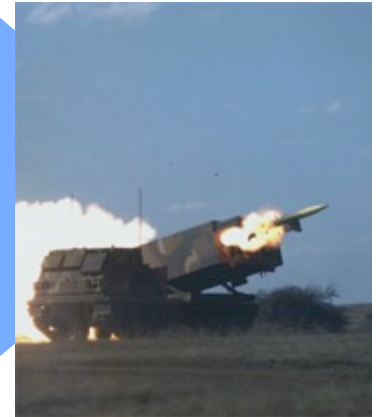


**SMU**  
**Systems Engineering Program**  
(Established in 1994)

**-Unique by Design -**  
**Defense Systems Development Focus**



**Jerrell Stracener**  
Founding Director



# Presentation Objective

To present an **overview** of the SMU Systems Engineering Program  
with a **focus** on the **evolving research program**

And

**Extend our working partnership** with U.S. DoD and defense contractors **to include ONR** in

- SEP Development Projects
- SEP Research Projects

# Goal

Provide work-place relevant education

and

focused research

to provide capability

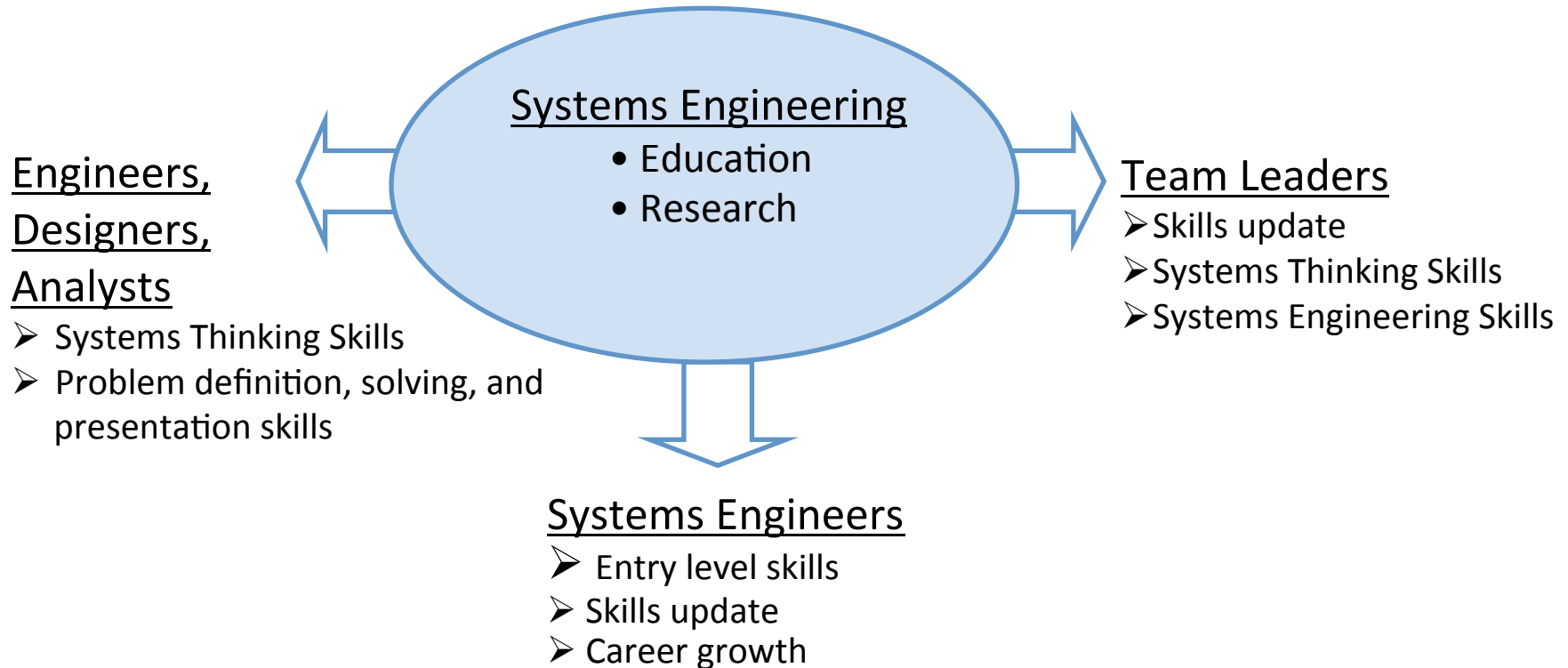
for some to become systems engineers

and

for many to practice systems engineering in engineering of aerospace and defense systems

# Mission

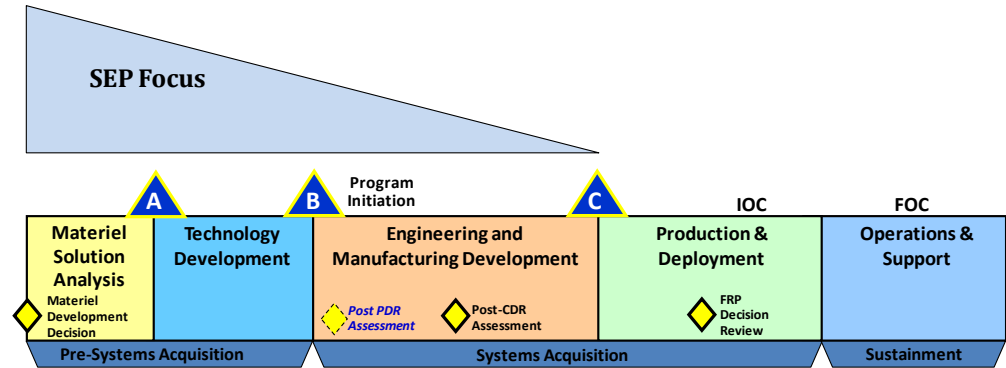
To provide **relevant systems engineering education** and conduct **prioritized needs driven research** to improve performance of the U.S. DoD AT&L / Contractor workforce



To help you become a better engineer and manager

# Focus and Objectives

- SE Program Focus:  
 U.S. Defense Systems Development
  - Pre Milestone C
  - Contractors



- SEP Course Focus:  
 Utilize current U.S. DoD OSD and military services policies, directives, guides, standards, procedures and methods in course descriptions and objectives, topical outlines and course content.

## Objectives:

- (1) Further differentiation of the SEP from the increasing number of university systems engineering programs
- (2) Closer alignment with the U.S. Department of Defense (DoD) Acquisition System

# A Unique Systems Engineering Program



## Unique Curriculum

- 21 Graduate courses dynamically developed in response to industry & government needs
  - 5 core courses
  - 16 elective courses
  - 9 courses in-development
- Developed by SEP Development Team Subject Matter Experts with continuous review, update and validation
- MS SE – PHD SE – PHD Applied Science

## Unique Focus

- Customer focus
  - U.S. Defense Systems Developers
    - Contractors
    - U.S. DoD
- SEP course focus
  - Defense Systems Development (contractors)
  - Current U.S. DoD OSD and military services, policies, directives, guides, standards, procedures and methods

## Unique by Design

Conceived, Developed and Delivered in **Working** Partnership with Aerospace And Defense Contractors and U.S. DoD

- Most SEP professors are employed by aerospace and defense organizations
- Majority of SEP students employed full-time by the aerospace / defense sector – industry / government
- Most SEP faculty and students
  - U.S. Citizens
  - Maintain active DoD Security Clearance

- On-going development and research projects led and staffed by volunteers affiliated with
  - Defense Contractors
  - Aerospace Companies
  - U.S. DoD OSD
  - U.S. Defense Acquisition University (DAU)
  - U.S. Air Force, Army, Navy
  - U.S. NASA, FAA

## Unique Faculty and Students

## Unique Working partnerships

# SMU SEP Origin and Evolution

The SMU Systems Engineering Program was conceived in 1991 and approved in 1994.

Developed and administered in response to Dallas/Ft Worth region aerospace and defense systems developers needs, with focus on:

- U.S. AT&L/defense contractor workforce improvement by offering SE courses developed, and delivered by defense industry subject matter experts
- Need driven Research conducted by SMU faculty, PhD students and SEP DT SMEs in response to defense systems developers priority needs in selected areas

## Experienced Resources

SMU faculty\* (resident and adjunct), DT members\* and PhD SE students\* with extensive experience (multiple company) on diverse U.S. defense development programs

### •Aircraft Programs

- F-35            • F-16   • A-12 +ATA   • B-2   • C-17   • S-3
- F-22 + ATF   • F-8   • A-10            • B-1   • C-130   • V-22
- F/A-18        • A/FX   • A-7              • B-52

### •Advanced Classified Programs

### •Sensor Programs

### •Missile Programs .MLRS . ASAT . Cruise Missile

\* Most hold active DoD security clearance

## ad hoc Systems Engineering Council

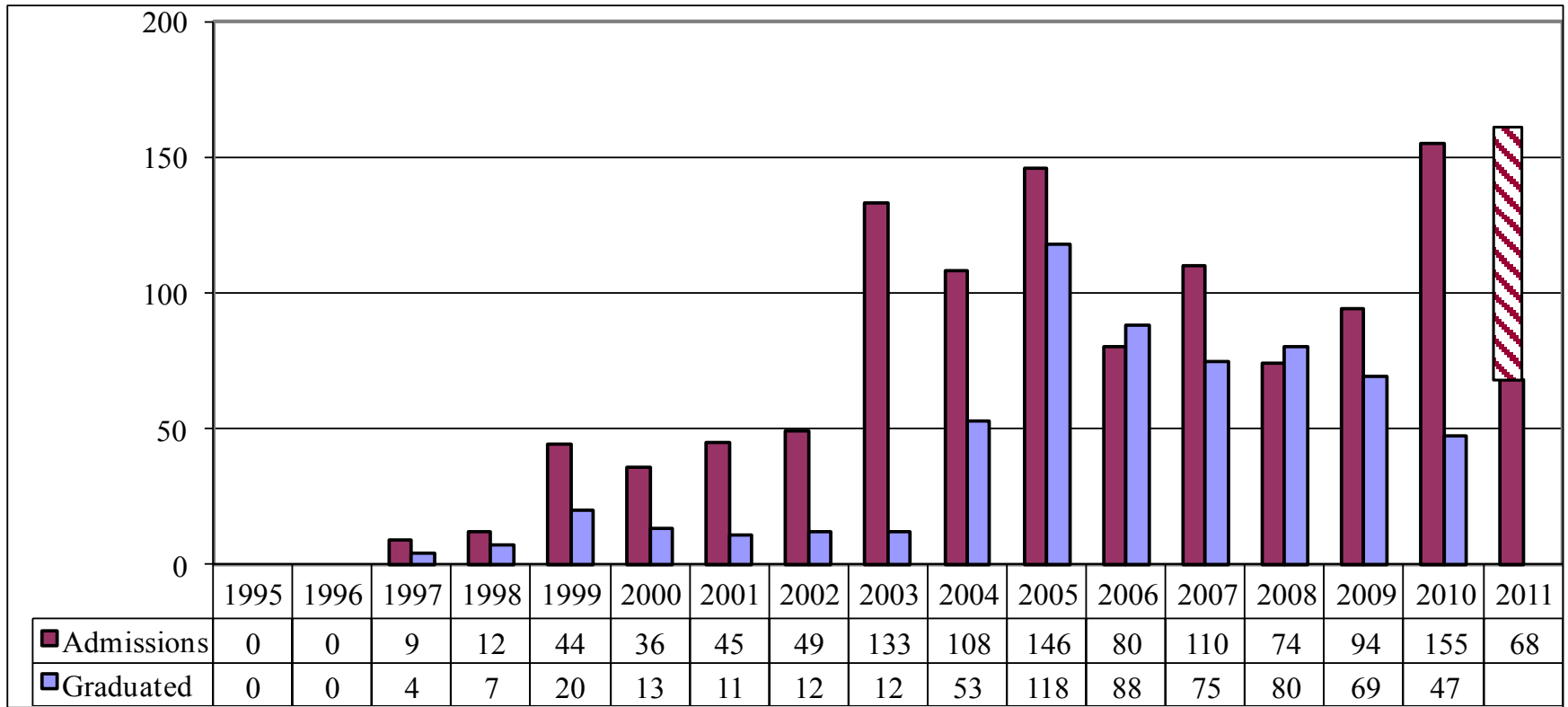
### 1991-1995

Name	Organization	Location
Arunski, Karl, P.E.**	Texas Instruments, Inc.	Dallas, TX
Coyne, Bill	American Airlines	Fort Worth, TX
Davis, Joe, P.E.	Loral Vought Systems	Grand Prairie, TX
Dean, Joe, Ph.D.	Lockheed Martin Tactical Aircraft Systems	Fort Worth, TX
Halligan, Charles	General Electric Transportation Systems	Erie, PA
Hanson, Harold	EDS	Plano, TX
Harris, Doug, DE	Southern Methodist University	Dallas, TX
Jain, Anant, Ph.D.	Rockwell International	Richardson, TX
Kolson, Joanna	Federal Reserve Bank	Dallas, TX
Luhks, Ronald, Ph.D.	Loral Aerospace	Houston, TX
Martin, Kim	Abbott Labs	Irving, TX
Pearse, Derek	Hughes Training, Inc.	Arlington, TX
Ransom, C. J. , Ph.D.	Bell Helicopter Textron	Arlington, TX
Stracener, Jerrell, Ph.D.*	Vought/Northrop Grumman Corp.	Grand Prairie, TX
Shaw, Terry, Ph.D.	E-Systems	Greenville, TX
Steinheimer, Steven L.	E-Systems	Garland, TX
Tucker, Scott	Hughes Training, Inc.	Arlington, TX
Vacante, Russell, Ph.D.	Army Management Staff College	Fort Belvoir, VA
Zsak, Mike	U.S. DoD OSD	Washington, DC

\*=Chairman

\*\*=Vice Chairman

# SEP MSSE Admissions and Graduates



**Forecast** = 

Cumulative admitted as of March 20, 2010: 1163

Cumulative graduated as of May 31, 2010: 609

Note: Excludes NTU

Data Source: Admissions Queries Per Academic Term



## Current

Abbott, Rodman*	Naval Post Graduate School	Monterey, CA
Blakely, Tom	Lockheed Martin Aeronautics Company	Ft. Worth, TX
Burns, Dan*	Naval Post Graduate School	Monterey, CA
Burton, Ray	Naval Post Graduate School	Monterey, CA
Castleberry, Keith*	Boeing Aerospace Support Division	Ft. Walton Beach, FL
Husar, Rusty	U.S. Navy SPAWAR SSC PAC	San Diego, CA
Serocki, John	U.S. Navy SPAWAR SSC PAC	San Diego, CA
Sharif, Azi	U.S. Navy SPAWAR SSC PAC	San Diego, CA
Volkert, Richard	U.S. Navy SPAWAR SSC PAC	San Diego, CA
Williams, Jeff	Bell Helicopter	Hurst, TX

## Graduates

Rahdar, Reza (Ray)	Dec'10	Raytheon Integrated Defense Systems	Andover, MA
Woods, Tim	Dec'10	Lockheed Martin Aeronautics Company	Ft. Worth, TX
Zummo, Kevin	Dec'10	Lockheed Martin Aeronautics Company	Ft. Worth, TX
Harper, Mike	May '09	Office of Naval Research Global (ONR)	U.S. Fifth Fleet, Bahrain
Westerman, Williams	Apr '08	Consultant	Ft. Worth, TX
Skinner, Steve	Dec '07	Bell Helicopter Textron Hurst, TX	
Ibarra, Gerard	Aug '07	Jaguar Consulting	Dallas, TX
Vandiver, Susan	May '06	L3 Integrated Systems	Waco, TX

\* = Application in progress

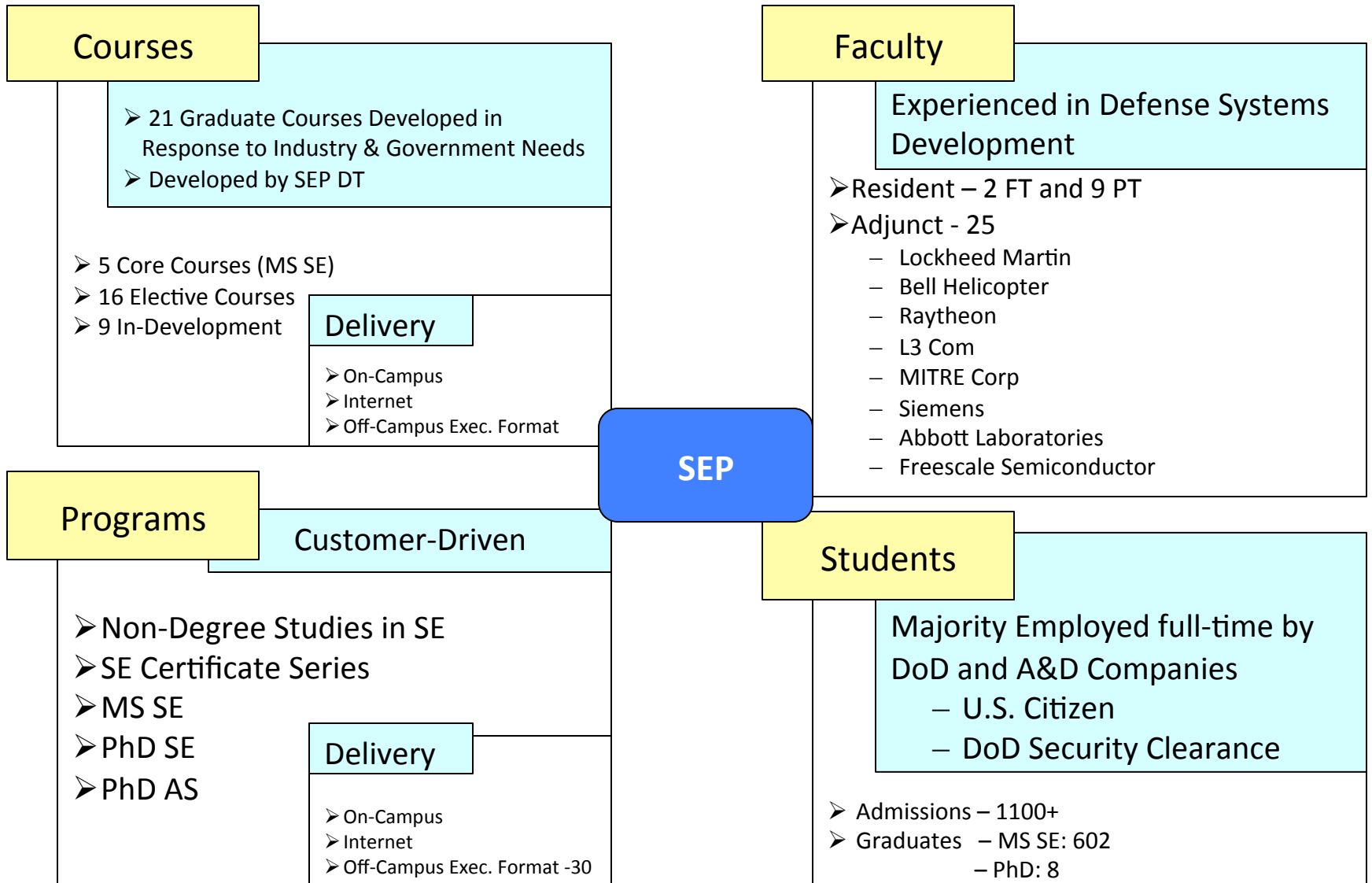
# PhD Systems Engineering – Current Students

<b>Name</b>	<b>Organization Affiliation</b>	<b>Location</b>	<b>Admitted</b>
Abubaker, Reyad	Consultant	UAE	28-Aug-09
Amu, Taiwo	Parametric Technologies Corp	Ft. Worth, TX	28-Aug-09
Askew, Chris	Lockheed Martin Missiles & Fire control	Grand Prairie, TX	28-Aug-09
Bijan, Yvonne	Lockheed Martin Aeronautics Company	Ft. Worth, TX	28-Aug-09
Carver, Roger	Lockheed Martin Aeronautics Company	Ft. Worth, TX	28-Aug-09
Chou, James	Lockheed Martin Aeronautics Company	Ft. Worth, TX	28-Aug-09
Dong, Long	Lockheed Martin Aeronautics Company	Ft. Worth, TX	28-Aug-09
Early, Bret	Lockheed Martin Aeronautics Company	Ft. Worth, TX	28-Aug-09
Faddis, Kelly	U.S. Government	Washington DC	28-Aug-09
Franklin, LaGina	Lockheed Martin Aeronautics Company	Ft. Worth, TX	28-Aug-09
Han, Xue	SMU EMIS Dept	Dallas, TX	25-Jan-10
Hunt, Lisa	Lockheed Martin Aeronautics Company	Ft. Worth, TX	9-Sep-09
Jenkins, Jason	Lockheed Martin Aeronautics Company	Ft. Worth, TX	28-Aug-09
Minden, Alix	Lockheed Martin Missiles & Fire control	Grand Prairie, TX	25-Jan-10
Mokhtarpour			20-May-10
Nguyen, Philip	Bell Helicopter Textron	Hurst, TX	16-Sept-10

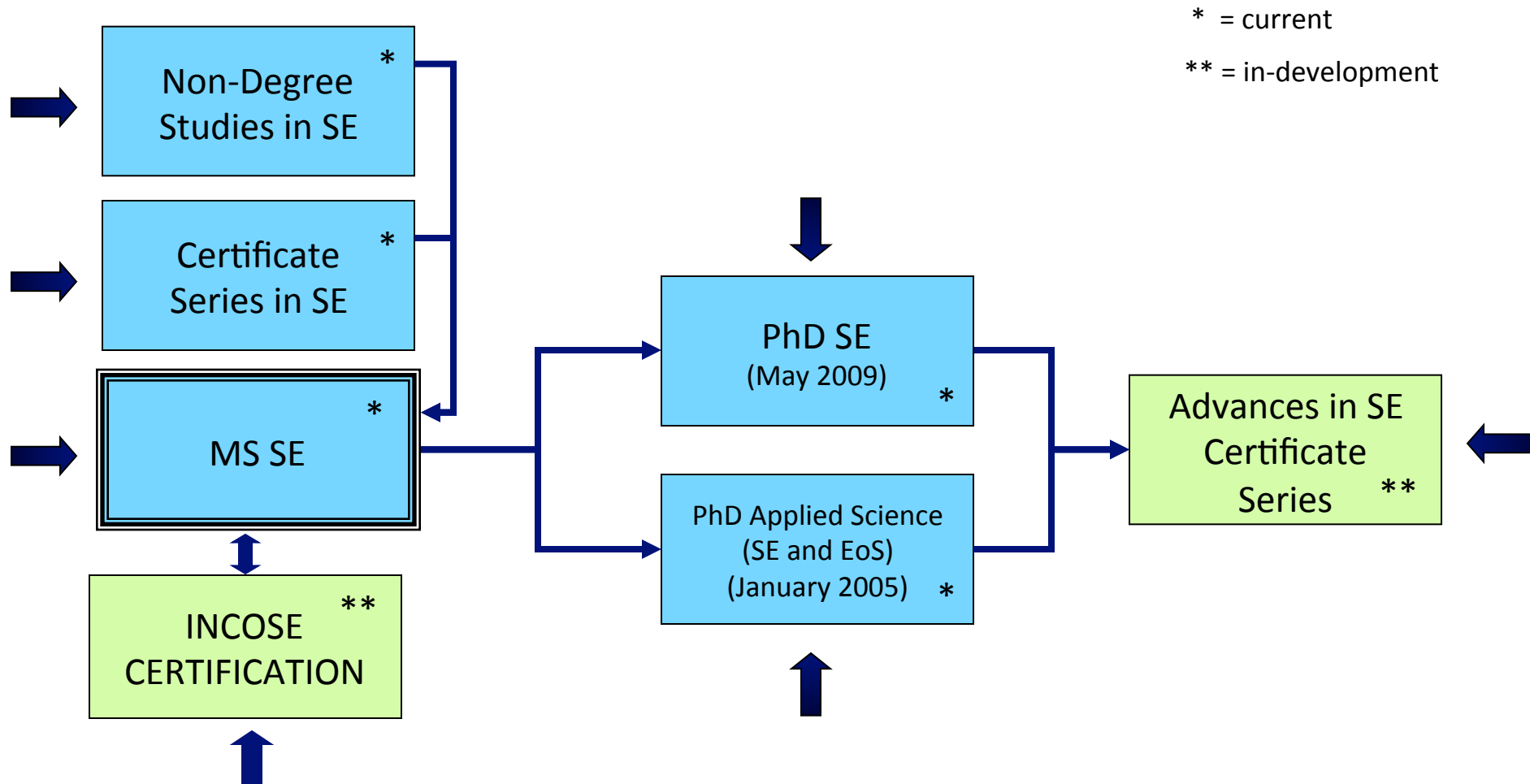
# PhD Systems Engineering – Current Students

<b>Name</b>	<b>Organization Affiliation</b>	<b>Location</b>	<b>Admitted</b>
Pincham, William	Lockheed Martin Missiles & Fire Control	Dallas, TX	9-Sep-09
Reuter, Jeff	BAE Systems - Electronic Warfare	Merrimack, NH	Aug-09
Sun, Lei	SMU EMIS Dept	Dallas, TX	26-Aug-09
Tapley, Arthur	Lockheed Martin Aeronautics Company	Ft. Worth, TX	9-Sep-09
Thompson, Chris	General Electric Power System	Houston, TX	9-Sep-09
Varghese, George	Lockheed Martin Aeronautics Company	Ft. Worth, TX	28-Aug-09
Wu, David	Lockheed Martin Aeronautics Company	Ft. Worth, TX	28-Aug-09

# SEP Academic Program

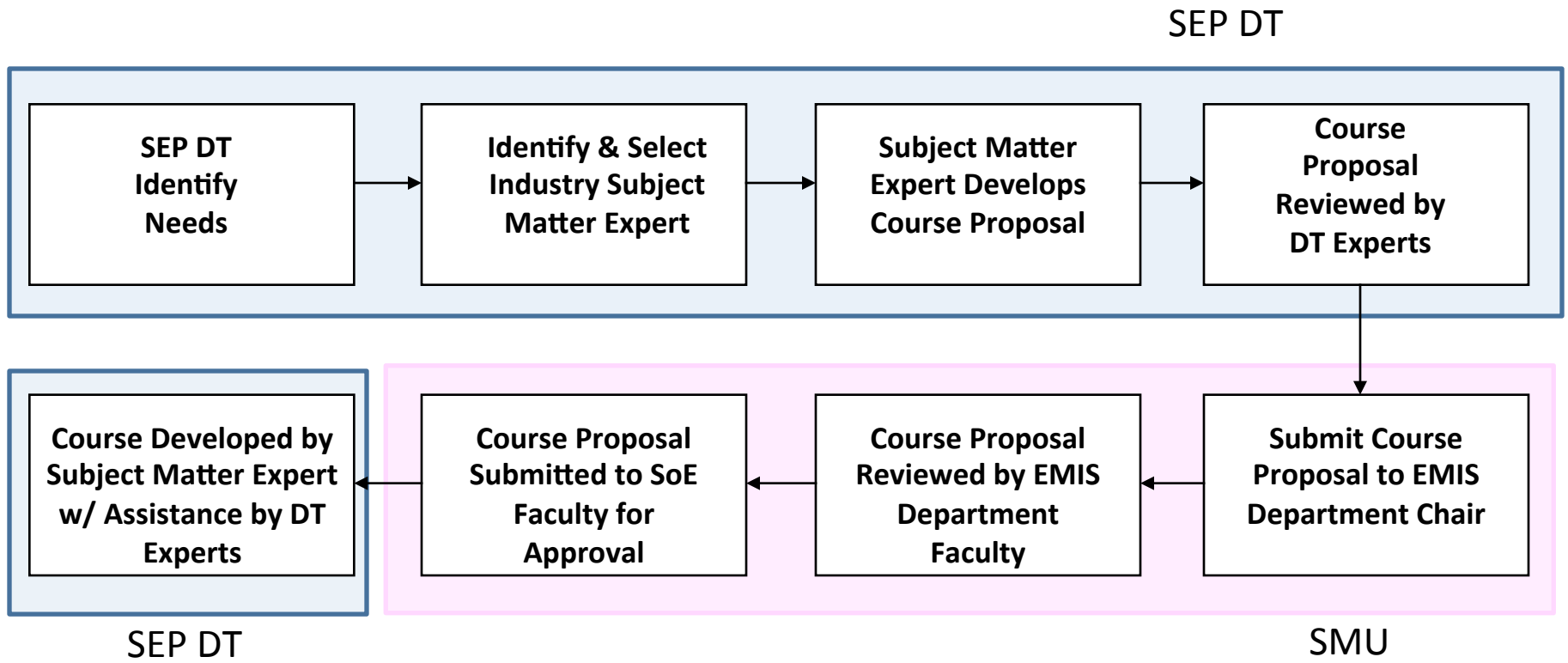


# SEP Academic Program Products

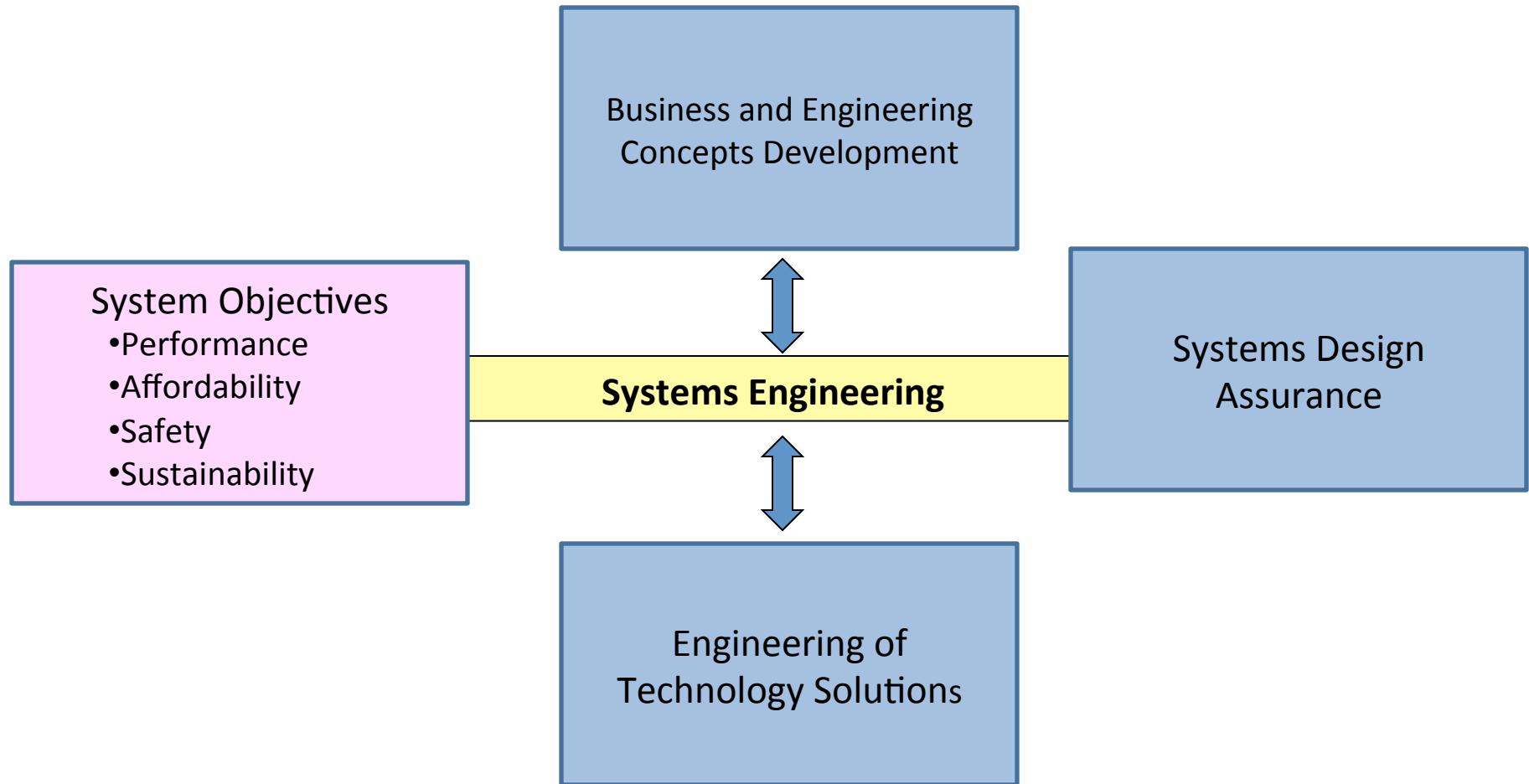


Systems Engineering Education is a *Journey* – Not a Destination

# Systems Engineering Course Development Process



SEP DT = Systems Engineering Program Development Team



Provides focus for SEP Curriculum and Research

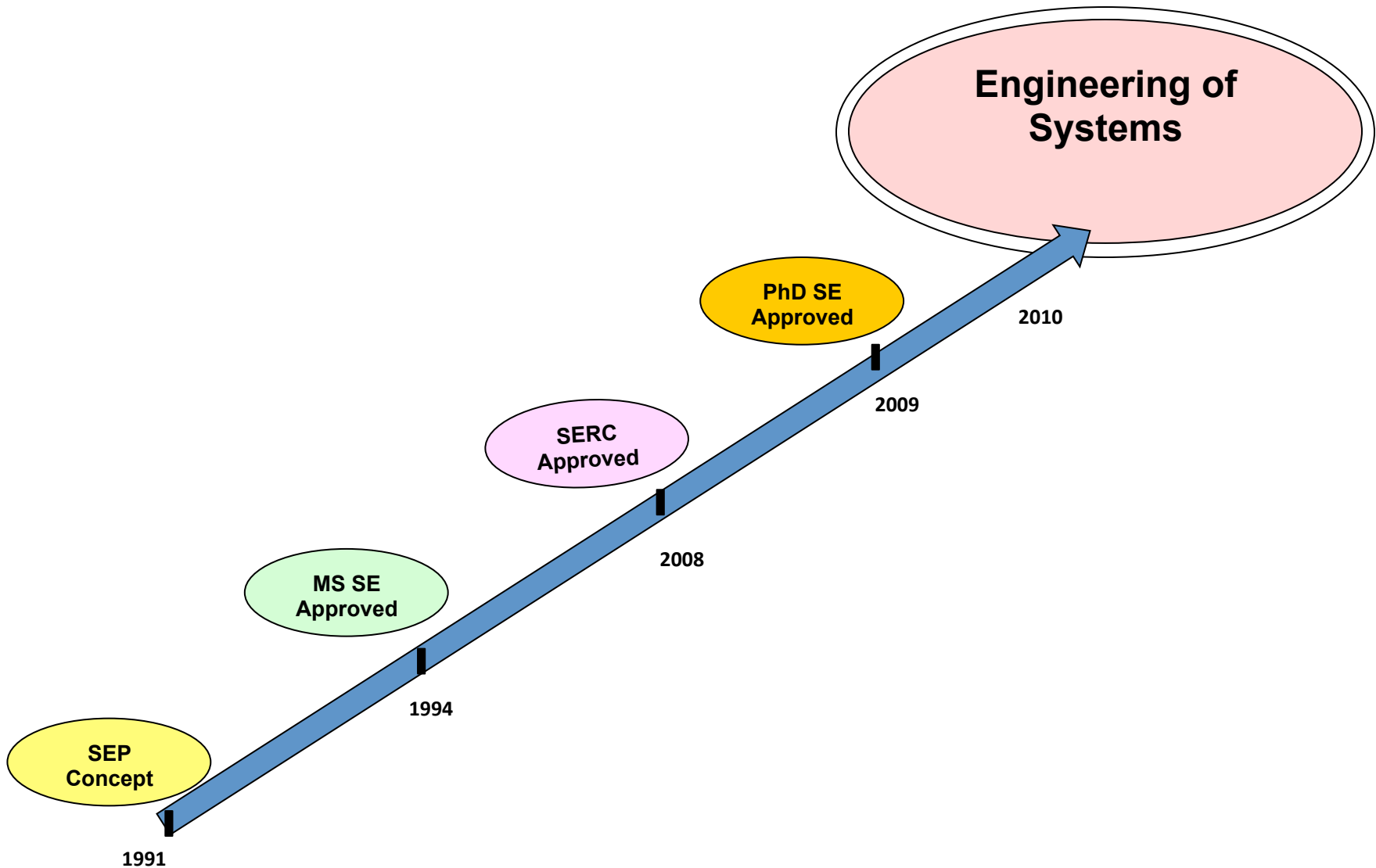
# Summary

- SMU SEP is unique by Design
  - Conceived, established, developed and maintained in response to U.S. Aerospace and Defense systems developer needs in **working partnership** with industry and government
  - Developed – proposals, reviews, courses, research – by SEP Development Teams (industry and government volunteers – Professional Society Technical Committee model)
  - Built on aerospace and defense sector partnerships
    - Most of the professors who teach SE courses are employed by aerospace and defense organizations
    - Majority of SEP students are employed full-time by the aerospace / defense sector – industry and government
- Expanding SEP DT Model to link U.S. defense system developer needs to SEP SMEs (including retirees with extensive experience) for **solving problems**.
- SEP Curriculum and Research is U.S. Defense Systems Development Focused



# The Next Big Thing

From Systems Engineering to Engineering of Systems



Please contact me at [jerrell@lyle.smu.edu](mailto:jerrell@lyle.smu.edu) if you

- have questions
- Want more information about SEP projects

Thank you!  
- Jerrell