An Innovative Approach to Cyber-Security Education Program for Protecting Critical Infrastructure

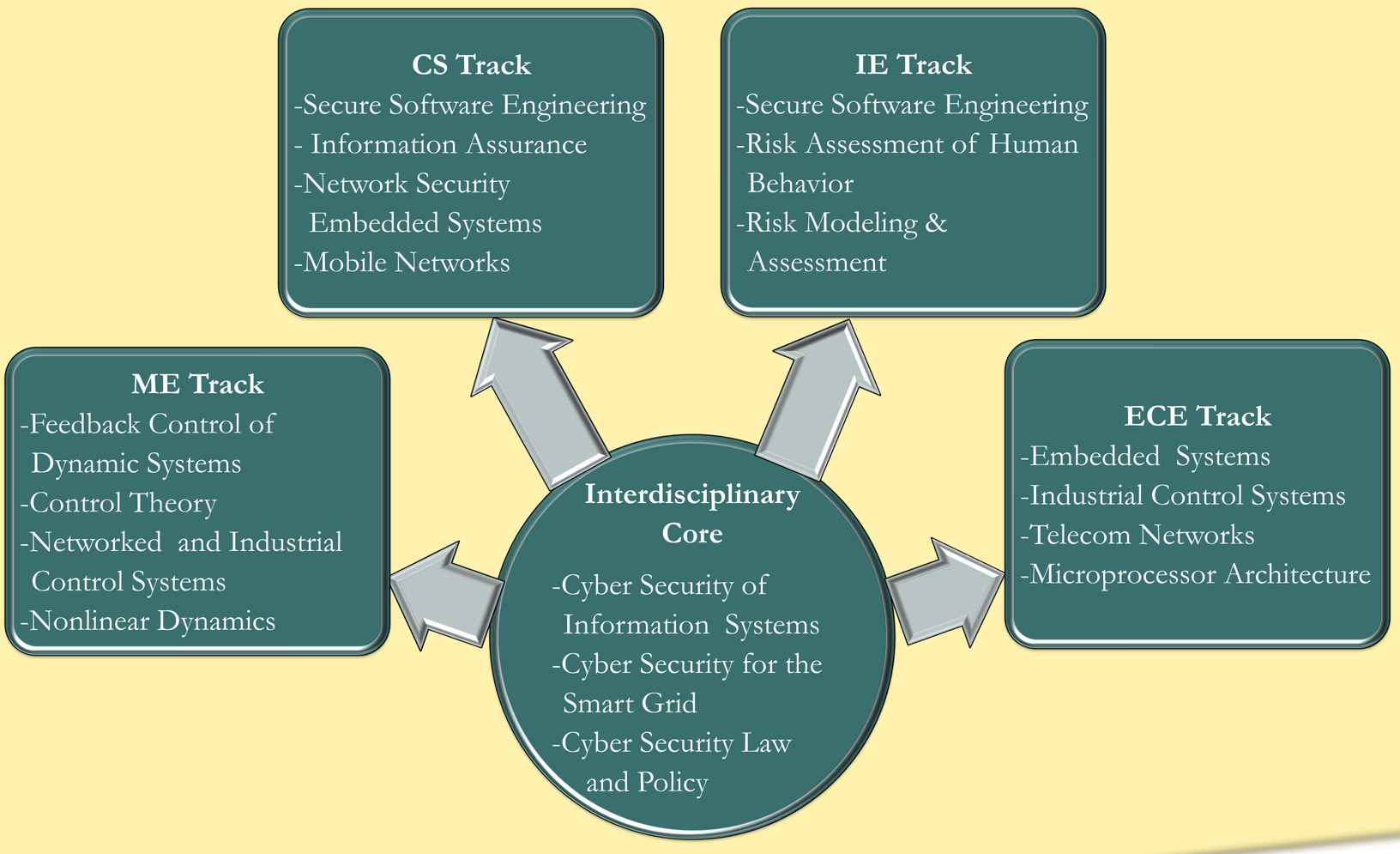
Joseph Urban (IE), Vittal Rao (ECE), Susan Urban (IE), Qing Hui (ME), Sunho Lim (CS). Brian Nutter (ECE), Jordan Berg (ME), Victoria Sutton (Law), Sam Segran (CIO)

Texas Tech University

Joseph Urban

Vittal Rao

The U.S. needs critical human resources to combat growing cybersecurity threats, especially for our nation's critical infrastructure. Fully addressing cybersecurity education for the protection of critical infrastructure, however, requires extending the research and education process beyond traditional computing programs into other engineering disciplines. This capacity building research track project is developing an interdisciplinary, cybersecurity education program for engineers that must be aware of critical design issues for addressing cyber secured control systems for electromechanical devices, more effective techniques for the integration of secure software and hardware devices, and the law and policy issues that are essential to the research and development of cybersecurity measures. The curriculum consists of an interdisciplinary core that addresses information assurance, cyber physical systems, and law and policy, with multiple tracks that can be tailored to cybersecurity education within a specific engineering discipline.

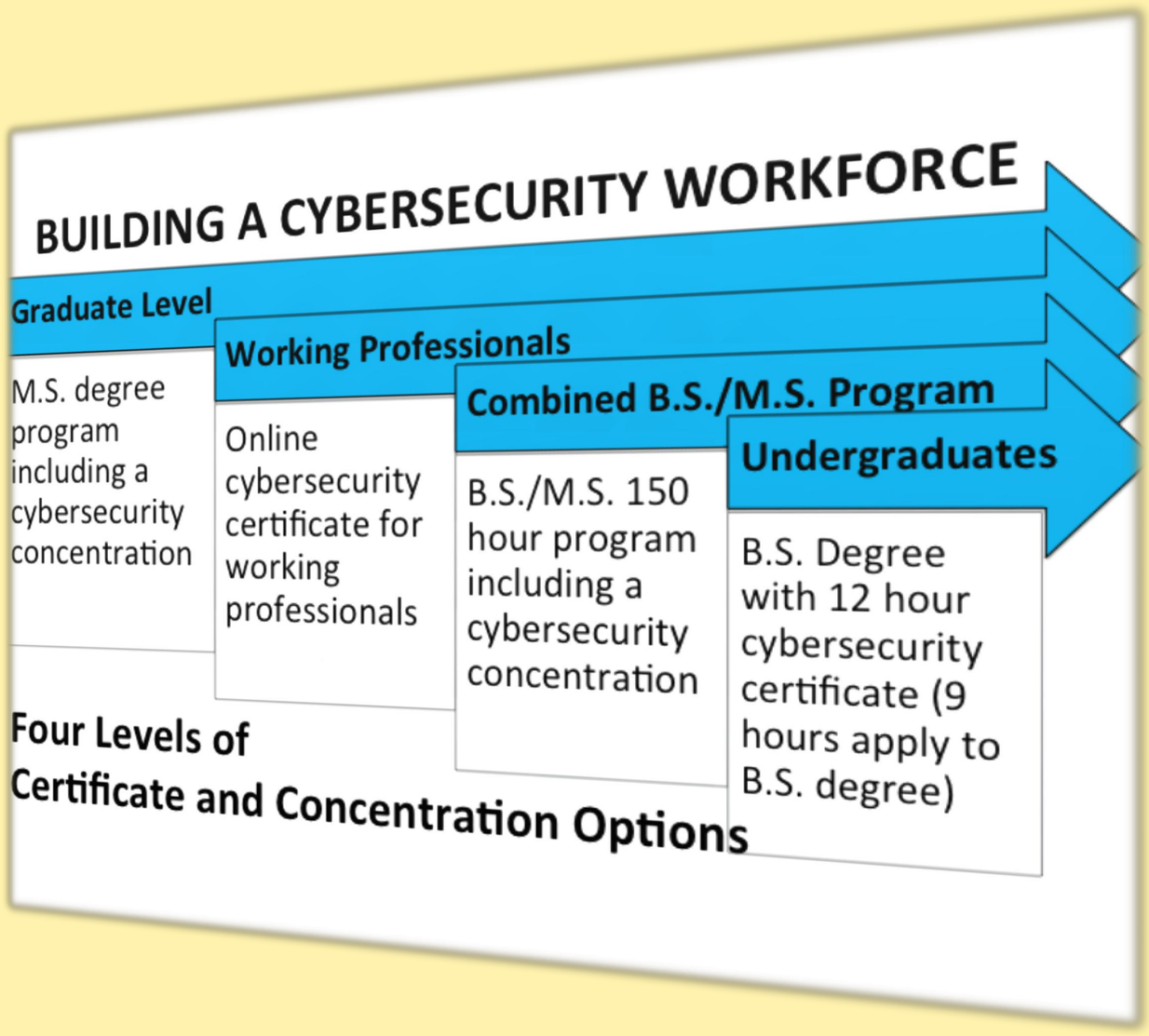


Curriculum consists of an interdisciplinary core that addresses:

- **Information assurance**
- **Cyber-Physical systems**
- **Law and policy**
- **Multiple tracks for cyber-security curriculum for a specific engineering discipline.**

Approaches

- **Collaborative/ interdisciplinary work between the following fields:**
  - **Computer Science**
  - **Industrial Engineering**
  - **Electrical and Computer Engineering**
  - **Mechanical Engineering**
  - **Law School**
- **Development of new coursework in cyber-security and modification of some existing courses to address cyber-security issues.**



Progress

Organized *NSF-SFS Workshop on Educational Initiatives in Cybersecurity for Critical Infrastructure at Texas Tech University during November 8-9, 2012*

Interested in meeting the PI's? Please contact: vittal.rao@ttu.edu ; Mobile (806-241-1243)

National Science Foundation
WHERE DISCOVERIES BEGIN

NSF Secure and Trustworthy Cyberspace Inaugural Principal Investigator Meeting
Nov. 27 -29th 2012
National Harbor, MD