SENG 425 - Introduction to Blockchain Technology

Course Code	Course Name	Semester
SENG 425	Introduction to Blockchain Technology	Fall ☒ Spring ☐ Summer ☐

Hours			Credit	ECTS
Theory	**Practice**	**Lab**	3	5
3	0	0		

Course Details	
Department	Computer Engineering
Course Language	English
Course Level	Undergraduate ☒ Graduate ☐
Mode of Delivery	Face to Face ☐ Online ☐ Hybrid ☒
Course Type	Compulsory ☐ Elective ☒
Course Objectives	The main objective is to provide students practical and theoretical foundations to use and develop applications using the blockchain technology
Course Content	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.
Course Method/ Techniques	Lecture ☒ Question & Answer ☐ Presentation ☐ Discussion ☐
Prerequisites/ Corequisites	-
Work Placement(s)	-

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Textbook/References/Materials

- Blockchain @ Berkeley : https://blockchain.berkeley.edu/
- Blockchain @ Princeton : http://bitcoinbook.cs.princeton.edu/

Course Category

Mathematics and Basic Sciences	☐		Education	☐
Engineering	☒		Science	☐
Engineering Design	☐		Health	☐
Social Sciences	☐		Profession	☐

Weekly Schedule

No	Topics	Materials/Notes
1		Introduction
2		Blockchain Fundamentals
3		Blockchain Examples
4		Bitcoin Mechanics
5		Wallets, Mining, Pools
6		Ethereum and Smart Contracts
7		Distributed App Development
8	Midterm Exam	
9		Hyperledger - Use cases
10		Midterm
11		Blockchain Security
12		Consensus Algorithms
13		Scaling Blockchain
14		Presentations
15		Presentations
16	Final Exam	

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Assessment Methods and Criteria

In-term studies	Quantity	Percentage
Attendance		
Lab		
Practice		
Fieldwork		
Course-specific internship		
Quiz/Studio/Criticize		
Homework		
Presentation / Seminar		
Project	1	40
Report		
Seminar	1	10
Midterm Exam		
Final Exam	1	50
	Total	**100%**
Contribution of Midterm Studies to Success Grade		
Contribution of End of Semester Studies to Success Grade		
	Total	**100%**

ECTS Allocated Based on Student Workload

Activities	Quantity	Duration (Hrs)	Total Workload
Course Hours			
Lab			
Practice			
Fieldwork			
Course-specific Work Placement			
Out-of-class study time			
Quiz/Studio/Criticize			
Homework			
Presentation / Seminar	1	1	12
Project	1	3	12
Report	1	3	12
Midterm Exam and Preparation for Midterm			
Final Exam and Preparation for Final Exam			
Total Workload			
Total Workload / 25			
ECTS Credit			

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Course Learning Outcomes

No	Outcome
L1	Acquisition of problem-solving and analysis skills
L2	Acquisition of the ability to apply basic technical skills
L3	Programming ability acquisition
L4	Comprehend algorithm logic
L5	Designing and writing the program that suits the needs

Contribution of Course Learning Outcomes to Program Competencies/Outcomes

Contribution Level: 1: Very Slight, 2: Slight, 3: Moderate, 4: Significant, 5: Very Significant

	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	Total
L1	5	5	4	4	5	4	4	4	4	4	4	47
L2	4	5	4	4	4	4	5	4	4	4	5	47
L3	4	4	5	4	4	4	4	4	5	4	4	46
L4	4	4	4	5	4	4	4	5	4	4	5	47
L5	4	4	5	4	5	4	4	4	4	5	4	47
											Total	234

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