

Course: Modelling and Analysis of Information Technology Systems

Lecturer: János Sztrik

Course code: INHK521

Type: Lecture

Lessons/Week: 2

Credit: 2

Status: Normal/ Exam course

Requirement:

Competence: After the course the students will be able to use mathematical models for simpler systems

Exam type: Written (Oral)

Weekly schedule of the lectures:

Overview from the earlier topics concerning this course

Convolution of discrete distributions

Convolution of continuous distributions

Exponential distribution

Series systems

Parallel systems

Distribution derived from the exponential distribution

Poisson-process and its properties

Generating function and its properties, examples

Laplace-transform and its properties, examples

Random sums, examples

Renewal processes

Markov chains, birth-death processes

Markov-type systems, examples

Szoftver:

Recommended References

- **Gross D., Harris C.:** Fundamentals of Queueing Theory, John Wiley, New York, 1985
- **B. Haverkort:** *Performance of computer communication systems: a model-based approach*, New York, John Wiley and Sons, 1998.
- **J.F. Hayes, T.V.J. Ganes Babu:** *Modeling and Analysis of Telecommunication Networks*, Wiley Interscience, 2004.
- **R. Jain:** *The Art of Computer Systems Performance Analysis*, New York, John Wiley and Sons, 1991
- **J. Sztrik:** <http://irh.inf.unideb.hu/user/jsztrik/education/lectures.htm>
- **K.S. Trivedi:** *Probability and Statistics with Reliability, Queueing and Computer Science Applications*, Prentice-Hall, Englewood Cliffs, 1982.

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full professor