(Syllabus)

[1] (Basic Information)			

(Course Information)			
/ (Year/Semester)	2020 / 1	(Campus)	(Seoul Campus)
(Course No.)	24766	(Class No.) 01	(Credit) 3
(Course Title)	(RANDOM VARIABLES)	/ (Time/Room)	310 616 < > / 723 < > 3 / 3,4(310 616 < > / 723 < > WED3 / MON3,4)
(Course Classification)	(Major)	(Lecture Type)	(Lone-teaching course)
(Course Type)	(Theoretical course)	(Medium of Instruction)	A(ENGLISH A)
(Accreditation)		(Accreditation of Engineering Education)	MSC(MSC)
(College)	ICT (College of ICT Engineering)	( ) (Department)	ICT (School of Electrical and Electronics Engineering)
e-class (Usage of e-class)	Yes		

(Instructor Information)			
(Name)	(Kang Hoon)	(Department)	(School of Electrical and Electronics Engineering)
(Office Phone No.)	02-820-5320	(Contact No.)	010-3029-5320
E-mail (E-mail)	hkang@cau.ac.kr	(Department Phone No.)	02-820-5333
(Office Hour)	1	(Office Location)	207 641
(Course Web-site)	https://cafe.naver.com/deeplearningai		

[2]   /   (Learning Objectives/Outcomes)

(Course Description)

, , Galileo, Pascal, Bernoulli, Gauss, Laplace , , . , , .   Probability started in BC, a study dealing with uncertainty, and then became one of the most powerful mathematical tools for uncertainty. Even now, thanks to the academic contributions of various scholars, including Galileo, Pascal, Bernouli, Gauss, Laplace and so forth. Theory of random variables is the basic science of information and communication, control, and semiconductor fields that deal with random signals and data.

(Prerequisites and Co-requisites)

(Learning Objectives)

, , . , .   Probability variable theory is to understand the basic concept of probability and fundamental knowledge of statistics, to identify the various properties and characteristics of probability distribution and random variables, and to obtain core knowledge related to the probability and statistics that engineering degrees should have. Furthermore, the objective is to ensure the engineer's fundamentals of probability and random variables that can be applied to a number of fields

(Learning Outcomes)

, .   Results of the course enable computer-generated simulation of probabilities and random variables and random signals.

[3]   (Course Methods)

(Teaching and Learning Methods)

(Teaching and Learning Methods)	(Additional Description)
(Lecture)	. MATLAB .
(Individual Practical Training)	MATLAB Script Program Design, Execution, and Debugging

(Assignments)

(Assignments)	(No.)	(, ,)(Assignments Description)
(Individual)	1	program project rabdom suffling of a card deck
(Individual)	2	histogram and distribution generation
(Individual)	3	distribution of linear combination in random variables
(Individual)	4	computer generation of gaussian random variables
(Report)	5	theoretic proof of cross-correlation
(Individual)	6	measurement of correlation function

(Textbooks, Reading, and other Materials)					
(Textbook/Reference)	(Title)	(Author)	/ (Year of Publication/etc)	/ (Publisher/Name of Journal)	/ (No. of Edition)
(Main Textbook)	Probability, Random Variables and Random Signal Principles	Peyton Z. Peebles, Jr.	2013	McGraw-Hill Korea	4th Ed.

[4]　　　　(Student Assessment)

(Assessment Item)	(%)(Assessment Ratio)	(Additional Description)
(Attendance)	10	Random Check
/ (Participation/Attitude)	10	Report Submission
(Mid-term Exam)	40	Midterm Exam
(Final Exam)	40	Final Exam

[5]　　　　(Course Schedule)

(Week)	(Instructor)	(Topic & Content)	(Student Assignment)	(Additional Description & Instructor Assignment)
1		Introduction. 　　　　　　　　　　, MATLAB		
2		1-1. Probability 　　　　　　　, 　　　　　,		
3		1-2. Probability　Random Variables 　　　, 　　　, 　　　, 　　　, 　　　,		
4		2. Random Variables 　　　　　　, 　　　　　　,		
5		3-1. Operations on One Random Variable - Expectation 　　, 　　,		
6		3-2. Operations on One Random Variable - Transformation 　　,		
7		4. Multiple Random Variables 　　　　, 　　　　, 　　　, 　　　, 　　　, 　　　,		
8		(Midterm Exam)		
9		5-1. Operations on Multiple Random Variables - Expectation 　　, 　　　,		
10		5-2. Operations on Multiple Random Variables - Transformation 　　, 　　, 　　, 　　,		
11		6-1. Random Processes - Temporal Characteristics 1 　　, 　　,		
12		6-2. Random Processes - Temporal Characteristics 2 　, 　　, 　　,		
13		7-1. Random Processes - Spectral Characteristics 1 　, 　　, 　,		

(Week)	(Instructor)	(Topic & Content)	(Student Assignment)	(Additional Description & Instructor Assignment)
14		7-2. Random Processes - Spectral Characteristics 2 , ,		

15		8-1. Linear Systems with Random Inputs ,
		                , ,
		         ,		

16		(Final Exam)		

[6]   (Guide to Learning)
The attached zip file is 'The new classnotes' for probability, random variables, and random signal principles. Please, download and unzip the file.

(Previous Exam Samples)
E-Class

<   >(<Download Additional Sample>)
<   >

(Engineering Education)
(Learning Outcomes)

: 50   : 50
_____(Title)
- MATLAB
_____(Objective)
,   MATLAB   .
_____(Restrictions)
.
_____(Assessment Method)
5   MATLAB Script

71   6   47   . (In pursuant to the Article 71 "Discipline" of the Chung-Ang University Regulations, and Article 47 "Punishment for Cheating during Examination" under Chapter 6 of the Academic Affairs Management Rules, any student caught engaging in academic misconduct during an exam will be subject to disciplinary action.)

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2.   :   ,   ,
3.   /   :   ,   ,
4.   ,
            : 02-820-6577~9(   ), 031-670-4816(   )
                                  (cauable)

In this class, students with disabilities are eligible for reasonable accommodations depending on the type and severity of disability. If you wish to receive accommodations listed below, please contact the Support Center for Students with Disabilities.
1. Visual Impairment: Braille, large print, electronic class materials, volunteer note-taker, adjustments in assessment practices, etc.
2. Hearing Impairment: Volunteer note-taker, stenographer, adjustments in assessment practices, etc.
3. Physical Disabilities/Brain Lesions: Classrooms with wheelchair access, volunteer note-taker, adjustments in assessment practices, etc.
4. Accommodations for students with other psychiatric disabilities or health impairments can be arranged through the Support Center for Students with Disabilities after consultation.
  Inquiry: 02-820-6577~9 (Seoul Campus), 031-670-4816 (Anseong Campus)
 - KakaoTalk Plus Friend ID: @cauable