

**Código da Disciplina:** EELT-7029

**Nome:** Modelagem e Avaliação de Desempenho de Sistemas de Comunicação.

**Carga horária:** 60 horas.

**Número de Créditos:** 04

**Ementa:**

Abordagens para avaliação de desempenho de sistemas. Probabilidade e estatística aplicadas à avaliação de desempenho. Processos estocásticos. Cadeias de Markov. Sistemas básicos de filas. Lei de Little. Modelo de filas: M/M/1, M/M/n, M/G/1. Séries Temporais: AR, MA, ARMA, ARIMA. Modelos auto-similares, parâmetro de hurst e LRD. Simulação de sistemas: técnicas de implementação e análise.

**Bibliografia:**

- G.E.P. Box, G.M. Jenkine, and G.C. Reineel. Time Series Analysis. Prentice-Hall, New York, 3th edition, 1994.
- R. Jain. The art of computer systems performance analysis: techniques for experimental design, measurement, simulation and modeling. John Wiley & Sons, 1991.
- H.M. Taylor and S. Karlin. An Introduction to Stochastic Modeling. Academic Press, 3rd edition, 1998.
- J. Banks, J.S. Carson, B.L. Nelson, and D.M. Nicol. Discrete-event system simulation. Prentice Hall, New Jersey, 3th edition, 2001.
- D.M. Chandy and J. Misra. Asynchronous distributed simulation via sequence of parallel computations. ACM Transactions on Simulation Modeling and Statistical Computing, 1981.
- Lee Breslau, Deborah Estrin, Kevin Fall, Sally Floyd, John Heidemann, Ahmed Helmy, Polly Huang, Steven McCanne, Kannan Varadhan, Ya Xu, and Haobo Yu. Advances in network simulation. IEEE Computer, 33(5):59–67, 2000.
- R. Jain and S.A. Routhie. Packet trains - measurements and a new model for computer network traffic. IEEE Journal on Selected Areas in Communication, 4(6), 1986.
- Abdelnaser Adas. Traffic models in broadband networks. IEEE Communications Magazine, 1997.
- Paul Barford and Mark Crovella. Generating representative web workloads for network and server performance evaluation. In Joint International Conference on Measurement and Modeling of Computer Systems - Performance Evaluation Review (SIGMETRICS '98/PERFORMANCE '98), 1998.

- M. Crovella and A. Bestavros. Self-similarity in world wide web traffic: Evidence and possible causes. *IEEE/ACM Transactions on Networking*, 5(6), 1995.
- L. Muscariello, M. Mellia, M. Meo, and M.A. Marsan. An MMPP-based hierarchical model of internet traffic. In *IEEE international conference on communications ICC2004*, 2004.
- W.E. Leland, M.S. Qaqqu, W. Willinger, and D.V. Wilson. On the self-similar nature of ethernet traffic (extended version). *IEEE/ACM Transactions on Networking*, January 1994.
- P. Abry and D. Veitch. Wavelet analysis of long-range dependent traffic. *IEEE Trans. on Info. Theory*, 44(1):2–15, January 1998.
- Vern Paxson and Sally Floyd. Wide area traffic: the failure of Poisson modeling. *IEEE/ACM Transactions on Networking*, 3(3):226–244, 1995.
- T. Murata. Petri nets: Properties, analysis and applications. *Proceedings of the IEEE*, 77(4):541–580, 1989.