummeted by 59% in the last four years. (2)**
- **Women's interest in computer science fell 80% between 1998 – 2004 (2)**
- **Only 0.3 percent of incoming freshmen women in 2004 expressed an interest in majoring in computer science (2)**

Sources (1) CRA, (2) HERI at UCLA (3) US dept of Labor Statistics

Growth of Job Openings by Category, Nationwide, 2004 – 2006

IT Sales and Marketing	120.6%
Business/Process Design	96.9%
IT Architects/Consultants	58.7%
IT Management	52.4%
Software Development	52.0%
Systems Administration	48.5%
Systems Engineering / Support	26.1%

Job Openings by Category, Nationwide, 2006

Systems Engineering / Support	48,510
Software Development	39,910
IT Management	26,370
IT Architects/Consultants	27,330
IT Sales and Marketing	17,910
Systems Administration	9,100
Business/Process Design	6,930

Most Required Tech Skills, Nationwide, 2006

Technology	Job Openings (estimate)
MS Windows O/S	30,260
Java	27,670
SQL	27,370
C++	20,410
Oracle DBMS	18,850
XML	15,910
Linux	15,480
HTML	13,780

IBM's Academic Initiative College Support

Broad range of no cost offerings for faculty and students

- IBM middleware
- Education/Workshops for faculty and IT staff
- Course materials
- Certifications
- Access to IBM hardware
- Tutorials, articles
- Curriculum assessment services
- Forums, webcasts and newsletters



धन्यवाद

Hindi

شكراً

Arabic

ขอขอบคุณ

Thai

Спасибо

Russian

多謝

Traditional Chinese

Obrigado

Brazilian Portuguese



Dankie

Afrikaans

Siyabonga

Zulu

Danke

German

Grazie

Italian



English

Gracias

Spanish

நன்றி

Tamil

Merci

French

감사합니다

Korean

ありがとうございました

Japanese

多谢

Simplified Chinese

Tak

Danish / Norwegian

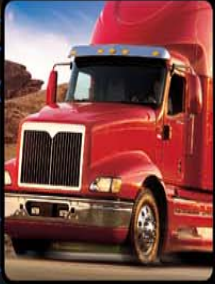
Tack

Swedish

Chris Jones
Regional Human
Resources Director



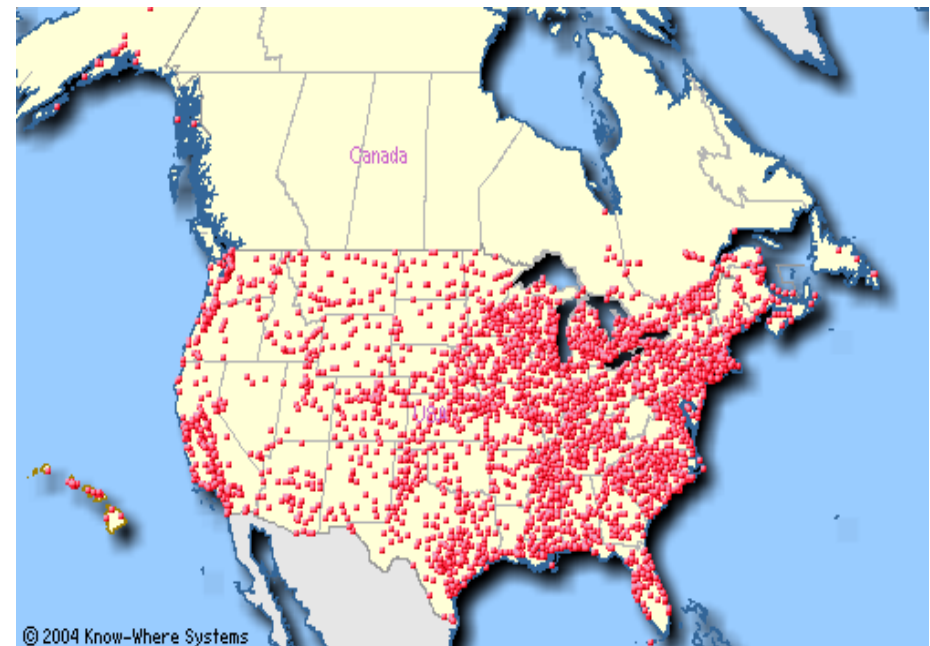
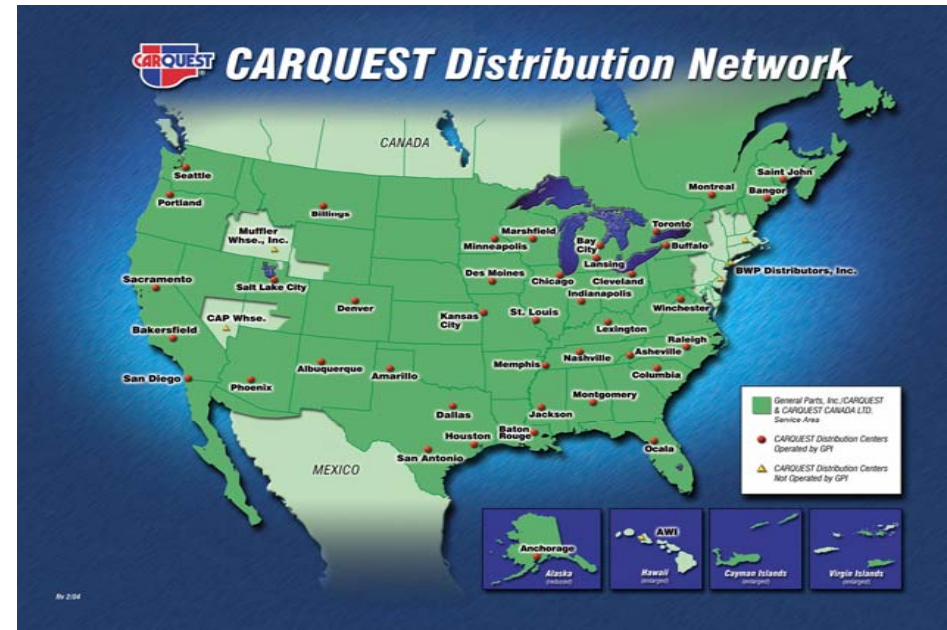
CARQUEST[®]



**PROUDLY SERVING
A WORLD IN MOTION**

CARQUEST Profile

- **Founded in 1961**
- **Headquartered in Raleigh, North Carolina.**
- **Private, Employee Owned Company, through ESOP and Direct Ownership.**
- **Over 18,000 Employees**
- **45 Consecutive Years of Profitable Sales and Growth**
- **47 Distribution Centers**
- **3,400 CARQUEST Stores in U.S., Canada, Mexico and the Caribbean**
- **Single focus on the professional technician**
- **Recognized as the leading supplier to today's technician**





**Over 1,000
CARQUEST
employees in
Wake County!**



Job Growth in our company...

- 🌐 Grown from 14,000 employees in 2003 to over 18,000 today
- 🌐 In Wake County, CARQUEST employee population nearly doubled in the last 4 years

- 🌐 Over 250 IT Professionals
- 🌐 Over 200 Accounting Professionals
- 🌐 Over 180 employees hired on our corporate campus last year alone



Future Staffing Needs in Wake County...

- 🌐 In the next 10 years, over 25% of employees on our Corporate Campus will reach retirement age.
- 🌐 Over 1/3 potentially retiring in the next 15 years.
- 🌐 Many are in crucial management positions.
- 🌐 Don't forget: Continued Job Growth, Early Retirements, or Attrition
- 🌐 We must be hiring and developing future leaders today to lead our organization in the future.
- 🌐 Succession planning and recruiting talented individuals is crucial to our continued success!

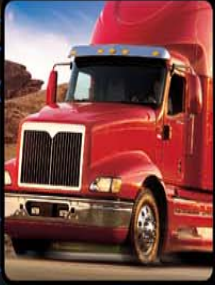


Partnership...

**We are partnering with Wake Tech to
develop a source of future
CARQUEST Employees!!!**



CARQUEST[®]



**PROUDLY SERVING
A WORLD IN MOTION**

Questions

&

Answers

Break-out Sessions

- **Health Sciences** – *Dianne Hinson*
- **Applied Technologies** – *Sammie Thornton*
- **Business Technologies** – *Sandy Dietrich*
- **Computer & Engineering Technologies** – *Butch Grove*