

## BBM 443 –Fundamentals of Blockchain

<b>Semester</b>	Fall 2020
<b>Instructor</b>	Assist. Prof. Dr. Adnan Özsoy Email: <a href="mailto:adnan.ozsoy@hacettepe.edu.tr">adnan.ozsoy@hacettepe.edu.tr</a>
<b>Class Hours</b>	Thursday, 09:30-12:00 - Remote

### Text Book

- Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction Hardcover, Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller, Steven Goldfeder, 2016  
Free pre-publication draft @ <http://bitcoinbook.cs.princeton.edu/>
- Mastering Bitcoin: Programming the Open Blockchain 2nd Edition, Andreas M. Antonopoulos, 2017

### Reference Material

- Mastering Ethereum, by Andreas M. Antonopoulos, Gavin Wood <https://ethereumbook.info/>,  
<https://github.com/ethereumbook/ethereumbook/blob/develop/book.asciidoc>

### Course Objective

This course provides a thorough understanding of the fundamental concepts and recent advances in blockchain and cryptocurrencies. The main objective is to provide students practical and theoretical foundations to use and develop applications using the blockchain technology and can solve challenging problems in cryptocurrencies.

### Tentative Schedule

Date	Weeks	Topics	
8.Oct	1.	Lecture 1: Introduction	
15.Oct	2.	Lecture 2: Blockchain Fundamentals	
22.Oct	3.	Lecture 3: Bitcoin Mechanics	
29.Oct	4.	<b>HOLIDAY</b>	
5.Nov	5.	Lecture 4: Wallets, Mining, Pools	
12.Nov	6.	Lecture 5: Ethereum and Smart Contracts	
19.Nov	7.	Lecture 6: Distributed App Development	
26.Nov	8.	Lecture 7: Hyperledger - Use cases	Project out
3.Dec	9.	Lecture 8: Blockchain Security	
10.Dec	10.	Lecture 9: Consensus Algorithms	
17.Dec	11.	Lecture 10: Scaling Blockchain	Project Due
24.Dec	12.	Lecture 11: Presentations	
31.Dec	13.	Lecture 12: Presentations	
7.Jan	14.	Final Review	Report Due

## **Grading**

Project : 25 % - 1 project - individual

Final Exam : 50 %

Final Report : 25 % - Group of 3 or 4

## **Course Material and Communication**

<https://piazza.com/hacettepe.edu.tr/fall2020/bbm443>

### **Policies:**

You are responsible for all material presented in lecture. Some of the course material is not covered in the textbook.

All work on assignments must be done individually unless stated otherwise. You are encouraged to discuss with your classmates about the given assignments, but these discussions should be carried out in an abstract way. That is, discussions related to a particular solution to a specific problem (either in actual code or in the pseudocode) will not be tolerated.

The term paper will be cross-checked through the Turnitin system and any major similarity will be penalized.

In short, turning in someone else's work, in whole or in part, as your own will be considered as a violation of academic integrity. Please note that the former condition also holds for the material found on the web as everything on the web has been written by someone else.

All information in this syllabus is subject to change during the semester.