



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Multiresolution Signal Processing							
Course Code		EEE543		Coure Level		Second Cycle (Master's Degree)			
ECTS Credit	8	Workload	200 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		To learn the following topics: 1) Signal expansions, 2) Block transforms, 3) Filter banks, 4) Wavelet series, 5) Time-frequency analysis and representations							
Course Content		Fundamentals of signal decompositions. Time-frequency representations. Filter banks. Wavelets. Efficient algorithms. Signal compression and subband coding.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Demonstration, Discussion, Case Study, Project Based Study, Individual Study, Problem Solving					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	30
Final Examination	1	40
Project	1	30

Recommended or Required Reading

1	Ali Akansu Paul Haddad, Multiresolution Signal Decomposition: Transforms, Subbands, and Wavelets, 2nd ed., 2000
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Week	Weekly Detailed Course Contents	
1	Theoretical	Introduction
2	Theoretical	Orthogonal Transforms
3	Theoretical	Orthogonal Transforms
4	Theoretical	Theory of Subband Decomposition
5	Theoretical	Theory of Subband Decomposition
6	Theoretical	Filter Bank Families: Design and Performance
7	Theoretical	Filter Bank Families: Design and Performance
8	Intermediate Exam	Midterm Exam
9	Theoretical	Time-Frequency Representations
10	Theoretical	Time-Frequency Representations
11	Theoretical	Time-Frequency Representations
12	Theoretical	Wavelet Transform
13	Theoretical	Wavelet Transform
14	Theoretical	Wavelet Transform
15	Theoretical	Applications
16	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	5	3	112
Project	1	49	3	52
Midterm Examination	1	10	3	13
Final Examination	1	20	3	23
Total Workload (Hours)				200
[Total Workload (Hours) / 25*] = ECTS				8

*25 hour workload is accepted as 1 ECTS



Learning Outcomes

1	To learn Basics of data compression; JPEG,
2	To learn Orthonormal, biorthogonal and overcomplete signal expansions; DCT, DST, MDCT,
3	To learn Transform coding, filter banks, subband coding, transmultiplexers,
4	To learn Wavelet series,
5	To learn Short time Fourier transformation, continuous wavelet transformation, Wigner-Ville distribution.

Programme Outcomes (*Electrical and Electronics Engineering Master*)

1	Developing and intensifying knowledge that requires expertise in the area of Electrical-Electronics Engineering, and gaining the skills necessary to analyze and solve problems using this knowledge
2	Grasping the inter-disciplinary interaction related to Electrical-Electronics Engineering, interpreting and forming new types of knowledge by combining the knowledge from Electrical-Electronics Engineering and the knowledge from various other disciplines
3	Developing new approaches to solve the complex problems arising in Electrical-Electronics Engineering, coming up with solutions while taking responsibility and carrying out a specific study independently
4	Assessing the knowledge and skill gained in the area of Electrical-Electronics Engineering with a critical view
5	Transferring the current developments and one's own work in Electrical-Electronics Engineering, to other groups in written, oral and visual forms
6	The ability to control the collecting, interpreting, practicing and announcing processes of the Electrical-Electronics Engineering related to data taking into consideration scientific, cultural and ethical values and the ability to teach these values to others
7	Developing application plans concerning the subjects related to Electrical-Electronics Engineering and the ability to evaluate the end results of these plans within the frame of quality processes

Contribution of Learning Outcomes to Programme Outcomes 1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High

	L1	L2	L3	L4	L5
P1	4	4	4	3	4
P2	4	4	4	4	4
P3	4	4	3	3	3
P4	4	3	3	3	4
P5	4	4	3	4	3
P6	4	3	4	4	4
P7	4	4	3	4	4

