

# Polytechnic Institute of Viseu

## School of Technology and Management of Viseu

Course title	Cloud Services and Continuous Delivery		
Scientific area	Informatics Engineering		
Teaching method	Mainly practical, supported by theoretical presentation of concepts and techniques		
Lecturers:	<b>Carlos Cunha</b> <b>Filipe Caldeira</b>	Language of instruction	English
ECTS	5	Semester	Spring
Hours per week	1,5	Hours per semester	19,5 TP 13 OT
Objectives of the course	<p>Develop skills related to technologies and services such as virtualization and cloud computing. Gather theoretical knowledge and practical experience on the proposed subject.</p> <p>Exploit virtualization and the cloud to create full DevOps pipelines. Structure an application for automated testing and deployment. Configure the infrastructure for deployment using containers.</p>		
Entry requirements	<p>Knowledge of operating systems – Usage and administration</p> <p>Programming skills (recommended)</p> <p>Concepts of computer network and administration</p>		
Course contents	<ul style="list-style-type: none"> <li>- Virtualization: History and main Concepts; Virtualization platforms; Installation; Configuration; Performance; Fault tolerance; Recovery. Complemented with practical labs.</li> <li>- Cloud Computing: Concepts and objectives; Architectures; Platforms; Computational infrastructure; Implementation; Storage; Applications and services; Quality of Services; Risks and Vulnerabilities. Complemented with practical labs.</li> <li>- Technologies and cloud computing infrastructures; Utility Computing.</li> <li>- Storage Infrastructure: basic storage services; storage virtualization; cloud storage.</li> <li>- Testing: characterization of different types of tests; test automation.</li> <li>- Integration and deployment: continuous integration and deployment in container-based platforms.</li> </ul>		
Assessment methods	<p>Exam 40%</p> <p>Practical assignments 60%</p>		
Recommended readings	<p>Kavis, Michael J. (2014). Architecting the Cloud: Design Decisions for Cloud Computing Service Models (SaaS, PaaS, and IaaS) John Wiley &amp; Sons, New Jersey. ISBN-13: 978-1118617618 Sahoo, J.; Mohapatra, S.; Lath, R., "Virtualization: A Survey on Concepts, Taxonomy and Associated Security Issues," Computer and Network Technology (ICCNT), 2010 Second International Conference on , vol., no., pp.222,226, 23-25 April 2010.</p>		

	<p>M. Zhou, R. Zhang, D. Zeng and W. Qian, "Services in the Cloud Computing era: A survey," 2010 4th International Universal Communication Symposium, Beijing, 2010, pp. 40-46,</p> <p>Whitmore, Andrew; Agarwal, Anurag; Li Da Xu; "The Internet of Things—A survey of topics and trends", Information Systems Frontiers Journal, Vol 17, Issue 2, pp 261-274, Springer US, 2015</p> <p>Nigel Poulton, "Docker Deep Dive", Independently published, ISBN 978-1521822807</p> <p>Arnon Axelrod, "Complete Guide to Test Automation: Techniques, Practices, and Patterns for Building and Maintaining Effective Software Projects", Apress; 1st ed., 2018</p> <p>Selected papers, internet resources and book chapters for each specific topic.</p>
Additional information	