Course title: Engineering Foundations of FinTech (IEDA 4500, 2024)

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Course description: FinTech, short for financial technology, is a remarkably booming industry that aims at improving traditional financial services by applying novel technologies. In this course, students will acquire an understanding of popular financial technologies and learn how they are employed to enhance the effectiveness and efficiency of the existing financial systems. More specifically, this course will cover important financial technologies and innovations, including investment and financing technologies such as P2P lending, crowdfunding, and microloans, payment technologies such as digital wallets and mobile payments, wealth management technologies such as robo-advisors, and blockchain technologies such as cryptocurrencies (e.g., bitcoin).

Grading policy: Homework (30%); Individual final project (70%).
For the individual final project, each student is required to read some materials (e.g., part of a book or a paper) about FinTech. Finally, each student is required to submit a project report and is also required to give a project presentation.

Reference books:

[1]. A. Narayanan, J. Bonneau, E. Felten, A. Miller, and S. Goldfeder. (2016). *Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction.* Princeton University Press.

[2]. Sheldon M. Ross. (2014). *Introduction to Probability and Statistics for Engineers and Scientists.* Fifth Edition, Academic Press.

[3]. Sheldon M. Ross. (2019). *Introduction to Probability Models.* Twelfth Edition, Academic Press.

[4]. S. Shreve. (2005). *Stochastic Calculus for Finance I: The Binomial Asset Pricing Model.* Springer Science & Business Media.

[5]. S. Shreve. (2004). *Stochastic Calculus for Finance II: Continuous-Time Models.* Springer Science & Business Media.

[6]. L. Thomas, J. Crook, and D. Edelman. (2017). *Credit Scoring and Its Applications.* Second Edition, SIAM.