ESISM

Signals, Systems and Modulations

Inst. of Telecommunications

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Web site www.tele.pw.edu.pl/esism
includes lectures (presentations, recordings),
tutorials (examples, solved problems)
laboratories (instructions, demos)

MS Teams: ESISM23L
Presentations used at lectures and tutorials

Course description:

date	Lectures	room
22.02.2023	Analog and Digital Communication	017B, 8.15
01.03.2023	Fourier transform and its properties	
08.03.2023	Analog LTI systems	
15.03.2023	Sampling, discrete time signals and transforms	
22.03.2023	Z Transform, poles and zeros of Z transform	
29.03.2023	Discrete time systems, digital filters	
12.04.2023	Adaptive filters, prediction of signals	
19.04.2023	Analog amplitude and frequency modulations	
26.04.2023	Exam 1	
10.05.2023	Digital modulations and transmission codes	
17.05.2023	Reception of digital signals	
24.05.2023	Quantization, PCM	
31.05.2023	Compression	
07.06.2023	Channel capacity, limits of transmission	
14.06.2023	Exam 2	

Signal processing

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Tutorials:

101 – Th. 10-12

date	Tutorials - odd weeks	room 104
02.03.2023	Continuous time signals and systems	
16.03.2023	Discrete time signals and transforms	
30.03.2023	Z Transform, digital filters	
13.04.2023	Analog and digital filters	
27.04.2023	Analog and digital modulations	
18.05.2023	Quantization, prediction, compression	
01.06.2023	Modulations - typical problems *	
	* both groups are invited	

102 -Th. 10-12

date	Tutorials - even weeks	room 104
09.03.2023	Continuous time signals and systems	
23.03.2023	Discrete time signals and transforms	
06.04.2023	Z Transform, digital filters	
20.04.2023	Analog and digital filters	
11.05.2023	Analog and digital modulations	
25.05.2023	Quantization, prediction, compression	
15.06.2023	Modulations - typical problems *	
	* both groups are invited	

Laboratory:

Laboratory (room 412)	group 102	group 101	group 103
Sampling	20.03.2023	13.03.2023	14.03.2023
Discrete filters	03.04.2023	27.03.2023	28.03.2023
Adaptive filtering	17.04.2023	24.04.2023	11.04.2023
Transmission codes	08.05.2023	15.05.2023	25.04.2023
Digital Modulations	22.05.2023	29.05.2023	16.05.2023
Quantization and ADPCM	05.06.2023	12.06.2023	30.05.2023

101: odd Mondays (14-16)
102: even Mondays (14-16)
103: odd Tuesdays (14-16)*
* may be at 16-18?

Bibliography:

- K. Sayood *Introduction to Data Compression*, Morgan Kauffman
- L.W. Couch *Digital and Analog Communication Systems* Prentice Hall
- I.A. Glover *Digital Communications*
- S.Haykin *Communication Systems*, Wiley 2001
- N.S.Jayant, P.Noll *"Digital coding of waveforms"*
- A.Gersho, R.M.Gray *"Vector quantization and signal compression"*
- A.M. Kondoz *"Digital speech"*
- L.Hanzo, F.Clare, A.Somerville, J.P.Woodward: *"Voice compression*
- *and communications"*
- P.Vary, R.Martin *„Digital speech transmission",* Wiley 2005
- N. Netravali, B. Haskell *"Digital pictures: representation, compression,*
- *and standards"*
- M.Ghanbari *„Standard codecs – image compression to advanced video coding"*
- Z.M. Hussain, A.Z. Sadik, P. O'Shea *„Digital Signal Processing – an Introduction with Matlab and applications",* Springer 2011
- Mark Owen „Practical signal processing"

Assessment:

During the **laboratory** exercises it is possible to score up to **30** points (5 pts per one session)
For mid-term exam (1) up to **30** points, the same for final exam (2)
During the session you may retake both exams. The best score reckons.
There are also up to **20** points to get for the **tutorials**.
The final result is based on the following pattern:

A	5	91-110 points
B+	4.5	81-90 points
B	4	71-80 points
C+	3.5	61-70 points
C	3	51-60 points
D	2	0 -50 points

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Calendar

2023	February		March				April				May					June				July
Monday	20	27	6	13	20	27	3	10	17	24	1	8	15	22	29	5 Fri	12	19	26	3
Tuesday	21	28	7	14	21	28	4	11	18	25	2	9	16	23	30	6	13	20	27	4
Wednesday	22	1	8	15	22	29	5 Fri	12	19	26	3	10	17	24	31	7	14	21	28	5
Thursday	23	2	9	16	23	30	6	13	20	27	4	11	18	25	1	8	15	22	29	6
Friday	24	3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16	23	30	7
Saturday	25	4	11	18	25	1	8	15	22	29	6	13	20	27	3	10	17	24	1	8
Sunday	26	5	12	19	26	2	9	16	23	30	7	14	21	28	4	11	18	25	2	9
	N/P	N	P	N	P	N	P	N	P	N		P	N	P	N	P	N/P			

Legend

- 13 Even days - P
- 13 Odd/even days- N/P
- 13 Odd days - N
- 13 Free days
- 13 Holidays
- 13 Session
- 13 Registration period
- 13 Classes from other day of the week