Curriculum Development for Secure Blockchain Technologies

Challenge:

Blockchain is an emerging technology, fast evolving

Standards are not concrete

Recognizing what is a relevant long-term skill and what is not

Solution:

- Identifying “fundamental” concepts
- Emphasis on theoretical understanding as well as practical, hands-on development
- Observing industry trends closely

Module	Lectures	Total Lecture Duration	Lab Assignments
Blockchain Primitives: Hash Functions, Mechanics, Signatures, Keys, Transactions	2	38m07s	Yes
Incentives and Attacks	1	24m32s	No
Mechanics and Data Structures	1	23m00s	No
Bitcoin Network	2	46m15s	No
Ethereum and Smart Contracts	2	51m30s	No
Vulnerability Detection in Smart Contracts (Research)	2	1h5m10s	Yes (2)
Smart Contract Development	3	2h45m	Yes

Scientific Impact:

- Increased interest in blockchain technology will help bring scientific advances in the field, which benefits both science as well as the products which will take advantage of the scientific advances

Broader Impact and Broader Participation:

- Creating general awareness of blockchain technologies and its limitations
- Faster, more improved blockchain technologies will create better services for everyone to consume, and educating students on blockchain is the first step towards making this a reality.

Project Number: **1931800**

Institution: The University of Texas at Dallas

Contact: Latifur Khan