# Hardware Security Education for All
Through Seamless Extension of Existing Curricula

Challenge:

- Absence of **hardware security (HS)** fundamentals in undergrad syllabus for EE/CE/CS majors
- Elective course on HS are taken by only a small fraction of the student population (e.g., students already interested in HS)
- Number of historically underrepresented students in STEM taking the course is even lower
- Leads to a shortage of cybersecurity workforce and researcher with HS background

Scientific Impact:

- Creation of six HS modules for each of the three hardware-oriented core courses for organic and contextual learning
- Motivating UG students to pursue research and career in HS
- HS expertise for cybersecurity workforce will help in developing novel system-level security solutions
- Creating new insight for seamlessly incorporating other specialized topics such as AI into fundamental courses
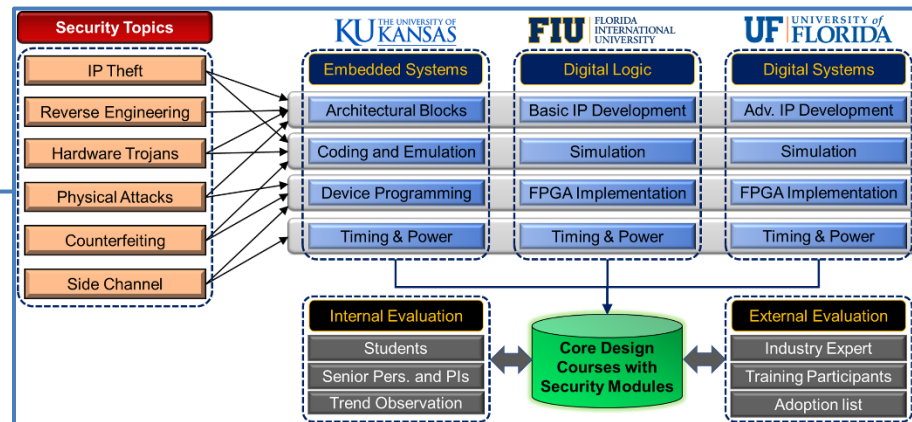
Solution:

- Facilitate HS education for 'all' EE/CE/CS UG students by incorporating the learning process within existing core courses
- Utilize the HS concepts as a tool to exercises the various modules in core design courses
- Plan to integrate six foundational HS concepts in core courses related to digital design and embedded systems and distribute the course modules to the broader community

Broader Impact

- Broadening UG students' participation in HS field
- Amplifying the participation of underrepresented students in cybersecurity education and research
- Creating diversified cybersecurity workforce with HS background
- The course materials, instruction guidelines, and other outcomes will be shared publicly