

Program	09TT- Engineering in Telecommunication Technologies and Services
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Course number and name	
Number	95000054
Name	Data and Service Provisioning Centers Centros de Datos y de Provisión de Servicios
Semester	Y4-7S

Credits and contact hours	
ECTS Credits	4.5
Contact hours	45

Coordinator's name	Alejandro Alonso
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Specific course information		
Description of course content		
<p>Currently, there exist very complex telematic systems. There are web sites with a huge number of accesses, a large number of users and that deals with a large amount of information. Cloud computing is an emerging and very useful service. It allows offering telematic services, computing capacity or large available storage that can be accessed by internet.</p> <p>Users require efficient, reliable and safe services. The means for providing services with these features are complex. They require large facilities with a large number of interconnected computers, with storage systems with huge capacities, and with communication systems for providing the required bandwidth for internal and external interactions. In addition, these facilities include infrastructure software that is able to provide the required services to the final users. These facilities are named data centers, and they are the central subject of this course.</p>		
List of topics to be covered		
Introduction to data centers, operating systems, systems and services management, data centers components and architecture, cloud computing, data centers management.		
Prerequisites or co-requisites		
Foundations of Telematics Systems, Computer Programming, Telecommunication Networks and Services, Analysis and Design of Software, Internet Computing, Computer Networks		
Course category in the program		
<input type="checkbox"/> R (required)	<input checked="" type="checkbox"/> E (elective)	<input type="checkbox"/> SE (selective elective)

Specific goals for the course

Specific outcomes of instruction

- RA-1: To know the functions, requirements, architecture and components of a data center.
- RA-2: To know the basic mechanisms of resource management of an operating system
- RA-3: To understand the influence of hardware devices and the configuration of an operating system on the computer performance.
- RA-4: To understand the concept of virtual machine and its basic operation mechanisms.
- RA-5: To know the basic principles on the systems and applications management.
- RA-6: To develop simple programs for automating administration and maintenance system activities
- RA-7: To develop telematics services running on top of virtual machines
- RA-8: To know the storage, processing, communication and ALIMENTACIÓN in a data center.
- RA-9: To know data centers configuration methods, and their capacity and performance estimation.
- RA-10: To know the architecture and functions of a cloud computing system, and the different types of services that it can offer.
- RA-11: To develop services based on a cloud computing system.
- RA-12: To know the basic principles on the administration and business model of a data center.
- RA-13: To know the basic methods for monitoring and managing the capacity of a data center.

Student outcomes addressed by the course

CG1, CG2, CG5, CG7, CG9, CG12
 CE-TL1, CE-TL2, CE-TL3, CE-TL6, CE-TL7.

Bibliography and supplemental materials

- Operating System Concepts with Java. braham Silberschatz, Peter Galvin, y Greg Gagne, 8ª edition, 2011, Addison Wesley
- Linux Programming Unleashed, Kurt Wall, 2ª edition, 2001, Sams.
- Programming Python, 4th Edition, Mark Lutz, O'Reilly Media, 2010
- Cloud Application Architectures, O'Reilly, 2009
- Foundation of Green IT: Consolidation, Virtualization, Efficiency, and ROI in the Data Center, Marty Poniatowski, Prentice-Hall, 2010
- Tutorials, user manuals and videos about the software tools used in the course practical assignments

Teaching methodology

X lectures	X problem solving sessions	___ collaborative actions	X laboratory sessions
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Other: