

■ CE82 - Queuing Systems

GENERAL

SCHOOL	EXACT SCIENCES		
DEPARTMENT	MATHEMATICS		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	CE82	SEMESTER	H
COURSE TITLE	QUEUING SYSTEMS		
INDEPENDENT TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	ECTS	
Lectures	4	6	
COURSE TYPE	Scientific Field		
PREREQUISITE COURSES	-		
LANGUAGE OF TEACHING AND EXAMINATIONS	Greek/English		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	http://eclass.uowm.gr/		

LEARNING OUTCOMES

Learning Outcomes
<p>With this course, the students will be able to:</p> <ul style="list-style-type: none"> • use Markov processes in queuing system modeling, • apply Little's results, • recognize and apply basic queuing system models, • employ queuing system models for optimal decision making.
General Competencies
<ul style="list-style-type: none"> • Search for, analysis and synthesis of data and information, with the use of the

necessary technology.

- Application of knowledge in practice.
- Decision making.
- Production of free, creative and inductive thinking for optimal decision making.

CONTENT OF THE COURSE

Description of queuing systems, basic notions and general results. Simple Markov systems. M/M/1 system: System states, waiting time, busy periods, departure process. Other Markov Systems: M/M/m/k, M/M/∞/∞, Erlang systems, bulk queues. M/G/1 system: system states, waiting time, busy period. Applications for optimal decision making.

TEACHING AND LEARNING METHODS - EVALUATION

TEACHING METHOD	In the classroom.	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	Powerpoint presentations. Use of e-class. Communication through face-to-face discussions via e-mails.	
TEACHING ORGANIZATION	Activity	Semester Workload
	Lectures	52 hours
	Projects	26 hours
	Individual Study	72 hours
	Course Total (25 hours per ECTS)	150 hours
STUDENT EVALUATION	Projects 20%. Written final examination 80%.	

RECOMMENDED BIBLIOGRAPHY

1. Fakinos D., Stochastic Models in Operations Research: Theory and Applications, Symmetria, 2007 (Greek).
2. Hillier F. S. & Lieberman G. J. Introduction to operations research (7th ed.). McGraw-Hill, 2001.
3. Stafylopatis A.-G. Performance analysis of computational systems, Hellenic Academic Ebooks- "Kallipos" repository, 2016 (Greek).

4. Fakinos D., Queuing systems, Symmetria, 2008 (Greek).