

MODELLO D (inglese)	
General Information	
Academic subject	DISTRIBUTED SYSTEMS
Degree course	LM-18
Curriculum	COMPUTER SCIENCE
ECTS credits	6 (4+2)
Compulsory attendance	No
Language	ENGLISH

Subject teacher	Name Surname	Mail address	SSD
	Sebastiano Pizzutilo	sebastiano.pizzutilo@uniba.it	INF/01

ECTS credits details			
Basic teaching activities	Tip B	4T1 + 2T2	

Class schedule	
Period	24 Sept 2018 -> 12 jan 2019
Year	2018-2019
Type of class	Lecture- workshops

Time management	
Hours	62
Hours of lectures	32
Tutorials and lab	30

Academic calendar	
Class begins	24 sept. 2018
Class ends	12 jan 2019

Syllabus	
Prerequisites/requirements	Principal concepts of operating systems and computer networks together with a good capacity of abstraction and formalization.
Expected learning outcomes (according to Dublin Descriptors) (it is recommended that they are congruent with the learning outcomes contained in A4a, A4b, A4c tables of the SUA-CdS)	<p><i>Knowledge and understanding</i> Profound knowledge of communication processes (IPC) in distributed systems and of the architectural aspects which allow systems cooperation and interoperation. Knowledge of models and techniques used in D.S , aimed at defining Distributed Systems analysis, requirements, and evaluation.</p> <p><i>Applying knowledge and understanding</i> Students should acquire the capability to classify Distributed Systems Architectures and to evaluate different types of D.S., based on different programming paradigm .</p> <p><i>Making informed judgements and choices</i> Capability to have a critical approach to the evaluation of a Distributed System on the base of different architectures, performances and security functions of a D.S.</p> <p><i>Communicating knowledge and understanding</i> Student proficiency in D.S. terminology and in the ontology of used methods allow to justify a</p>

	<p>critical evaluation of a D.S. .</p> <p><i>Capacities to continue learning</i></p> <p>The knowledge of communication, synchronization and concurrency of remote processes is the base of a sufficient level of the student learning. A deep knowledge of mature experiences and of the evolution of D.S. are elements that permit to evaluate the achievement of an excellent level of competence.</p>
Contents	<ol style="list-style-type: none"> 1. Introduction and terminology 2. Foundations: <ul style="list-style-type: none"> ➤ Inter-process communication (IPC) ➤ Remote process concurrency and synchronization ➤ Naming services 3. Distributed Systems Architectures: <ul style="list-style-type: none"> ➤ Centralised and Decentralised architectures: ➤ Synchronous and asynchronous communication, multilayered architectures ➤ Peer-to-peer systems. 4. Architecture types: <ul style="list-style-type: none"> ➤ Overlay network; not structured overlay network; Superpeer; hybrid network ➤ Cluster: architecture and host communication methods; features (Fail-over service, Load-balance, ...) ➤ Grid: architecture and host communication methods ; features ➤ Pervasive systems: domotic systems (PDA, smart phone, recommender systems, ...), health Area Network) sensors network (Mesh network, Mobile ad hoc network,...) 5. Distributed Systems Security: <ul style="list-style-type: none"> ➤ Tools and mechanisms for security; cryptography; authentication and key distribution; Kerberos 6. <i>UNIX remind: kernel, file system, processes, threads, daemons, Network administration, NFS</i> 7. <i>Remote processes communication: the tools (socket, RPC, JAVA RMI)</i> <p>CONTENTS (in English, min 10, max 15 lines, Times New Roman 10,)</p> <ol style="list-style-type: none"> 8. Distributed Systems Security: <ul style="list-style-type: none"> ➤ Tools and mechanisms for security; cryptography; authentication and key distribution
Course program	
Bibliography	<ul style="list-style-type: none"> - A. Tanenbaum e M. van Steen, Distributed Systems: Principles and Paradigms ed. Pearson-Prentice Hall, edition 2007. - Lecture Notes: slides of each lesson sent to students by email and on the following platform : http://multimedialab.di.uniba.it:8080/moodle.
Notes	Lectures and interaction with the e-learning platform http://multimedialab.di.uniba.it:8080/moodle
Teaching methods	
Assessment methods (indicate at least the type written, oral, other)	<p>The exam is made of a written part (exoneration test) and an oral discussion of 3 topic from the set of topic explained during the class</p>
Evaluation criteria (Explain for each expected learning)	<p>Capability to have a critical approach to the evaluation of a Distributed System on the base of different architectures, performances and security functions of a D.S. has to be the main evaluation criterion.</p> <p>Student proficiency in D.S. terminology and in the ontology of used methods allow to justify a</p>

outcome what a student has to know, or is able to do, and how many levels of achievement there are.	critical evaluation of a D.S. .
Further information	