

Course Number	CS 531	Course Title	Security in Cyber-Physical Systems				
Semester Hours	3	Course Coordinator FA20	Abdullah Aydeger				
Catalog Description	The course covers introductory topics in cyber-physical systems security. The goal is to expose students to fundamental security primitives specific to cyber-physical systems and to apply them to a broad range of current and future security challenges. Various tools and techniques used by hackers to compromise computer systems or otherwise interfere with normal operations are explored including tools that are unique to interacting with cyber-physical systems.						
Textbooks							
Knapp, E. & Langill, J. T. (2015). <i>Industrial Network Security</i> . Wiley Press, 2nd Edition.							
References							
Course Learning Outcomes							
<ul style="list-style-type: none"> • Introduction to the mathematical and technical background on Cyber-Physical Systems • Study security and privacy vulnerabilities of Cyber-Physical Systems in various application domains and provide security mechanisms to handle them. 							
Assessment of the Contribution to Student Outcomes							
Outcome →	1	2	3	4	5	6	7
Assessed →	X	X	X	X	X	X	X
Prerequisites by Topic							
Graduate standing or consent of the instructor.							

Major Topics Covered in the Course

1. Introduction	(10 Lectures)
o Fundamentals of Cyber Physical Systems	(5 Lectures)
o Discrete and Continuous Modeling	(5 Lectures)
2. Risks, Intrusion Detection, and Analysis, and Attacks	(10 Lectures)
3. Security and Access Controls	(5 Lectures)
4. Monitoring, Regulations, Standards, and Controls	(5 Lectures)