

Nazwa w języku angielskim: Queueing theory

Dane dotyczące zajęć:
Information on course:

Jednostka oferująca: Wydział Matematyki Stosowanej // dr hab. inż. Wojciech Kempa, prof. PŚ
Course offered by: Faculty of Applied Mathematics // dr hab. inż. Wojciech Kempa, prof. PŚ

Język wykładowy:
angielski
Language:
English
Strona WWW: Course homepage:
Skrócony opis:
Short description:
The aim of the course is to familiarize students with the most important models of queueing systems, the basic methods of their research and their practical application.
Opis:
Description:
Lecture: Queueing models, their classification and division. Main stochastic characteristics of queueing systems (queue size, waiting time, busy period duration). Methods used in analysis of queueing model characteristics. Little's laws. PASTA property. M/M/1-type queueing model with infinite and finite buffer capacity. Preemptive-resume and non-preemptive priorities. Multi-channel M/M/c queueing model. M/G/1-type queueing model. Pollaczek-Khintchine formulae. Lindley's equation. Queueing models with limited access to service station: setup time, N-policy, breakdowns. G/M/1-type queueing models. Queueing networks. Open and closed networks. Tandem queues. Active Queue Management (AQM) mechanism. Lecture: • full-time studies: 30 h Number of ECTS credits: 2
Bibliography:
(1) I. Adan, J. Resing, Queueing theory. Eindhoven University of Technology, 2015 [https://www.win.tue.nl/~iadan/queueing.pdf]; (2) R. B. Cooper, Introduction to queueing theory, 2nd Edition. North Holland, 1981; (3) T. Czachórski, Modele kolejkowe w ocenie efektywności sieci i systemów komputerowych. Wydawnictwo Pracowni Komputerowej Jacka Skalmierskiego, Gliwice, 1999; (4) J. N. Daigle, Queueing theory with applications to packet telecommunication. Springer, 2005; (5) S. Ross, Introduction to probability models, 10th Edition. Academic Press, 2010; (6) H. C. Tijms, A first course in stochastic models. Wiley, 2003.
Efekty uczenia się:
Learning outcomes:
Student who completes the course: - knows and understands classification of queueing models and their main stochastic characteristics - knows and understands basic methods used in analysis of queueing systems - knows and understands possibility of applying queueing systems in practical modelling - can use selected analytical methods of queueing theory to determine characteristics of basic models

Metody i kryteria oceniania:**Assessment methods and assessment criteria:**

Passing criteria:

In order to pass the course with a positive grade, the student must score at least 41 points from the final written test (0-100 pts).

The final grade in the subject based on the number of points scored is calculated as follows:

41-55 p.: sufficient (3.0)

56-70 p.: plus sufficient (3.5)

71-80 p.: good (4.0)

81-90 p.: plus good (4.5)

91-100 p.: very good (5.0)

Przynależność do grup przedmiotów w cyklach:**Element of course groups in various terms:**

Opis grupy przedmiotów Course group description	Cykl pocz. First term	Cykl kon. Last term
przedmioty obieralne studia stacjonarne stopień studiów – dowolny kierunek studiów – dowolny, semestr dowolny elective courses full-time degree - any field of study - any semester - any	2023/2024	