NIST
National Institute of Standards and Technology
U.S. Department of Commerce

Pathway to Excellence for Minority Students on Supply Chain Management and Logistics Standards through Interdisciplinary Curriculum Innovation (PEMS)

Drs. Kai Jin, Hua Li, and Ruth Chatelain-Jardon
Texas A&M University-Kingsville

TEXAS A&M UNIVERSITY KINGSVILLE

Team Background

- **PI: Dr. Kai Jin - Professor of Mechanical and Industrial Engineering**
- **Co-PI: Dr. Hua Li – Professor of Mechanical and Industrial Engineering**
- **Co-PI: Dr. Ruth Chatelain-Jardon - Associate Professor of Management, Marketing and Information Systems**

NIST
National Institute of Standards and Technology
U.S. Department of Commerce

TEXAS A&M UNIVERSITY KINGSVILLE.

Project Goal and Objectives

- **Goal**: create a pathway to excellence for engineering and business students in different levels, especially underrepresented minority students, to strengthen their education and knowledge about supply chain management and logistics standards.

NIST
National Institute of Standards and Technology
U.S. Department of Commerce

TEXAS A&M UNIVERSITY KINGSVILLE

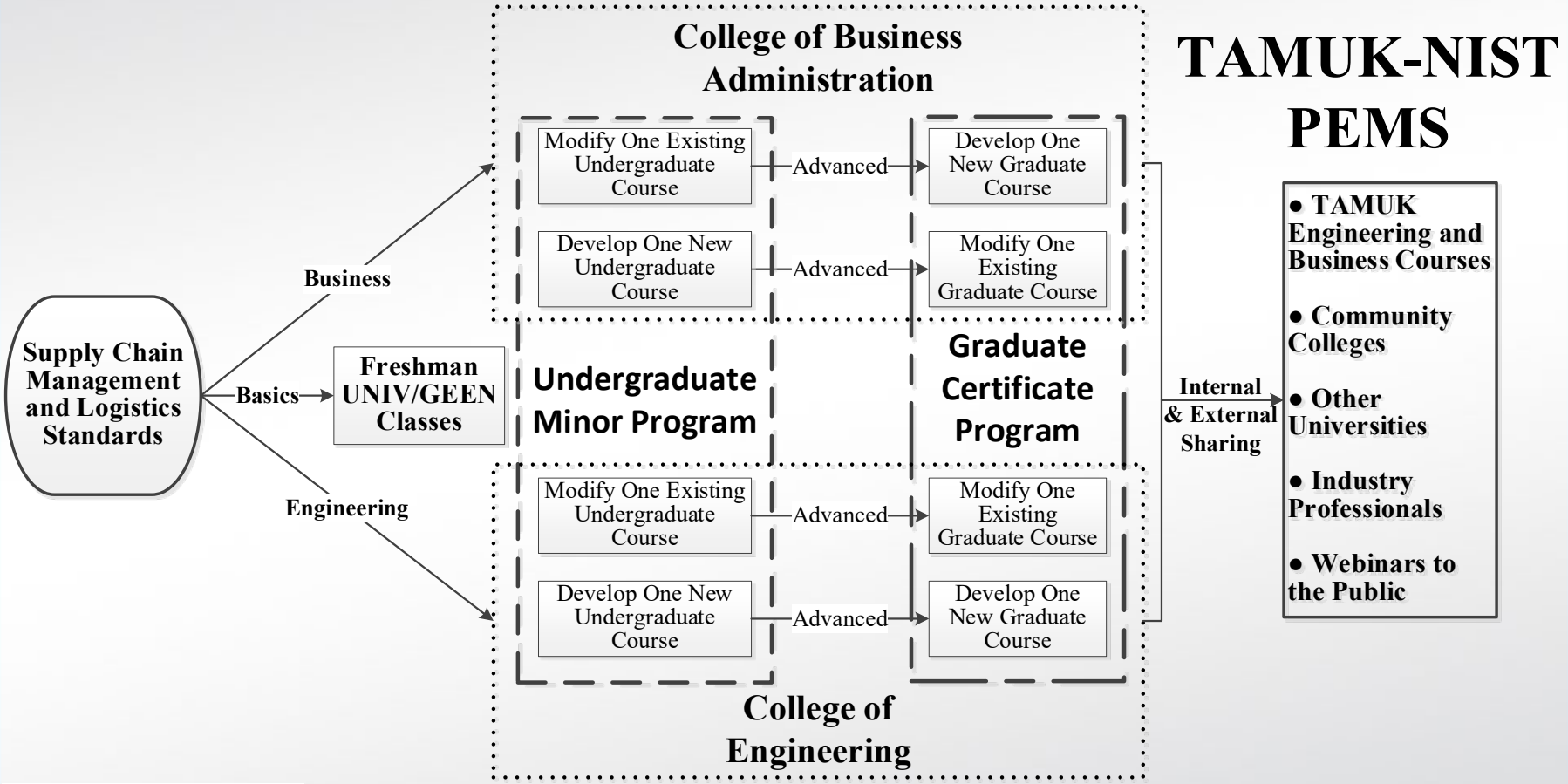
Project Goal and Objectives

- **Objectives**
  - Develop entry level course modules to use in current freshman introduction to engineering and business courses to increase students' awareness on standards;
  - Develop interdisciplinary undergraduate minor program on supply chain management and logistics standards to improve students' career readiness;
  - Develop interdisciplinary graduate certificate program to advance students' professional preparedness on supply chain management and logistics standards.

NIST National Institute of Standards and Technology U.S. Department of Commerce

TEXAS A&M UNIVERSITY KINGSVILLE

Overall Structure of the Project



NIST National Institute of Standards and Technology U.S. Department of Commerce

TEXAS A&M UNIVERSITY KINGSVILLE

Curriculum Development Summary

Course type and name	Standards to be covered
Freshman courses	
UNIV 1101- Learning in global context I (Business and Pre-engineering) / GEEN 1201- Engineering as a career (Eng.)	ICC Incoterm 2020 Introduction ICC UCP 600 Introduction
Upper Level Undergraduate Courses	
MKTG 4345 – Contracts and Documentation	ICC Incoterm 2020 and ICC UCP 600
IEEN 43XX – Introduction to cybersecurity standards in supply chain	ISO 31000:2018 Risk management ISO 27001 Information security standard
MGMT 4358-Lean operations	ISO 44001 Collaborative business relationship management systems
IEEN 4332- Principles of engineering management	ISO 22301:2019 Business continuity management systems and ISO 9001
Graduate Courses (Two required + One elective courses to get the certificate)	
Revamped (Business, required): MKTG 5320-Logistics and SCM	ICC Incoterm 2020 and ICC UCP 600
New (Eng., required): IEEN 53XX-Advanced risk management and cybersecurity standards in logistics	ISO 31000:2018 Risk management ISO 27001 Information security standard
New (Business, elective): MKTG 53XX-Responsive supply chain	ISO 44001 and ISO 22301:2019
Revamped (Eng., elective): IEEN 5312-Supply chain management	ISO 44001 and ISO 22301:2019

NIST National Institute of Standards and Technology U.S. Department of Commerce

TEXAS A&M UNIVERSITY KINGSVILLE

Minor Program

- **"Supply Chain Standards" minor (18 hours)**
  - Students are required to complete three of the following courses with C or better:

  IEEN 43XX Introduction to Cybersecurity Standards in Supply Chain;

  IEEN 4332 Principles of Engr. Management;

  MKTG 4345 Contracts and Documentation;

  MGMT 4358 Lean Operations.

  - Students also need complete three of the following courses with C or better:

  IEEN 3321 Op. Research Meth. In Engr. I; IEEN 3325 Engr. Economic Analysis I; IEEN 4321 Op. Research Meth. In Engr. II; IEEN 4325 Engr. Economic Analysis II; MGMT 3355 Operations, Logistics and Supply Chain Management; MKTG 3330 Transportation; MKTG 3375 Warehouse and Inventory Management; MKTG 4335 Supply Chain Management; or BAUD 3366 – Introduction to Business Intelligence.

NIST National Institute of Standards and Technology U.S. Department of Commerce

TEXAS A&M UNIVERSITY KINGSVILLE

New Courses

- Graduate level:
  - IEEN 5303-Standards of Cybersecurity in Supply Chain and Logistics to be offered in Spring 2021
- Undergraduate level:
  - IEEN 4313-Cybersecruity standards in supply chain, proposed together with the minor program
  - MKTG 4345- Trade standards in Logistics and Supply Chain, course to be offered in Summer 2021

TEXAS A&M UNIVERSITY KINGSVILLE.

Additional Goals

- **Short Term:** significantly increase TAMUK business and engineering students' awareness and knowledge of SCM and logistics standards by creating sustainable and cost-effectiveness curriculum structures.
- **Long Term:** adequately prepare and train the college graduates in south Texas to produce future workplace equipped with standards and standardization knowledge and generate positive impacts on regional, state, and national economy.

NIST
National Institute of Standards and Technology
U.S. Department of Commerce

TEXAS A&M UNIVERSITY KINGSVILLE.

Sustainability, Scalability, and Replicability

- All the modules and course contents developed by the project team will be available to TAMUK and other IHEs through online learning platforms Blackboard and Canvas.
- Webinars will be offered to promote the adoption of the modules and the teaching experiences.
- Three different levels of modules are flexible and easy for other educators to use.
- Short courses for industries.

Dissemination and Sharing

- IHE collaborators: Del Mar College, Lerado College, Texas A&M University, Texas A&M University–Corpus Christi, Texas Tech University, Cincinnati University, etc.
- ASEE annual conferences, TAMUK senior design conferences, Javelina Research Symposium, and TAMU Pathway Research Symposium
- Ten page summary paper

NIST National Institute of Standards and Technology U.S. Department of Commerce

TEXAS A&M UNIVERSITY KINGSVILLE

Activity Plan

Activities	Fall 20	Sp 21	Su 21	Fall 21	Winter 21	Sp 22	Su 22
Develop new course modules and courses	●	●					
Develop new minor/certificate program	●	●					
erevamped courses		●	●	●		●	●
Collect feedbacks		●	●	●		●	●
Create online version of course modules			●	●			
Continuous improvement			●		●		
Internal sharing at TAMUK				●		●	
Webinars/Seminars	●	●	●	●		●	●
Evaluation and Assessment	●	●	●	●	●	●	●
Project results dissemination		●	●	●	●	●	●
Share project products outside TAMUK						●	●
Attend one-day workshops at NIST	●			●			
Prepare final summary paper							●

NIST National Institute of Standards and Technology U.S. Department of Commerce

TEXAS A&M UNIVERSITY KINGSVILLE

Other Communication Plan

- Website
- Social medias: Twitter, Facebook, YouTube

Thank you!

NIST
National Institute of Standards and Technology
U.S. Department of Commerce

TEXAS A&M UNIVERSITY KINGSVILLE