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General Information	
Academic subject	Cloud Computing
Degree course	Master of Science (MSc) in Computer Science (LM18)
Curriculum	Software and Services Engineering
ECTS credits	6
Compulsory attendance	No, but attendance is strongly recommended
Language	English

Subject teacher	Name Surname	Mail address	SSD
	Antonio Piccinno	antonio.piccinno@uniba.it	INF/01

ECTS credits details			
Basic teaching activities	Lectures	4 T1 credits	
	Guided exercises	1 T2 credit	
	Student project	1 T3 credit	

Class schedule	
Period	1st semester
Year	2nd year
Type of class	Lecture - workshops

Time management	
Hours	47
Hours of lectures	32 (4 credits)
Tutorials and lab	15 (1 credits)

Academic calendar	
Class begins	28th September 2020
Class ends	13th January 2021

Syllabus	
Prerequisites/requirements	Formal prerequisites: none Cultural prerequisites: knowledge of networking and distributed system concepts (necessary), knowledge of a programming language (relevant), first year courses (important).
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)	*Knowledge and understanding* Acquisition of knowledge about the Cloud Computing field. The content of the course will be focused on theory and practice of cloud software and applications. Students will learn specifics about software as a service (Saas), platform as a service (Paas), infrastructure as a service (IaaS), server and desktop virtualization and other topics related to cloud computing. *Applying knowledge and understanding* Acquisition of the necessary skills to solve problems in new or unfamiliar areas regarding issues related to cloud services or the adoption of cloud solutions. The course is supported by real-world case studies and the contents ideal for developers who will build the cloud solutions of the future.

	Making informed judgements and choices Integration of the knowledge acquired in the curriculum to manage complex problems also on the basis of limited and incomplete information. Acquiring autonomy of judgement with respect to the ethical implications and professional responsibilities of IT practice. *Communicating knowledge and understanding* Ability to communicate the results obtained to specialist and non-specialist interlocutors, as well as the development of collaborative skills that are indispensable for team work. *Capacities to continue learning* Achieving autonomy in the study and in the identification and definition of innovative solutions in the field of cloud computing.
Contents	**Part I: Cloud Computing Fundamentals** • Cloud Computing • Software as a Service (SaaS) • Platform as a Service (PaaS) • Infrastructure as a Service (IaaS) • Identity as a Service (IDaaS) • Data Storage in the Cloud • Collaboration in the Cloud • Virtualization • Securing the Cloud • Disaster Recovery and Business Continuity and the Cloud • Service-Oriented Architectures (SOA) **Part II: Managing Cloud Services** • Managing the Cloud • Migrating to the Cloud • Cloud and Mobile Devices • Governing the Cloud **Part III: Implementing Cloud Services** • Evaluating the Cloud's Business Impact & Economics • Designing Cloud-Based Applications • Coding Cloud-Based Applications • Application Scalability
Course program	
Bibliography	Kris Jamsa, Cloud Computing - SaaS, PaaS, IaaS, Virtualization, Business Models, Mobile, Security and More, Jones & Bartlett Learning, ISBN: 9781449647391, 2013. Anthony Velte, Toby Velte, Robert Elsenpeter, Cloud Computing, A Practical Approach, McGraw-Hill, ISBN: ISBN-13 : 978-0071626941, 2010.
Notes	Bibliography will be integrated with the slides available on the e-learning platform.

Teaching methods	Lectures and tutorials supported by slides and demos. During the practice lessons students will use and implement cloud services.
Assessment methods (indicate at least the type written, oral, other)	The learning assessment will already begin during the laboratory lessons. Lab assessment: - tasks assigned and supervised by the lecturer (for students regularly attending the course) - implementation of a cloud service assigned by the lecturer (for students not regularly attending the course) Oral assessment: - oral test, including questions about the course program (for all students)
Evaluation criteria (Explain for each expected learning outcome what a student has to know, or is able to do, and how many levels of achievement there are.	The students should know the concepts presented and discussed during classes and be familiar with the tools introduced in the tutorials and lab sessions. The score of the exam is given by means of a mark in 30th. The oral examination accounts for 60% of the score, the discussion of the Lab work accounts for about 30% of the final grade, the active participation of students in frontal and online activities will be about 10% of the final grade.
Further information	