

2021학년도 2학기 수업계획서

• 기본정보

과목명	디지털신호처리		
학점(시간)	3(3)		
이수구분	전공		
수강번호	0305	반번호	01
강의시간	월 18:00-20:30		
강의실	E29-263		
담당교수	김병일	소속	기계공학부
면담시간	월요일 15:00 ~ 18:00 (기계관 306호)		

• 세부내용

1. 강의소개 :

The course Digital Signal Processing aims at giving the student knowledge of some important methods for signal processing with emphasis on sound applications.

This course covers modelling, simulation and practical training in the area of digital signal processing.

This course provides students with solid foundation on the theory and applications of digital signal processing. Both fundamental and advanced mathematical and physical DSP concepts will be discussed.

Signals and Signal Processing

Discrete-Time Signals and Systems in Time Domain

The Discrete-Time Fourier Transform (DTFT) and The DFT

The Z-transform

Transform Analysis of Linear Time-Invariant (LTI) Systems

A/D, D/A Converters and Digital Processing of Continuous-Time Signals

Digital Filter Design

• 세부내용

The DFT, The FFT and The Digital Spectral Analysis

2. 수업목표 :

The main goal is to provide students with a basic analytical skill to conduct research, pursue further study, and perform advanced engineering work in the general application areas of Digital Signal Processing.

3. 수업진행방법 :

the student will:

Learn the basics of discrete time systems, including time domain and frequency domain representations.

Learn how to analyze and design general discrete time systems.

Learn how to design IIR and FIR filters.

Learn how to use the Discrete Fourier Transform.

Learn how to interconnect discrete time systems using different sampling rates.

Learn how to use computer tools to aid in the analysis and design of discrete time systems.

4. 중요교재 및 문헌 :

주교재: 하영호 저, 디지털신호처리, 그린, 2009.

참고문헌: Bendat & Piersol, Random Data, Wiley, 2009.

5. 수업의 효율성 제고를 위한 기타사항

6. 학습평가 :

Midterm (40%), Final (40%), Homework Assignment (20%)

• 주별계획

주	학습목표 및 목차	주교재 및 참고자료	퀴즈/과제/토론 유무
1	Mathematical description of signals and systems		
2	Understanding sinusoids		
3	sinusoids and spectrum		
4	spectrum representation		
5	sampling		
6	aliasing and sampling theorem		
7	FIR filter		
8	midterm exam.		
9	FIR filter and MA model		
10	Frequency response of an LTI system		
11	z-transform(1)		
12	z-transform(2)		
13	IIR filter		
14	spectrum analysis(1)		
15	spectrum analysis(2)		