Signals and Systems

Course Name	Course type (credit/hours)	Required course(3/3)	Course code	C058
	Target students Division/major/grade	Electrical and Computer Engineering/Sophomore	Opening semester	2019 2ND SEMESTER
	Class time and classroom	Tue B(WH538)Thu A(WH538)	English Grade	A(100%English)
Reference to this course	Prerequisite courses			
	Related basic courses			
	Recommended concurrent courses			
	Related advanced courses			

Instructor	Name (title/division)	Ran Rong(Assistant Professor, Electrical and Computer Engineering)				
	Office Room Number	종합관 603호	Office phone Number	2375	e-mail	
	Office hours		Homepage address			
Teaching Assistant	Name (title/division)					
	Office Room Number		Office phone Number		e-mail	

1. Introduction

The concepts of signals and systems arise in virtually all areas of technology, including electrical circuits, communication devices, signal processing devices, robotics and automation, etc. Therefore, it is of great importance for students of Engineering Department.
This course contains a comprehensive treatment of continuous-time and discrete-time signals and systems, with inllustrations of numerious MATLAB commands for the solution of a wide range of problems arising in engineering fields.

Getting info About This Course
- The syllabus contains tentative information.
- I will announce in class if there is any change.
- You are responsible for making sure that you obtain this information.
- Come to classes on time and listen carefully for announcement(s).

2. Course Objectives

1. Understand what are continuous-time and discrete-time signals and systems, and what is relation between signals in time domain and frequency domain.
2. Understand what is the Fourier series and Fourier Transform, and Know how to use it to analyze Discrete-time signals and systems
3. Understant what is the Laplace Transform and Z-transform.

3. Class types and activities

1. Lecture: introduce basic mathematical concepts of signals and systems
2. Exam: Midterm+Final term+Quiz
3. Project (optional)

4. Teaching Method

- [V] lecture
- [ ] discussion and debate
- [ ] team project(presentation and case studies)
- [ ] experiments(role-playing,etc)
- [ ] designing and production
- [ ] on-site learning(on-site training)
- [ ] others

5. Support Systems in Use

- [V] AjouBb
- [ ] automatic recording system
- [ ] web-based assignment
- [ ] cyber lecture
- [ ] online content
- [ ] class behavior analyazing system
- [ ] others

6. Teaching Tools

- [V] PBL(Problem Based Learning)
- [ ] CBL(Case Based Learning)
- [ ] TBL(Team Based Learning)
- [ ] UR(Undergraduate Research)
- [ ] FL(Flipped Learning)
- [ ] DSAL(Data Science Active Learning)
- [ ] others

7. Knowledge and ability required for taking this course

The background required for studying this course consists of the usual courses in calculus and elmentary differential equations. It is also helpful, but not necessary, to have had some exposure to physics.

8. Method of Evaluation

Evaluation Item	The Number of Times	Evaluation Proportion	Remarks
Attendance	30	10%	
midterm exam	1	35%	
final exam	1	35%	
quiz	2	20%	
presentation			
discussion			
homework			
etc			
study hours			

9. Textbook and supplementary material

Main/Sub	Title (Web-site)	Writer	Publisher	Publication year
Main	Fundamentals of signals and systems using the web and matlab	Edward w. Kamen	prentice hall	

10. Class system and Class shedule

1. continuosu-time & discrete-time signals;
2. Discrete-time systems;
3. The Fourier Series & Transform;
4. The Laplace & Z transform.

< Class Schedule >

* language : K-korean, E-English

Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
1	Continuous-Time Signals	E	Ran Rong	Lecture Notes		
2	Discrete-Time Signals & systems	E	Ran Rong	Lecture Notes		
3	Discrete-Time systems	E	Ran Rong	Lecture Notes & Matlab		
4	Discrete-Time systems	E	Ran Rong	Lecture Notes & Matlab		
5	Frourier seriers & Transforms	E	Ran Rong	Lecture Notes		

< Class Schedule >

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Weeks	Topics	language	Instructor	Teaching Method	Evaluation Method	Matter to be prepared
6	Frourier Transforms	E	Ran Rong	Lecture Notes & Matlab		
7	Frourier Analysis of Discrete-Time sigals	E	Ran Rong	Lecture Notes		
8	Midterm	E	Ran Rong	Lecture Notes & Matlab		
9	Frourier Analysis of Continuous-Time Systems	E	Ran Rong	Lecture Notes & Matlab		
10	Frourier Analysis of Discrete-Time Systems	E	Ran Rong	Lecture Notes & Matlab		
11	The Laplace Transform and Transfer function representation	E	Ran Rong	Lecture Notes & Matlab		
12	The Inverse Laplace Transform	E	Ran Rong	Lecture Notes & Matlab		
13	The Z-Transform of a discrete-time systms	E	Ran Rong	Lecture Notes & Matlab		
14	The inverse Z-Transfer	E	Ran Rong	Lecture Notes & Matlab		
15	Analysis using the Z-transfer	E	Ran Rong	Lecture Notes & Matlab		
16	Final Exam	E	Ran Rong			

11. Other items of notification

This course requires students have some background on Matlab.