Is it time to rebrand ?.....

prepared for the
2013 Engineering Technology Leadership Institute

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Disclaimer

The content of this presentation consists of my own personal views, thoughts, and opinions (and occasionally the opinion's of others) and does not represent any official view or policy of Vanderbilt University or of the American Society for Engineering Education.

Our Practical Challenges as Engineering Educators

recruitment – retention – the pipeline …… student diversity ……. faculty diversity …… pedagogy ….. how students learn …. use of technology …… design ……. hands-on experiences …….. …. student's technical skills, professional skills, and soft skills ……. ABET ……. student faculty ratios …… globalization ……. research and scholarship … funding …. space … innovation …. .. entrepreneurship …. IP … start-ups …. the economy …. jobs

Pipeline

~ 3.2 million HS graduates per year (2012) (BLS.gov)
~ 2.1 million entered college (2012) (BLS.gov)

> 111,000 enrolled in 1st year engineering programs (ASEE 2008)

88,176 received BS in engineering (2012) (ASEE 2012)

6,363 received BS in engineering technology (ASEE 2012)

UG Student Demographics Fall 2012

504,690 engr. students
80.7% men, 19.3% women

~ 5.5% African–American
~ 11.4% Hispanic–American
~ 11.9% Asian–American
~ 3.4% Other (Native–Am.)

26,818 engr. technology students
90.1% men, 9.9% women

~ 11.2% African–American
~ 9.7% Hispanic–American
~ 5.0% Asian–American
~ 3.9% Other (Native–Am.)

ASEE "Profiles" 2012

Response rate to the ASEE survey is about 92 percent for engineering schools and about 75 percent for ET schools. Only ABET accredited schools are surveyed.

Tenured/Tenure-track Faculty Demographics

25,179 engr. faculty		1,048 engr. technology faculty
~ 86.9% men, 14.0 % women		~ 85.6% men, 14.4 % women
~ 14.0% Women	(9.9% in 03)	~ 14.4% Women
~ 2.7% African–Am	(2.2% in 03)	~ 3.2% African–American
~ 3.9% Hispanic–Am	(3.1% in 03)	~ 3.2% Hispanic–American
~ 24.6% Asian–Am	(19.2% in 03)	~ 17.1% Asian–American

ASEE "Profiles" 2012

Response rate to the ASEE survey is about 92 percent for engineering schools and about 75 percent for ET schools. Only ABET accredited schools are surveyed.

Employment/Careers

U.S. Bureau for Labor Statistics

(technicians but not technologists)

National Association of Colleges and Employers

Report of the ASEE Committee on Evaluation of Engineering Education, L.E. Grinter, Engineering Education, pp. 25-60, Sept. 1955.

A Modest Proposal Regarding the Future of Engineering Technology Education in America, S.R. Cheshier, Engineering Education, pp. 706-712, May 1985.

The Future of Engineering Science & Engineering Technology: Collision or Convergence, R.A. Kenyon, Engineering Education, pp. 707-712, May 1985.

The Advance Toward Distinction in Engineering Technology, J. Weese and L.J. Wolf, J. Engineering Education, pp. 41-46, January 1994.

Engineering Technologist are Engineers, R.E. Land, J. Engineering Technology, pp. 32-39, Spring 2012.

Engineering Technology National Forum: An Action Arm of ETC for National Impact, R.J. Herrick *et al*., J. Engineering Technology, pp. 11-19, Fall 2012.

Does your faculty think of your BS engineering technology graduates as "engineers?"

Does your faculty think of your BS engineering technology graduates as "engineers?"

“The degree is Engineering Technology, the Career is engineering.”

Do your BS engineering technology graduates think of themselves as "engineers?"

Do employers hire your BS engineering technology graduates into engineering jobs?

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Engineering Technologist are Engineers, R.E. Land, J. Engineering Technology, pp. 32-39, Spring 2012.

Results of the ETC's ET National Forum Committee survey

7 out of 10 companies make no distinctions between engineering technology graduates and engineering graduates when hiring into engineering positions, nor do they make significant distinctions in assigning functions and responsibilities ……..

If it looks like a duck, it walks like a duck, and it quacks like a duck, it might just be ……

As Sarah Palin, might say, "How's that bifurcation thingy workin' out fer ya?"

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Or more importantly .....

How is it working out for your students?

"*Engineering Criteria 2000* shifted the basis for accreditation from inputs, such as what is taught, to outputs — what is learned. The (relatively) new criteria specify 11 learning outcomes and require programs to assess and demonstrate (the extent of) their students' achievement in each of those areas."

Engineering Change: A Study of the Impact of EC2000

EAC & ETAC Student Outcomes
Are they really different?

Student Outcome Topic	Engineering Criteria Student Outcome #	Technology Criteria Student Outcome #
Apply math/science	a	b
Experiments	b	c
Design	c	d
Teams	d	e
Problem solutions	e	f
Ethics	f	i
Communicate	g	g
Solution impact	h	j
Life-long learning	i	h
Contemporary issues	j	
Tools	k	a
Continuous Improvement		k

Is it time to rebrand Engineering Technology?

Bachelor of Science in General Engineering

with a concentration in electrical engineering technology

in mechanical engineering technology

in manufacturing engineering technology

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……

Bachelor of Science in General Engineering

BARRIERS –

politics, politics, politics, and more politics

university administrators
board of governors
EAC and ETAC within ABET
EDC and ETC within ASEE
link between 2-year programs and 4-yr programs
faculty

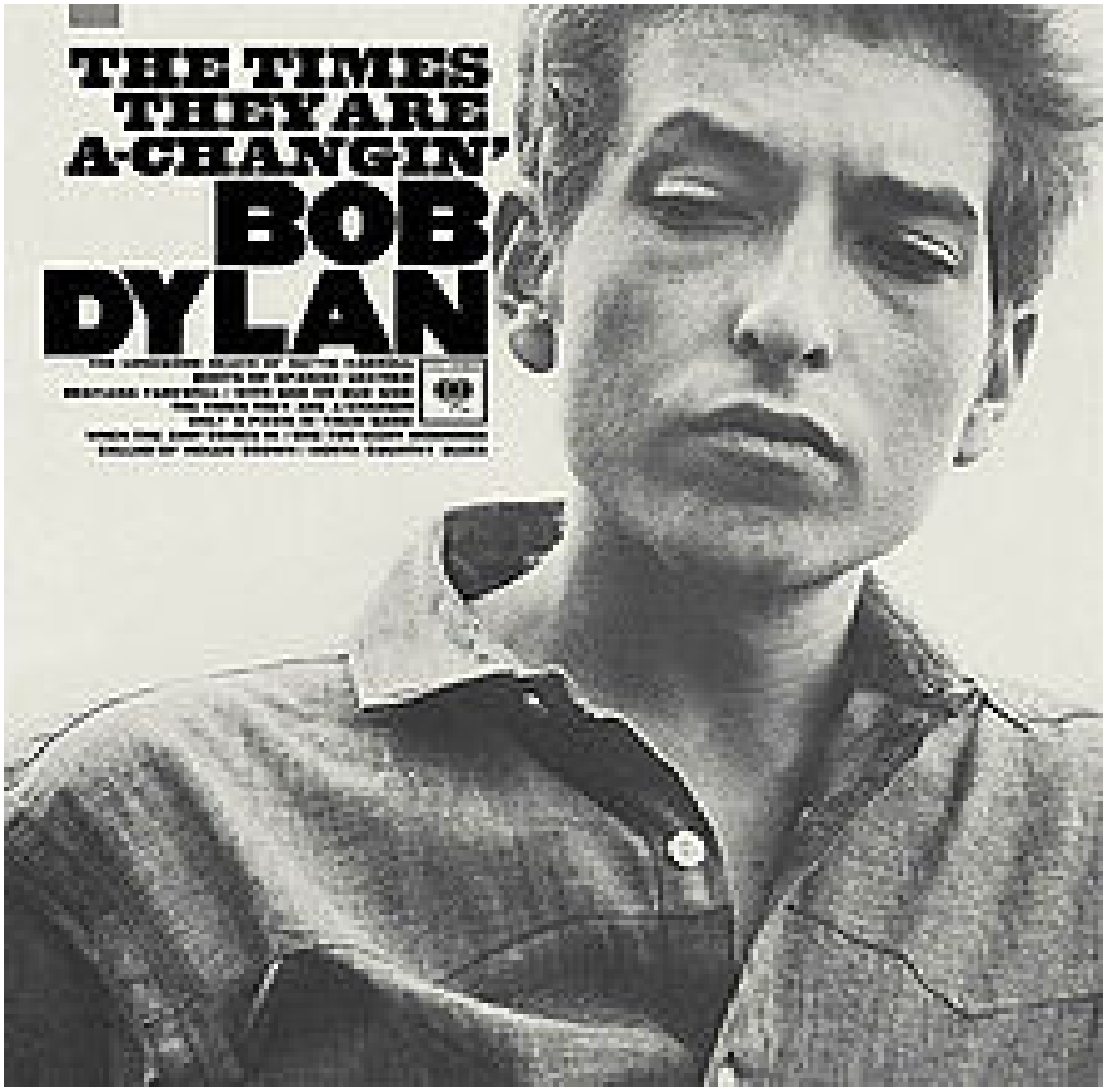
ETLI 2013

The 2013 ETLI will address key topical issues related to the "Impact of Engineering Technology Graduates on the U.S. Engineering Workforce" in this one-day meeting featuring three panel sessions:

1. **Global Perspective on Education of Engineers**

2. **Should Industry Co-Own the Education of Engineers?**

3. **National Call to Action**


THE TIMES THEY ARE A-CHANGIN'
BOB DYLAN

THANK YOU for your attention and ……

THANK YOU for what you do for your students.

THANK YOU for what you do for our country.

THANK YOU for supporting ASEE.