CMSE492 - Selected Topics in Software Engineering II

Department:
Software Engineering

Program Name: Software Engineering	**Program Code:** 29

Course Number: CMSE492	**Credits:** 4 Cr	**Year/Semester:** 2022-2023 Spring

☐ Required Course   ☒ Elective Course

Prerequisite(s):
CMPE112

Catalog Description:
This course has been organized to give fundamental knowledge about blockchain technology. Data hashing, storing hashed data as transactions and smart contract programming are considered as the core concept of this course. Hash functions will be studied as the core topic in blockchain technology together with the recent implementation of smart contracts.

Aims and Objectives
A student who successfully fulfills the course requirements will learn the key topics of blockchain technology as hashing data, storing transaction data, verifying and adding transactions, and lastly the smart contract programming.

Textbook(s):
 "Building Blockchain Apps", Micheal Yuan, 1/E (ISBN 13: 9780135172322) Published by Addison-Wesley Publisher, 2020.
"Blockchain in Action", Bina Ramamurthy, 1/E (ISBN 13: 9781617296338) Published by Manning Publications, 2020.

Indicative Basic Reading List:
 "Building Blockchain Apps", Micheal Yuan, 1/E (ISBN 13: 9780135172322) Published by Addison-Wesley Publisher, 2020.

Extended Reading List:
"Blockchain Basics", Daniel Drescher, (ISBN 13: 978-1-4842-2603-2) Apress, 2017.

Topics Covered, Class Schedule and Lab Schedule: (Tentative)
(4 hours of lectures per week) (2 hours of laboratory per week)

WEEK	Starting Day	LABS
1	March, 6	**No Lab**
2	March, 13	Lab 1 – Simple Hash Function
3	March, 20	Lab 2 – MD5 Hash Function
4	March, 27	Lab 3 – SHA256 Hash Function
5	April, 3	Lab 4 – Linked Data chain
6	April, 10	Lab 5 – Chaining Blocks of Data
7	April, 17	**No Lab**
24-8		
10	May, 8	**No Lab**
11	May, 15	Lab 6 –Smart Contract Programming
12	May, 22	Lab 7– Smart Contract Programming
13	May, 29	Lab 8– Smart Contract Programming
14	June, 5	**No Lab**
12-26		

Course Learning Outcomes:
On successful completion of the course, the student is expected to be able to:
(1) Have knowledge about blockchain technology.
(2) Use hash functions.
(3) Implement block of chains from hashed data.

Assessment	Method	No.	Percentage
	Midterm Exam	1	35%
	Labs	7	15 %
	Final Examination	1	50%

Exams:

- You have re-sit exam chance at the end of semester if you fail. Note that; if your letter grade is "D" or above and you have no warning, you will not be able to enter re-sit exam. Yet, be aware that if you attend the re-sit exam, grade you get will be replace your midterm and final exam grades even if your grade is decreased.

- If you miss the midterm or the final exam, you **MUST submit a <u>medical report</u> to the course instructor, stating your excuse, within 3 days of that examination. The report will be evaluated by the committee of instructors. If the committee approves, you will be able to take a make-up exam. You will be able to take only one make-up exam.**

- If you miss both midterm and final exams and do not submit any written report, you will get an "NG" grade. In the same case, if you submit report for both missed exams, you will be able to enter make-up for one of them only.

- If you did not attend the 60% of lecture hours or lab experiments, you will get an "NG" grade. Therefore, be sure that you signed the attendance sheet in each lecture when it is asked to you. NOT WHEN YOU COME IN THE CLASS.

- No soft copy of lecture notes will be shared with the students. Each student should keep his/her personal notes in the lecture hours.

Labs:

- There will be no makeup for the missed lab experiments. The sum of the highest 6 grades will be the overall lab grade. Exemption for lab work will not be provided.

Plagiarism

Plagiarism (which also includes any kind of cheating in exams, assignments, and lab works) is a disciplinary offence and will be dealt with accordingly. Furthermore, the penalty of plagiarism is to get zero for the corresponding exam, assignment, or lab work.

Important Remarks
- You should have regular attendance to the lectures for being successful in the course.
- Course related materials, exercises, laboratory experiments, and announcements will be published on the course web site and you will be responsible from all. Note that the course web site can update during the semester. Therefore, check it regularly.

Contribution of Course to Criterion 4
Credit Hours for:
Mathematics & Basic Science: 2
Engineering Sciences and Design: 2
General Education : 0

Relationship of Course to Program Outcomes
The course has been designed to contribute to the following program outcomes:
a) an ability to apply knowledge of mathematics, science, and engineering
e) an ability to identify, formulate, and solve engineering problems
k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Prepared by: Asst.Prof. Dr. Mehtap KÖSE ULUKÖK	**Date Prepared:** March 01, 2023