



<b>COURSE: Performance Evaluation of Networks</b>		
<b>DEGREE: Master in Telematics Engineering</b>	<b>COURSE: 1</b>	<b>TERM: 1</b>

WEEKLY PLANNING									
WEEK	session	DESCRIPTION	GROUPS (mark X)		SPECIAL ROOM FOR SESSION (Computer class room, audio-visual class room)	Indicate YES/NO if the session needs 2 teachers	WEEKLY PROGRAMMING FOR STUDENT		
			LECTURES	SEMINARS			DESCRIPTION	CLASS HOURS	HOMEWORK HOURS (Max. 7h)
1	1	Overview of probability	X			No	Overview of the required key concepts from probability theory (e.g., independence, sum of random variables). Classic probability distributions.	1,5	6,5
1	2	Exponential random variable.	X			No	Distribution and density functions. Survival function. Key properties of the exponential r.v. Addition of exponential random variables.	1,5	
2	3	Poisson arrival processes.	X			No	Arrival processes. Definitions of a Poisson arrival process and their equivalence. Palm–Khintchine theorem.	1,5	6,5
2	4	Discrete-time Markov chains I	X			No	Definition of discrete-time Markov chain.	1,5	

							Properties. Evolution of the process.		
3	5	Discrete-time Markov chains II	X			No	Irreducible and aperiodic Markov chains. Stationary state distribution.	1,5	6,5
3	6	Problems	X			No	Solution to selected problems from the problem set.	1,5	
4	7	Midterm	X			No	Midterm evaluation.	1,5	6,5
4	8	Continuous-time Markov chains I	X			No	Definition. Relation to the discrete-time counterparts. Modelling examples.	1,5	
5	9	Continuous-time Markov chains II	X			No	Computation of the steady-state distribution.	1,5	6,5
5	10	Queueing Theory I	X			No	Queueing theory key concepts. Elements of a queue. Little's theorem..	1,5	
6	11	Queueing Theory II	X			No	Basic systems: M/M/1, M/M/m	1,5	6,5
6	12	Queueing Theory III	X			No	Finite-capacity systems: M/M/1/k, M/M/m/m	1,5	
7	13	Queueing Theory IV	X			No	Introduction to the modelling of networks of queues. Output process of an M/M/1. Kleinrock's approximation. Jackson's networks	1,5	6,5
7	14	Problems	X			No	Solution to selected problems from the problem set.	1,5	
<b>Subtotal 1</b>								<b>21</b>	<b>45,5</b>
<b>Total 1 (Hours of class plus student homework hours between weeks 1-7)</b>								<b>66,5</b>	
15		Tutorials, handing in, etc.							

16	Assessment							6,5	
								<b>Subtotal 2</b>	
							<b>Total 2</b>		
<b>TOTAL (Total 1 + Total 2. Maximum 90 h)</b>								<b>73</b>	