

اعلان لطلاب الفصل الدراسي الصيفي للعام الجامعي ٢٠١٦-٢٠١٧

لمادة

IT 341

Digital Signal Processing

I- Required Text

- Discrete-Time Signal Processing,
- Prentice Hall, 2nd Edition
- Alan Oppenheim, Ronald Schafer, John Buck

II- Grading

- Midterm : 40%
- Final: 60%

III- Course Outline

1- Introduction to Digital Signal Processing

2- Discrete-Time Signals and System

- Discrete-Time Signals: Sequences (2.1)
- Discrete-Time Systems (2.2)
- Linear Time-Invariant Systems (2.3)
- Properties of Linear Time-Invariant Systems (2.4)
- Linear Constant-Coefficient Difference Equations (2.5)
- Freq. Domain Representation of Discrete-Time Signals (2.6)
- Representation of Sequences by Fourier Transforms (2.7)
- Symmetry Properties of the Fourier Transform (2.8)
- Fourier Transform Theorems (2.9)

3- The Z-Transform

- Z-Transform (3.1)
- Properties of the Region of Convergence of the z-Transform (3.2)
- The Inverse Z-Transform (3.3)
- Z-Transform Properties (3.4)

4- Sampling of Continuous-Time Signals

- Periodic (Uniform) Sampling (4.1)
- Frequency-Domain Representation of Sampling (4.2)
- Reconstruction of a Bandlimited Signal from Its Samples (4.3)

5- Structures for Discrete-Time Systems

- Block Diagram Representation (6.1)
 - Signal Flow Graph Representation (6.2)
 - Basic Structures for IIR Systems (6.3)
 - Transposed Forms (6.4)
 - Basic Structures for FIR Systems (6.5)
- 6- Filter Design Techniques
- Design of Discrete-Time IIR Filters from Continuous-Time Filters (7.1)
 - Design of FIR Filters by Windowing (7.2)
- 7- The Discrete-Fourier Transform
- Discrete Fourier Series (8.1)
 - Properties of the Discrete Fourier Series (8.2)
 - The Fourier Transform of Periodic Signals (8.3)
 - Sampling the Fourier Transform (8.4)
 - The Discrete Fourier Transform (8.5)
 - Properties of the DFT (8.6)

iv- Midterm Exam will include: Discrete-Time Signals and System, The Z-Transform, The Discrete-Fourier Transform