ETCS Convocation

Fall 2018

MANOOCHEHR ZOGHI
Dean
24 AUGUST 2018

Education with Purpose
Outline

I. Welcome and Introduction
II. Enrollment and Retention Updates
III. Purdue Fort Wayne – A New Era
IV. AY 2017-18 Accomplishments
V. Expanded Focus Area
VI. Call to Action – Next Steps
VII. Recognitions
I. Welcome Back & Introduction

Welcome back

A Very Special "Thank You!"
CME Department

Dr. Promothes Saha, P.E.
CS Department

Dr. Amal Khalifa  
Dr. Venkata Inukollu
School of Polytechnic

Dr. Peter LeBoulluec
Jennifer Hunter
Senior Research Associate
Center of Excellence in Systems Engineering
II. Enrollment and Retention Updates
Total Number of Undergraduate Students in Fall 2015 – Fall 2018* By College

<table>
<thead>
<tr>
<th>College</th>
<th>Census 2015</th>
<th>Census 2016</th>
<th>Census 2017</th>
<th>Fall 2018*</th>
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<tbody>
<tr>
<td>AS</td>
<td>1826</td>
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<td>2225</td>
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<tr>
<td>DSB</td>
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<tr>
<td>PS</td>
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<td>ETCS</td>
<td>1559</td>
<td>1532</td>
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<tr>
<td>HHS</td>
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<td>VPA</td>
<td>581</td>
<td>598</td>
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Total Number of Graduate Students in Fall 2015 – Fall 2018* By College

- AS: 102, 99, 91, 97
- DSB: 82, 92, 64, 73
- PS: 168, 142, 133, 140
- ETCS: 122, 122, 111, 130
- HHS: 85, 102, 58, 31

*Numbers represent the total number of graduate students in each college for the respective years.
Total Number of Undergraduate ETCS Students in Fall 2015 – Fall 2018*

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<thead>
<tr>
<th></th>
<th>Census 2015</th>
<th>Census 2016</th>
<th>Census 2017</th>
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<td>510</td>
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Total Number of Graduate ETCS Students in Fall 2015 – Fall 2018*

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<th>Fall 2018*</th>
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<td>18</td>
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<tr>
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<td>POLY</td>
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*Note: The data for Fall 2018 is marked with an asterisk.
The Proportion of the Undergraduate Population Who are Women from Fall 2007 to Fall 2018*
Disaggregated by ETCS and University-Wide Percentages
Fall to Fall Retention Rates of New Undergraduate Students Who Started at IPFW in a Fall Semester Between Fall 2007 and Fall 2017*
Disaggregated By ETCS and University-wide Retention Rates

<table>
<thead>
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<th>F06-F07</th>
<th>F07-F08</th>
<th>F08-F09</th>
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<th>F10-F11</th>
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<tr>
<td>ETCS</td>
<td>68.5%</td>
<td>63.4%</td>
<td>67.0%</td>
<td>69.5%</td>
<td>64.8%</td>
<td>63.6%</td>
<td>69.3%</td>
<td>74.3%</td>
<td>71.9%</td>
<td>65.2%</td>
<td>67.3%</td>
<td>62.1%</td>
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<td>Uniev</td>
<td>57.9%</td>
<td>61.5%</td>
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<td>61.8%</td>
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<td>63.7%</td>
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<td>56.9%</td>
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Average Graduation Rates of Undergraduate Students Who Started at IPFW in a Fall Semester Between Fall 2012 and Fall 2014 Disaggregated By ETCS and University-wide Graduation Rates
III. Purdue Fort Wayne – A New ERA

"People remember information when it is weaved into narratives “up to 22 times more than facts alone.”

_Jennifer Aaker of Stanford University

"The world is not made of atoms. The world is made of stories."

~ Muriel Rukeyser

Introduce your brand as the hero, the one everyone roots for to save the day!

Strong “Signature Stories” Can Shape More than an Organization’s Brand
IV. AY 2017-18 in Review
Creating our signature stories...

The best way to predict the future is to create it.

Peter Drucker
ETCS Strategic Planning Timeline and Update

• **Fall 2016** – Started the deliberation and laying the groundwork...

• **Spring 2017** – Our very 1st retreat with ETCS faculty and staff to create the plan

• **Fall 2017** – Workshop with ETCS faculty and staff to begin implementation of the plan:
  • Established **Short Term Action Teams** (STATs) to work on priority initiatives (1.1 and 1.4)
  • Learned how **continuous improvement** can be incorporated into everything ETCS does

• **Spring 2018** – Series of workshops to identify, validate and prioritize student needs
ETCS Strategic Planning Update

• First, ETCS took an innovative approach to strategic planning and used Collective System Design to collaboratively and intentionally define what we wanted to achieve in order to meet stakeholder needs.

• Next, we considered **student flow** through programs and administrative processes:

  ![Student Flow Chart]

  - Outreach & Recruitment
  - Selection & Application
  - Admission & Enrollment
  - Transition to PFW - First Year
  - Academics
  - Prep for Graduation
  - Post Graduation

• Then, we aligned sub-initiatives from the strategic plan to the student lifecycle flow

• And, we learned how **continuous improvement** should be incorporated into everything ETCS does
Accomplishment: **Short-Term Action Teams**

- We have established strategic partnership with k-14 and industry to create pre-college through graduation & career pathway opportunities (Sub-Initiatives 1.1.6, 1.4.1, 1.4.3)

- We launched the living-learning community… participation has more than doubled (Sub-Initiative 1.1.6)

- Completed literature review to understand student success and persistence (Sub-Initiatives 1.1.1)

- LEAD (and industry) mentoring program (Sub-Initiatives 1.1.4, 1.1.5)

- Enrichment program or 5-step intrusive advising (Sub-Initiatives 1.1.3, 1.1.5)

- The lunch & learn series…
Accomplishment: Student Needs Initiative

Six Workshops: each with 20-25 attendees

1. Established process to collect and understand student needs

2. Collected needs from students, faculty, staff, high school & middle school teams

3. Interpreted and coded student needs, down to 25 categories

4. Verified and prioritized 25 categories with students and faculty/staff

5. Determined Top 6 Student Need Priorities and agreed on how we want to achieve them
Top 6 Student Need Priorities

1. Feedback on academic performance and progress
2. Hands-on educational experiences such as co-ops, internships and projects
3. Course schedules and course-schedule availability
4. Relationships with faculty and other college personnel
5. Relationships with industry representatives
6. Academic Advising
V. Expanded Focus Area
“A new educational paradigm is needed to help current & future American workers remain competitive. Academic environments, from the earliest ages through continuing education, can be improved – and even designed – to enhance this ability. **Universities, in particular, should be leaders in the drive to improve U.S. innovation.**”

C.D. Mote, Jr.
President
National Academy of Engineering
Innovation = Creativity + Implementation

Robert Sutton
Professor of Management
Science at Engineering School
Stanford University
The Basic Elements of Creativity

Copy | Transform | Combine
To invent, you need a good imagination and a pile of junk.

Thomas A. Edison

"There's a way to do it better. Find it."

Thomas Edison
inventor of the electric light bulb and motion picture camera

I have not failed, I've just found 10,000 ways that won't work.

- Thomas Alva Edison
Routine work – Drive out variation and failure

Innovative work – Increase variation and expect a high failure rate
Anyone Can Play (Innovation is the invitation to dream)
It's a Team Sport (Solo is usually not innovative)
Speed Wins (Think, Build, Learn - quickly)
Scopes Creep (It can be a good thing)
Walnuts Before Peanuts (Crack the tough nuts first)
Communication is Key (People before documentation)
Write it Down (Capture ideas whenever they come)
Lead from the Side (Like the leader of a jazz band)
VI. Call to Action – Next Steps (Part 1)

• Continue aligning our work to student flow and the ETCS strategic planning system design

• Identify and implement solutions to Top 6 student need priorities
  • Workshops - September through December 2018

• Implement process for continuous improvement
Call to Action – Next Steps (Part 2)

• Launch faculty externship program in partnership with industry

• Form interdisciplinary collaborative research teams (critical masses)

• Implement faculty fellows program (& IDEAS Pace opportunities)

• The centers of research excellence will certainly play a pivotal role… strategic visioning!
To obtain research and collaboration opportunities is to visit [FEDBizOPPS.gov](https://uscontractorregistration.com/) and search for VAATE BAA (Broad Agency Announcements). This is open to industry, very focused on specific topics, and announced by Projects on a periodic basis.

For more General Overview & Searching for Opportunities:

https://www.fbo.gov/ for FEDBizOPPS.GOV Vendors Training Session

Perhaps the easiest avenue for small businesses is to work through Department of Defense Small Business Innovation Research (SBIR) & Small Business Technology Transfer (STTR) Programs. The link below provides some detailed information:


[https://sbir.defensebusiness.org/(X(1S0cqwsgnedymcuktr3tpaq05))/?AspxAutoDetectCookieSupport=1](https://sbir.defensebusiness.org/(X(1S0cqwsgnedymcuktr3tpaq05))/?AspxAutoDetectCookieSupport=1)

**AFOSR - Funding Opportunities - Special Programs:** HISTORICALLY BLACK COLLEGES AND UNIVERSITIES AND MINORITY INSTITUTIONS (HBCU/MI) PROGRAM

https://www.wpafb.af.mil/Welcome/Fact-Sheets/Display/Article/842100/afosr-funding-opportunities-special-programs/

ARL offers hands-on exposure to Air Force research challenges through eight (8) to twelve (12) week research residencies at the Wright-Patterson AFB through link below. To apply for this program, you need to complete an online application form, employment, education, research, along with complete contact information for three references (one of which must be your Department Head or Dean) and an electronic copy of your Curriculum Vitae (CV in PDF format). The proposal must be related to Controls and Engine Health Monitoring System for Advanced Diagnostics Monitoring: Application to Gas Turbine for the Air Force Summer Faculty Fellowship Program (SFFP) under the topic. More details information can be found below:


http://afsffp.syspolus.com/

In addition, the Air Force has several research opportunities available for faculties, senior scientists, postdoctoral, and engineers. You may be interested to do research in Controls and Health Management under the United States Air Force National Research Council Resident Research Associateship (USAF-NRC/RRA) program. I encourage your faculties and graduate students apply for this topic or anything related to Turbine Engine Controls and prognostics and Diagnostics programs. A faculty or a graduate student can apply for the fall application cycle starting as soon as 21 Aug until sometime in November (see specific deadline in the website). Details about these programs can be found in the NRC: National Research Council Websites:


USAF and NSF announce partnership in science and engineering research: design or enhancement of sensing and control systems;


[REU Sites | NSF - National Science Foundation](https://www.nsf.gov/)<br>

[NASA & USAF: propulsion and power systems technology program coordination and collaboration](https://bpsa.qrc.nasa.gov/)
CHASM

- Innovators: 2.5%
- Early Adopters: 13.5%
- Early Majority: 34%
- Late Majority: 34%
- Laggards: 16%

Population
## VII. Participants in Spring 2018 Student Needs Initiative

**THANK YOU!!**

<table>
<thead>
<tr>
<th>Hadi Alasti</th>
<th>Guoping Wang</th>
<th>Mary Jane Casiano</th>
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<tbody>
<tr>
<td>Aleshia Hayes</td>
<td>Heidi Johannsen</td>
<td>Maurice Ralston</td>
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<td>Becca Essig</td>
<td>Irah Modry-Caron</td>
<td>Maxwell Fowler</td>
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<td>Behin Elahi</td>
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<td>Beomjin Kim</td>
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<td>Mohammedreza Balouchestani-Asli</td>
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<td>Carol Dostal</td>
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<td>David Cochran</td>
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<td>Judy Baker</td>
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<td>Don Mueller</td>
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<td>Dong Chen</td>
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<td>Shahab Ali-Shah</td>
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<td>Gary Steffen</td>
<td>Kim O’Connor</td>
<td>Zesheng Chen</td>
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<tr>
<td>Gordon Schmidt</td>
<td>Manoochehr Zoghi</td>
<td>Zhuming Bi</td>
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</tbody>
</table>
ETCS FALL CONVOCATION

Center Of Excellence In Systems Engineering

Jason Barnes
David Cochran
Jennifer Hunter

AUGUST 24, 2018
TODAY’S PRESENTATION OVERVIEW

• Update and Review Progress and Accomplishments

• 2018-19 Working Plans

• Today’s Activity

• Next Steps
1. Six Workshops were held with 42 faculty/staff participants

2. Created an inventory of student needs from:
   • 175 Students
   • Individual Departments
   • Faculty and Staff
WHAT WE ASKED STUDENTS

- **Outreach and Recruitment**: Thinking about the time you were first aware of IPFW and considered becoming a student here, what support, resources, communication or other information did you need or receive that helped you learn more about IPFW?

- **Selection and Application**: What support, resources, communication, or other information did you need to make a decision and then apply to IPFW?

- **Admission and Enrollment**: Thinking back to when you were first admitted as a student and enrolled in classes, what support, resources or other information did you need to get admitted and enroll in classes?

- **First Year at IPFW**: Thinking about your first year as a student at IPFW, what resources, support, communication, and relationships did you need in order to be successful?

- **Academics**: As an IPFW student, what resources, support, communication, relationships, or other experiences do you need to be successful?

- **Preparing for Graduation**: As you prepare for graduation, what support or experiences do you need to enhance career readiness and career opportunities?

- **Post-Graduation**: What support or resources do you anticipate needing from IPFW and the College of Engineering, Technology, and Computer Science (ETCS) after you graduate?
3. Responses were compiled into 25 categories

4. In follow-up, we asked students, faculty and staff:

   “In a previous survey, we asked students to share what they needed to be successful, throughout their IPFW experience. Those needs have been grouped into categories. Please select the five (5) which are the most important to you”

5. Nearly 200 students and 60% faculty and staff responded, identifying the top priorities which included 6 categories

6. Based on those priorities, the working group mapped the originally-identified needs back to the appropriate categories in order to write the Functional Requirements (FRs)

Now, we need to identify the Physical Solutions (PSs) that will achieve these FRs
CATEGORIES AND FUNCTIONAL REQUIREMENTS

Category 1: Feedback on academic performance and progress
FR: Understand the information that students need about academic feedback and support
FR: Provide students the information and support they need to proactively manage their success
FR: Provide feedback to students in a timely manner
FR: Intervene for students when academic performance drops in courses

Category 2: Hands-on educational experiences such as co-ops, internships and projects
FR: Help students understand and experience their future profession/career
FR: Facilitate student-to-student collaboration
FR: Integrate student work experiences in the curriculum
FR: Help students make good career decisions
FR: Investigate experiences / practices / opportunities relevant to work in region
Categories and Objectives, Continued

Category 3: Course schedules and course schedule availability
FR: Publish course offerings for 1 ½ years in advance for all ETCS programs, graduate and undergraduate

Category 4: Relationships with faculty and other college personnel
FR: Encourage open dialog and empathy between students and faculty and staff

Category 5: Relationships with industry representatives
FR: Build strong relationships of students with their profession and relevant local industry

Category 6: Academic Advising
FR: Offer standardized advising that uses best practices to meet student needs (roadmap)
Fall 2018

1. Determine solutions for how we will achieve the Functional Requirements (FRs)

2. Prototype, test and implement

3. Work to establish processes for implementation and continuous improvement
**TODAY’S ACTIVITY**

What are your INNOVATIVE ideas for how we can accomplish the FRs?

1. Pick at least 3 categories write down ideas: “What could we do?”

2. Place your post-it notes on the wall in the corresponding area

3. Review and discuss ideas around the room

   • How will your idea benefit students?
   • What is the process associated with the idea?
   • How can it be implemented?
FALL 2018 – ACTION MEETINGS TO DETERMINE SOLUTIONS

• Invitations will be sent by Mary Jane – please RSVP
  • September 14
  • October 5
  • October 26
  • November 16

• Fridays from 12pm – 1:30pm in ET 235

• Lunch provided
Research and Scholarly Activity

• Early next week, a survey will be distributed to identify your needs and interests for potential collaborative research projects

• We will compile and share the results, which will be used to launch our work in this focus area

• November 9th (12-2:30pm) – Kick-off Workshop

• ETCS Retreat on January 11, 2019 to begin college-wide design process for research and scholarly activity
NEXT STEPS AND WRAP-UP

1. RSVP for Fall Action Meetings:
   • September 14
   • October 5
   • October 26
   • November 16

2. Complete the “ETCS Research Needs and Interests” Survey

3. November 9 (12:00 pm-2:30pm) – Kick-off for Research and Scholarly Activity (ET 235)

4. January 11, 2019 – ETCS Faculty/Staff Retreat