Module No.	Title of Module
10-MAT-MPSP1	**Stochastic Processes I**

Recommended for	2nd semester of Int. Master Program Math. Phys.,
Duration	1 Semester
Frequency	each Summer Semester
Course types	(1) Lecture „Stochastic Processes I" (4 SWS) = 60 h in class + 90 h individual studies = 150 h (2) Seminar „Stochastic Processes I" (2 SWS) = 30 h in class + 120 h individual studies = 150 h
Workload	10 LP = 300 h
Aims	After active participation the students are able to: - show and explain the basic terms and concepts of the theory stochastic processes in oral and written form. - apply them in order to examine and predict the behavour of simple stochastic systems - solve simple model problems individually and to explain their procedure They can solve minor problems independently or in groups and verify proofs.
Contents	- Markov Chains, Recurrence/Transience, equilibrium distributions and long-term behaviour, potential theory and electric networks - Brownian molecular motion - Stochastic differential equations and Feynman-Kac-Formulas Lectures and seminars will be held in English. Students' performance has to be in English as well.
Prerequisites	None
Literature	N.G. van Kampen. Stochastic Processes in Physics and Chemistry, Elsevier 2007 J. Norris, Markov Chains, Cambridge University Press, 2007 A. Klenke, Proability Theory, Springer 2014
Examinations	Written exam of 180 min The students have to achieve at least 50% of the possible credits, to be obtained in exercises related to the content of the module.
Requirements	attendance at lecture „Stochastic Processes I" (4 SWS) participation in seminar „Stochastic Processes I" (2 SWS)