Obuda University John von Neumann Faculty of Informatics			**Institute of Applied Mathematics**	
Name and code: *Stochastic Processes II*			**Credits*:*** *2021/22 year II. semester*	
Subject lecturers: Prof. dr. habil. Tibor Pogány				
Prerequisites (with code):	Calculus I, II, Probability theory			
Weekly hours:	Lecture:	Seminar.:	Lab. hours:	Consultation:
Way of assessment:				
Course description:				
Goal: to provide an introduction into estimation theory – interpolation, extrapolation and filtration of stochastic processes.				
Course description: weakly stationary stochastic processes, extrapolation and interpolation by means of infinite and finite past, filtration of noise, Wiener-Hopf equations.				

Lecture schedule	
Education week	*Topic*
1.	Stochastic processes
2.	L^2 theory, correlation functions, spectral density
3.	Correlation theory, spectral representations
4.	Bochner-Hinčin, Herglotz and Karhunen Cramer theorems
5.	Isomorphic isometry between L^2(Ω) and L^2(R;dF)
6.	Extrapolation, infinite past
7.	Extrapolation, finite past
8.	Interpolation, infinite past
9.	Interpolation, finite past
10.	Filtration
11.	Weakly stationary time series
12.	Extrapolation, rational spectral densities
13.	Interpolation, rational spectral densities
14.	Filtration, spectral densities

Midterm requirements

Education week	*Topic*

Final grade calculation methods

Achieved result	Grade
89%-100%	excellent (5)
76%-88<%	good (4)
63%-75<%	average (3)
51%-62<%	satisfactory (2)
0%-50<%	failed (1)

2022. 03. 24.

Type of exam
Project presentation & Written exam
Type of replacement
Project presentation
References

Mandatory:

1. Michelberger Pál, Szeidl László, Várlaki Péter. Alkalmazott folyamatstatisztika és idősor-analízis, Typotex Kiadó, Budapest, 2001.
2. Yaglom, Akiva Moiseevich, An Intorduction to the Theory of Stationary Random Functions, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1962.
3. Yaglom, Akiva Moiseevich, Correlation theory of stationary and related random functions. Vol. I., II. Springer Series in Statistics. Springer-Verlag, New York,1987.
4. Wentzel, E., Ovcharov, L. Applied Problems in Probability Theory, Mir Publishers, Moscow, 1983.